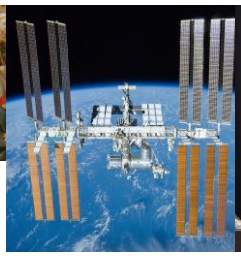



TEXAS SCIENTIFIC ITALIAN COMMUNITY

In Collaboration With:

RICE UNIVERSITY
CLIC
Center for Languages and Intercultural Communication

RICE

RICE UNIVERSITY
Smalley-Curl Institute

15TH CONFERENCE OF ITALIAN RESEARCHERS IN THE WORLD

HOUSTON ~ DECEMBER 12, 2020

Under the Auspices of the

Camera dei Deputati

Istituto Superiore di Sanità

Consiglio Nazionale delle Ricerche

Ministero dell'Università e della Ricerca

Ministero degli Affari Esteri e della Cooperazione Internazionale

Ministero della Salute

ENEA
Italian National Agency for New Technologies, Energy and Sustainable Economic Development

C I G E

Message from the Conference Chairman

Con grande entusiasmo rivolgo il mio saluto ai partecipanti della quindicesima Conferenza dei Ricercatori Italiani nel Mondo. È la prima volta che questa manifestazione si svolge in formato online. Ci saremmo dovuti incontrare nel mese di Aprile, ma, a causa della pandemia non è stato possibile. Anche virtualmente oggi questo evento straordinario mette in luce i grandissimi risultati dei ricercatori italiani e la loro perseveranza.

Desidero fare la breve panoramica di un percorso iniziato a Dallas quindici anni fa, quando ci incontrammo per la prima edizione nel giorno celebrativo della festività dedicata alla comunità italo americana, il Columbus Day, assieme ai rappresentanti del Comites, del CTIM, in cooperazione con il Consolato Generale d'Italia a Houston, e con il patrocinio del Ministero per gli Italiani nel Mondo. Quel giorno si volle esaltare l'identità, la genialità, l'eccellenza, e la qualità della ricerca e dei ricercatori Italiani. La localita` della Conferenza nel corso degli anni si è trasferita a Houston, e la manifestazione è cresciuta notevolmente con i vari e numerosi interventi provenienti da varie parti del mondo, nei settori dell'aerospazio, dell'energia, della medicina, delle nuove tecnologie (STEM), della robotica, e delle materie umanistiche, attraendo l'interesse delle Istituzioni scientifiche e dedite alla ricerca, e con il riconoscimento ed i patrocini delle più alte cariche Istituzionali, degli Enti Ministeriali e Governativi Italiani e Texani. In varie edizioni sono stati presenti ed hanno sostenuto l'evento ed i suoi scopi i rappresentanti del Governo e del Parlamento Italiano, gli Ambasciatori, e gli Addetti della diplomazia Scientifica.

Grazie alle presentazioni ed i progetti dei partecipanti sono nate collaborazioni tra enti accademici, università, e centri di ricerca. Tutto questo ha incrementato il network e ha favorito i processi di internazionalizzazione che promuovono il settore dello sviluppo e dell'innovazione tecnologica italiana in Nord America ed in altre nazioni con le conseguenti potenziali opportunità. Tutto questo ha promosso i principali obiettivi che rientrano tra gli scopi dell'evento. Anche quest'anno, nel segno della continuità, la manifestazione ha ricevuto il riconoscimento e gli auspici di numerose Autorità. Alcuni di loro hanno manifestato il loro apprezzamento con dei video. Nell'attuale stato di emergenza pandemica, c'è stata la significativa partecipazione di una rappresentanza delle Associazioni che svolgono un ruolo importante nel contribuire concretamente alla promozione del sistema Italia nel settore delle innovazioni, delle scienze, e della ricerca, mettendo a disposizione le loro risorse per raggiungere una proficua cooperazione internazionale, per il trasferimento tecnologico e per il marketing territoriale. Nell'ultimo periodo pre-Covid il numero dei ricercatori e professionisti è salito in maniera esponenziale, quindi avere dei punti di riferimento nelle Associazioni di categoria per un ruolo di carattere assistenziale e promozionale è elemento fondamentale.

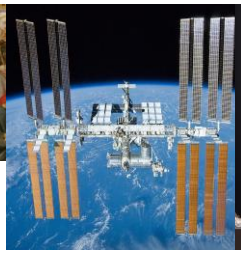
Ad ogni conferenza, a seguito dei dibattiti tra gli autorevoli partecipanti, sono emerse nuove proposte e idee. Anche da questo evento bisognerebbe tracciare alcuni obiettivi per il 2021, quali ad esempio: la continuità nell'organizzare webinars mensili per tematiche specifiche; l'ampliamento del networking; l'intensificazione della collaborazione tra le Associazioni; l'approfondimento dell'aspetto informativo e comunicativo grazie al canale Rai Italia e con la possibile creazione di una rubrica sulla ricerca e sui ricercatori italiani nel mondo e sulle Associazioni che operano attivamente sul territorio; l'estensione dell'organizzazione della conferenza non solo fuori dai confini Texani, come accaduto già nel 2019 grazie alla egregia ospitalità della Miamisic nel sud est della Florida, ma anche in altri paesi nel mondo, ed idealmente, in tempi migliori con un evento annuale da organizzare nella capitale d'Italia.

Sembra ieri quando abbiamo cominciato ma sono passati ben 15 anni, e colgo l'occasione di questa straordinaria nuova edizione per ringraziare il Prof. Alberto Pimpinelli, presidente della Texas Scientific Italian Community, i componenti del comitato organizzatore della XV Conferenza, la Rice University di Houston per l'ospitalità, le Autorità, i Rappresentanti Istituzionali e delle Associazioni, gli Enti patrocinatori, gli Sponsors, ma anche tutti i collaboratori, i moderatori, ed i volontari che nel corso degli anni fino alla data odierna hanno fatto sì che questa manifestazione potesse continuare a crescere. Con questa quindicesima edizione un'altra tappa è stata raggiunta grazie alla professionalità e all'impegno dei veri protagonisti di oggi, i ricercatori, che grazie ai loro studi e progetti proseguono la nostra missione nel promuovere l'identità e la cultura scientifica italiana nel mondo.

Con immensa stima e ammirazione.

Vincenzo Arcobelli




TEXAS SCIENTIFIC ITALIAN COMMUNITY

RICE UNIVERSITY
Smalley-Curl Institute

Smalley-Curl Institute
Applied Physics Graduate Program

Alberto Pimpinelli, PhD
Executive Director
The Smalley-Curl Institute
Rice University

President,
The Texas Scientific Italian Community

To all the participants and the speakers at the XV Conference of the Italian Scientists and Scholars in the World,

On behalf of the Texas Scientific Italian Community, that organized this event, and of Rice University, that sponsored it, I am honored and proud to thank all of you for your essential contribution to the Conference's success.

As you may know, it had been decided during 2019 to have this Conference in April 2020 on the Rice University campus. Then the pandemic hit, and it became impossible to hold the meeting in person. The event was canceled, and discussions started about postponing it to 2021, or possibly later.

During 2020, similar situations repeated over and over; we had to learn how to use communication technologies to meet in groups at a distance and eventually we made a virtue of necessity, organizing "virtual" seminars and conferences that we could attend while sitting in our homes. Drawing on this recently acquired expertise, it was decided decided that the XV Conference of the Italian Scientists and Scholars in the World would take place in 2020 as planned. As a matter of fact, it was apparent that for the first time since its beginning, the Conference could actually live up to its name, and that scientists and scholars from all over the world, freed from the need to be physically present in a conference room in Texas, would be able to participate in its proceedings.

That the meeting could take place at all; and that for eight hours on a Saturday, speakers from all over the US, from Mexico, France and Italy could smoothly take turns to deliver professional presentations describing their work and showcasing the cutting-edge contributions of Italian scientists, scholars and industries in medicine, energy, aerospace, science and engineering as well as in the humanities, was certainly a tribute to technology, but especially to the excellence of the speakers and to the enthusiasm of all the attendees.

Excellence, enthusiasm scientific rigor and creativity are among the essential components of the contributions that Italian scholars, scientists and engineers in Universities, research centers and companies all over the world bring every day in support of the global effort to incessantly push the boundary of human knowledge; and to transfer that knowledge into innovative technologies for the benefit of humankind. Celebrating such contributions has been one of the objectives of these annual Conferences for 15 years. Championing new opportunities to create a fertile ecosystems for all the Italian scholars, scientists, engineers and high technology companies in the South of the US is the main objective of the Texas Scientific Italian Community.

Best regards,

Alberto Pimpinelli

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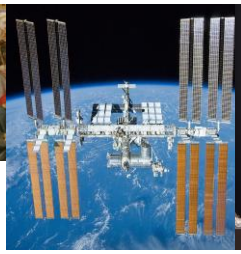


TEXAS SCIENTIFIC ITALIAN COMMUNITY

GOVERNOR GREG ABBOTT

Greetings:

As Governor of Texas, I am pleased to welcome you to the XV Conference of Italian Researchers in the World.

The Lone Star State boasts a rich cultural heritage, reflecting a diverse and talented population. Since the early days of our history, people have traveled from lands both near and far to call Texas home, adding to the vibrancy and uniqueness of our great state. As we celebrate and embrace our mutual heritage as Texans, it is important to remember the significance of our varied backgrounds, cultures, and traditions in building the Texas we see today.

For hundreds of years, Texas has been deeply influenced by individuals of Italian descent, and to recognize this part of our shared history, a variety of cities with large Italian-American populations host various Italian cultural celebrations in honor of their heritage. The Texas Scientific Italian Community continues to play an important role in shaping this legacy by promoting research and science as well as honoring Italian heritage and culture.

I hope this video conference provides your organization with the opportunity for you all to network and celebrate the many achievements and successes of Italians and Italian Americans, especially in fields of science, medicine, technology, law, and the humanities. The Lone Star State joins you in celebrating the impact that Italian culture has had and continues to have on our everyday lives.

First Lady Cecilia Abbott joins me in sending best wishes for an enjoyable and informative conference.

Sincerely,

Greg Abbott
Governor

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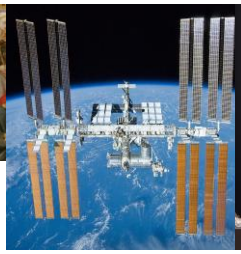



TEXAS SCIENTIFIC ITALIAN COMMUNITY

Senato della Repubblica
Il Presidente

TEXAS SCIENTIFIC ITALIAN COMMUNITY

15a Conferenza internazionale dei Ricercatori Italiani nel Mondo

12 dicembre 2020

Messaggio del Presidente del Senato

Invio con grande piacere il mio saluto alla quindicesima Conferenza Internazionale dei Ricercatori Italiani nel Mondo.

Un prezioso momento di condivisione e confronto di esperienze, competenze, idee e progetti ai più alti livelli accademici e scientifici.

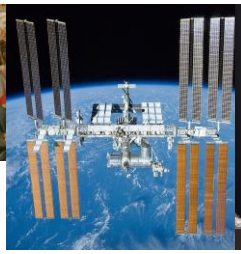
Il genio, le capacità e l'impegno dei ricercatori italiani sono da sempre motivo di profondo orgoglio nazionale: espressione di una energia creativa inesauribile al servizio della conoscenza, del progresso, dell'innovazione.

Ora più che mai, di fronte a un'emergenza globale senza precedenti, la ricerca si sta dimostrando la cura migliore per vincere tante paure e tante sofferenze.

E questo perché la ricerca ha il potere di metterci in condizione di conoscere e di comprendere ciò che ancora non conosciamo e di rendere possibile ciò che sembrava impossibile.

E' grazie alla ricerca medica se oggi possiamo sperimentare i primi vaccini per sconfiggere la pandemia e restituire alle persone quella sicurezza sanitaria che è vitale per una vera ripartenza del lavoro, dell'economia e di tutta la società.




TEXAS SCIENTIFIC ITALIAN COMMUNITY

Senato della Repubblica
Il Presidente

E sarà sempre grazie alla ricerca scientifica in ogni campo del sapere, dall'ingegneria alla fisica, dall'economia alle materie umanistiche, che sarà possibile innovare e studiare nuovi e più efficienti modelli di sviluppo su cui costruire un futuro più solido e sicuro per molte generazioni.

Credere nella ricerca, sostenere la ricerca, investire nella ricerca e nel potenziale dei nostri talenti e delle nostre eccellenze, tanto in Italia quanto in ogni angolo del mondo, deve quindi essere alla base di ogni politica pubblica veramente responsabile e lungimirante.

Una consapevolezza che eventi come questo prestigioso meeting, possono contribuire ad accrescere e rafforzare, traducendosi in un crocevia di stimoli e iniziative in un percorso di progresso e di opportunità a cui non farò mai mancare la mia convinta adesione.

Maria Elisabetta Alberti Casellati

TEXAS SCIENTIFIC ITALIAN COMMUNITY

Ministero dell'Università e della Ricerca

Ministro Prof. Gaetano Manfredi

Roma, 23 dicembre 2020

Carissimi,

la comunità dei ricercatori italiani all'estero rappresenta una grande risorsa per il nostro Paese, una sorta di antenna tecnologica che funge da punto di riferimento per quanti hanno intrapreso una strada didattica e professionale al di fuori dei nostri confini. Un prezioso supporto per il percorso formativo di tanti giovani, studenti e ricercatori, i quali hanno modo di poter contare su di un contatto, un'azione di mentoring, un sostegno fattivo nella loro esperienza all'estero. C'è il grande impegno del ministero che io rappresento, quello dell'Università e della Ricerca, e di tutto il Governo della Repubblica italiana a mantenere un interscambio continuo con le nostre comunità di ricercatori e scienziati che si trovano in altri Paesi. Mi auguro che questo rapporto continui ad essere solido e da parte nostra c'è la massima disponibilità ad accogliere i suggerimenti dei ricercatori italiani all'estero, a confrontarci e a fare in modo che le competenze e le eccellenze di cui siete portatori possano sempre rappresentare una risorsa preziosa per l'Italia.

Prof. Gaetano Manfredi

TEXAS SCIENTIFIC ITALIAN COMMUNITY

Ministero della Salute
Il Viceministro

Dr. Alberto Pimpinelli
Presidente
Texas Scientific Italian Community
info@texasic.org

Prot. n. 2020/VM/

Gentile Presidente Pimpinelli,

sono lieto di portare i saluti istituzionali a nome del Ministero della Salute per questa importante occasione di condivisione di cultura scientifica e innovazione che riveste la XV Conferenza dei Ricercatori Italiani nel Mondo.

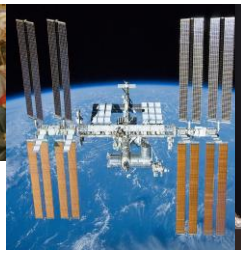
Avendo fatto esperienza in prima persona di un percorso di formazione e lavorativo proprio negli Stati Uniti, posso affermare di conoscere da vicino la realtà della ricerca italiana all'estero e testimoniarne l'eccellenza che riveste in molti ambiti. Non solo quello della medicina, ma anche della tecnologia, della fisica, dell'ingegneria, della chimica, solo per citare alcune delle branche in cui l'Italia è davvero protagonista nello scenario internazionale.

Come Ministero della Salute ho piacere di evidenziare che proprio con l'Università del Texas, in particolare con l'MD Anderson Center, si sia instaurata già da alcuni anni una proficua collaborazione fra la rete degli Istituti di Ricovero e Cura a Carattere Scientifico oncologici italiani e Alleanza Contro il Cancro, per sviluppare nuove strategie cliniche per il trattamento dei pazienti oncologici.

A questa iniziativa è seguita la firma della Joint Declaration Italia – USA per la cooperazione scientifica e tecnologica, siglata il 7 dicembre 2018, ma che prosegue un percorso di collaborazione internazionale già avviato anni prima, nel reciproco riconoscimento dell'importanza di una stretta partnership fra le due nazioni per lo sviluppo dei rispettivi settori scientifici e tecnologici.

Ufficio del Viceministro Sen. Prof. Pierpaolo Sileri – tel. 06 5994 [illegible] – ufficio.viceministro@sanita.it
Ministero della Salute Lungotevere Ripa n. 1 00153 Roma (RM)




TEXAS SCIENTIFIC ITALIAN COMMUNITY

Ministero della Salute
Il Viceministro

Desidero esprimere vivo apprezzamento per l'innovazione e per il valore della cultura scientifica che state promuovendo, grazie a questo momento di condivisione di conoscenze ma soprattutto al vostro impegno quotidiano.

Vi auguro buon lavoro nel continuare a portare il vostro prezioso contributo in un processo di internazionalizzazione e networking proficuo, per la comunità scientifica nazionale e mondiale. Non da ultimo, auspico che l'Italia sappia riportare e trattenere nel proprio Paese il capitale umano che rappresentate e che riesca a premiare davvero, come merita, la ricerca e l'innovazione nazionale, asset imprescindibile di crescita e progresso.

A tutti voi i miei più cordiali saluti e gli auguri per un evento di sicuro successo.

Pierpaolo Sileri

Roma, 10 dicembre 2020

Ufficio del Viceministro Sen. Prof. Pierpaolo Sileri - 39 0659945778 - ufficio.viceministro@sanita.it
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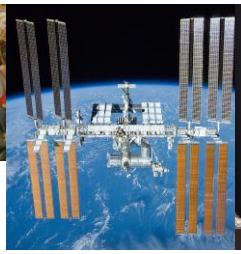



TEXAS SCIENTIFIC ITALIAN COMMUNITY

ISTITVTO SVPERIORE DI SANITA

Istituto Superiore di Sanità

Messaggio del Prof. Silvio Brusaferro, Presidente dell'Istituto Superiore di Sanità

in occasione

della XV edizione della Conferenza dei "Ricercatori Italiani nel Mondo"

La Conferenza dei Ricercatori Italiani nel Mondo continua a celebrare l'importante lavoro svolto a tutto campo dai ricercatori italiani nel mondo e a rappresentare un'occasione di incontro tra studiosi internazionali con profili multidisciplinari ma animati dalla stessa passione nel favorire la trasmissione dei nuovi risultati della ricerca al mondo produttivo.

Questa edizione, nel coincidere con l'inaugurazione ufficiale dell'Organizzazione Scientifico-Culturale non a scopo di lucro "Texas Scientific Italian Community (TSIC)", sottolinea ancora di più l'importanza dello scambio di idee e di esperienze significative tra scienziati per favorire l'apprendimento e l'accumulazione della conoscenza.

Concludo porgendo a nome mio personale e dell'istituzione che rappresento i migliori auguri di un sereno e proficuo lavoro a tutti i partecipanti all'evento.

Silvio Brusaferro

TEXAS SCIENTIFIC ITALIAN COMMUNITY

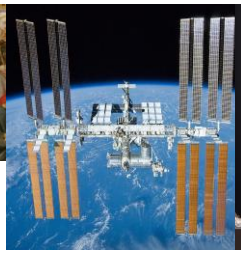
Message from Consul General of Italy:

Buongiorno a tutti e molte grazie Prof. Pimpinelli per l'introduzione alla conferenza.
Sono molto lieto di essere con voi oggi, anche se solo in modo virtuale, e ho l'onore di portare a tutti i partecipanti i saluti dell'Ambasciatore d'Italia a Washington Armando Varricchio.
Vedo dal programma della conferenza che saranno toccati molti temi interessanti: vari settori della ricerca scientifica (scienze della vita soprattutto), il settore umanistico, ma anche aerospazio ed energia.
In tutti questi campi nel corso degli anni, così come in tante altre aree, i nostri ricercatori hanno continuato e continuano a dare lustro al nostro paese come ampiamente dimostrato dai difficilissimi mesi di lockdown e dalla pandemia che stiamo vivendo, solo per citare i più recenti esempi.
Di particolare importanza la sessione introduttiva che verrà dopo i saluti iniziali con la presenza di altre associazioni di ricercatori italiani presenti negli Stati Uniti e in Messico, un maggior dialogo e un proficuo scambio di idee tra ricercatori ed associazioni non può che far bene alla nostra ricerca scientifica ed è fortemente incoraggiato dalle istituzioni italiane.
Come avete potuto vedere nel corso degli ultimi mesi la diplomazia scientifica ha un ruolo sempre più importante per l'Italia e proprio nella prospettiva di un rilancio strategico del nostro sistema, il Ministero degli Esteri negli ultimi mesi ha ottenuto un considerevole incremento di disponibilità di risorse finanziare anche a vantaggio della nostra rete all'estero e ha disposto un ampliamento di diverse posizioni di addetto scientifico tra le quali per gli Stati Uniti ricordo le sedi di Boston e di Houston. Questa per me è una notizia molto positiva.
L'espansione della rete degli addetti scientifici negli Stati Uniti, come recentemente sottolineato anche dall'Ambasciatore, consentirà in particolare di rafforzare il legame tra i due paesi in ambito scientifico e tecnologico, aumentando il già elevato numero di progetti di ricerca che sono stati finanziati nel corso degli ultimi trent'anni dall'accordo bilaterale di cooperazione scientifica e tecnologica, in particolare nelle scienze di base e nelle scienze della vita, nonché' per estendere queste attività di cooperazione a nuovi settori e nuove tecnologie come per esempio l'intelligenza artificiale, la robotica, i sistemi e veicoli autonomi, manifattura avanzata e tecnologie quantistiche oltre ovviamente al settore aerospaziale che ci vede prima linea nella cooperazione con gli Stati Uniti.
Con queste buone notizie e in attesa di ascoltare gli interessantissimi interventi nel corso della giornata formulo a tutti i partecipanti alla conferenza gli auguri di buon lavoro.

Federico Ciattaglia

Consolato Generale d'Italia a Houston




TEXAS SCIENTIFIC ITALIAN COMMUNITY

Consiglio Generale degli Italiani all'Estero
Segretario generale

Alla pregiata attenzione
Prof. Alberto Pimpinelli Presidente
della Texas Scientific Italian
Community

Com.te Vincenzo Arcobelli
Consigliere del CGIE
Conference Chairman

Roma, 10 dicembre 2020

Egregio professore Pimpinelli, caro Vincenzo,

il Consiglio Generale degli Italiani all'Estero ha ricevuto il gradito invito e ringrazia vivamente gli organizzatori della XV edizione della Conferenza dei ricercatori italiani nel mondo, che si svolgerà il 12 dicembre p.v., per la continuità con la quale da anni riuniscono i nostri ricercatori e scienziati portandoli a discutere su argomenti che interessano l'avanguardia della scienza e della ricerca.

Il nostro organismo segue da anni le vostre attività e plaude per l'eccellente opportunità che offre a numerosi studiosi di confrontarsi e discutere su argomenti che interessano il progresso e il futuro dell'umanità. Da molti mesi il mondo sta vivendo un periodo di enormi difficoltà sanitarie causate dal COVID-19 e l'intera umanità è in attesa di antidoti per contrastarlo al fine di favorire il ritorno alla normalità delle relazioni sociali e economiche. Da qui la speranza e l'attesa che la scienza, grazie anche ai nostri scienziati e ricercatori, possa contribuire alla cessazione dell'epidemia.

Constatiamo con grande ammirazione che anche alla XV edizione della Conferenza dei ricercatori italiani nel mondo interverranno scienziati e ricercatori di fama mondiale i quali, oltre a far onore al nostro Paese, si distinguono per aver spinto oltre il confine della conoscenza la scienza e gli studi di ricerca nei campi della medicina, dell'energia e dello spazio.

Gentile professore Pimpinelli, caro Vincenzo nel reiterare i migliori auspici per la realizzazione della XV Conferenza desidero portare a tutti i partecipanti il più sentito saluto e i più sinceri sentimenti di gratitudine per il loro lavoro. Esprimo a nome del Consiglio Generale degli Italiani all'Estero e personalmente i migliori auguri di successo. Cordialmente

Michele Schiavone

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Privato Torggelgasse 8 – 8274 Tägerwilen / Svizzera +41 76 571 1945 michele.schiavone@sunrise.ch

Professor Francesco Ubertini,
Rector of the Alma Mater Studiorum – University of Bologna

Bologna, December 10, 2020

To: Texas Scientific Italian Community
XV Conference of the Italian researchers in the World

Dear colleagues and researchers,

As Rector of the Alma Mater Studiorum – University of Bologna, it is an honour to deliver my warmest greetings on the occasion of the 15th conference of the Italian researchers in the world and I wish to thank the Texas Scientific Italian community and Rice University, a long-standing partner of the university of Bologna.
I would like to seize this opportunity to share some thoughts about the future of universities or, even better, the universities of the future from the perspective of the institution I have the privilege to represent. Despite my involvement in hard sciences, working at an institution with such a relevant and pervasive tradition, like the University of Bologna, made me pray to the charm of history. However, what amazes me more than anything is that, here, past and future are in constant dialogue and truly go hand in hand. Hence, at the Alma Mater, when we wish to ponder about future challenges, we like to go back to our roots in order to build a more solid future.
Before the foundation of our University in 1088, people were coming to Bologna from all over Europe with the objective of finding actual answers to the real needs of society. With this goal in mind, very soon they realized that it was necessary to provide a structured framework to their activities and, as a result, they founded what today would be a student association and back then was called "Universitas". The "Universitas" was an association independent from economical and religious powers and its representative was called Rector.
Stressing this is important because it puts emphasis on the fact that the oldest university in the western world was founded by students and for students as an independent international community to respond to society's real needs: this is our DNA.
Being 1000-year-old is already an incredible result for a university, but what is even more stunning is that the University of Bologna has been active this whole time. How was it possible? Through an on-going process of re-thinking and reinventing. In my opinion, the secret behind such a long history lies in the ability to innovate and continuously pay attention to the present, while anticipating tomorrow by questioning certainties and providing new answers.
Our DNA is the DNA of all "Universities" in the world and with that in mind, I would like to sketch the direction that, from my viewpoint, universities should strive for in their future development. However, before doing so, it is probably necessary to consider the challenges that we are facing

today. Thus, just like our predecessors did almost a thousand years ago, we need to start from the bottom: societies' real needs.

From where I see it, as a global society, we are facing multiple challenges that cluster around two areas: climate change and technological development.

Climate change represents a true global challenge. What is at stake is the future of the whole world, not to mention that of the animals inhabiting it, including humans. I am of the opinion that the fight for sustainability, that is fight against climate change, should be guided by knowledge. Then, who better than universities can lead the world towards a sustainable future? This is why universities' missions and strategic plans should encompass the 17 Sustainable Development Goals (SDGs) as laid out the 2030 UN Agenda. If knowledge is to guide us towards a greener future, then universities should take on the responsibility of producing and disseminating such knowledge.

Technology is nowadays pervasive. We are all witness to an extremely rapid technological change that is causing a great shift in society as a whole. This shift cannot be underestimated and, once again, universities play a pivotal role here. One the one hand, as mentioned before, universities majorly contribute to producing the knowledge that drives technological development and, at the same time, is so fundamental to it. On the other hand, they must provide students with the right toolkit to thrive not only professionally, but also as human beings in their social context and, in a wider sense, in the global connected society. In this framework, we, as university need to train our students to be critical thinkers, problem solvers and, foremost, engaged and responsible citizens that are equipped for life-long learning. Therefore, we should offer a variety of learning spaces and flexible career-building paths that put student at the centre of the learning process, just as our predecessors did. Let us not forget that the oldest university of the world was founded by students and for students after all.

Last but not least: the Covid-19 pandemic. This is probably our most pressing concern right now and it is surely a major crisis determining incredibly large-scale challenges. However, we should not get carried away by the sweeping force of the health crisis. On the one hand, it is true that we are in a state of constant emergency that requires daily acts of collective and individual responsibility as well as prompt responses. On the other hand, this pandemic is acting as an accelerator of change: it boosts the aforementioned challenges and make us question many certainties and convictions. This is where we, as universities can and have to step up and make a difference: understanding the challenges and finding long-term sustainable solutions.

How can universities respond to these challenges? In other words, how can we, as universities, meet the most current and actual needs of society? We are now in a context in which it is urgent and fundamental to achieve and maintain a sustainable development that must encompass a deep technological change, and all this is accelerated and made more pressing by the pandemic. I think that, in this framework, universities should focus on three key qualities: open, engaged and blended.

TEXAS SCIENTIFIC ITALIAN COMMUNITY

Openness should be applied to our missions: open science, open access, open teaching, open innovation. Openness characterized the first "Universitas" and should continue to do so: universities should not have boundaries either locally or globally. We should be open in our dialogue with different stakeholders and society, in our collaboration as well as co-creation of knowledge. Openness is meant here in its broader meaning: inclusive and diverse. In my view, university is no longer a tall ivory tower, but a large square.

Alongside openness, engagement is key. Indeed, universities cannot afford to disregard society and its needs. Being engaged in socially relevant projects and processes is the only way for universities to bring real change and to lead the way for a better future that will impact on everyone's life. Engagement with society will allow for a transition towards a sustainable world, and we all are aware of how much we need this.

Finally, the third key quality: blended. Before the health emergency, I would have used another adjective, i.e. digital. However, now "blended" seems a better option. I am sure, digitalization is growing and will keep doing so, and that digital learning environments as well as remote working will rise to be standard settings in the universities of the future. Nevertheless, I see these as means of enhancing the non-digital, face-to-face experience, not as a replacement of it. Therefore, digital tools and environments should blend and seep through live interactions and the latter will be privileged and not the other way around.

While these three qualities are key to face the challenges I listed, they would be useless if they were not built upon a common set of values that is in our DNA as universities. Indeed, these qualities should be deeply rooted in those fundamental values. I believe we can only imagine the future, if we share the same principles and are available to build our development on values like autonomy and academic freedom. The latter are stated in the Magna Charta Universitatum which was signed in Bologna more than 30 years ago.

It saddens me that such noble principles are very soon under attack and, in many ways as well as in different parts of the world, are not safeguarded. Many threats are on us: fake news, how science and scientists are frequently disregarded or undermined, extreme nationalism – to name but few. Alongside these pending threats, time is passing by and societies have changed significantly making a social pact between societies and universities necessary: we need to be held mutually accountable for our impact on the world.

All these issues call for a reviewed version of the Magna Charta Universitatum, one that equips universities with the adequate set of values to respond to current threats and meet the needs of today's world. Therefore, the Magna Charta Observatory will issue a new revised version of the Magna Charta Universitatum that will be presented in Bologna next year, universities from all over the world will be called to sign it.

Let me make a wish for all of us that these values will guide communities of science and of scientists forever.

Prof. Francesco Ubertini

Professor Francesco Ubertini, University of Bologna Rector

Born in Perugia on 6 February, 1970, he moved to Bologna to study at the University, where he graduated in **Civil Engineering** cum laude and was awarded a PhD in Mechanics of Structures in 1998. He became a university researcher in 2000 and Associate Professor in 2001. Since 2007 he is **Full Professor of Mechanics of Solids and Structures** at the University of Bologna and since 2015 he has been a member of the Academy of Sciences of the Institute of Bologna.

From 2007 to 2015 he held the position of **Head of Department** and from 2012 to 2015 he was a member of the **Academic Senate** of University of Bologna. Among his previous positions, he was President of UniAdrion (2017-2018), President of Bononia University Press, Board member of the Centro Ceramico, member of the Technical Committee on Computational Solid and Structural Mechanics, European Community on Computational Methods in Applied Sciences (2010-2014) and Executive Council member of the Italian Group of Computational Mechanics (2006-2013).

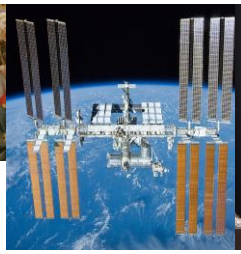
He is member of the **Board of Rectors of UnaEuropa - University Alliance Europe**, board member of **European University Association**, president of **Federico Zeri Foundation**, of **Bologna Business School**, and of **Fibra** - Fondazione culturale Italo Brasiliana. He is Board member of the **Italian University Rectors Conference,** President of the **Magna Charta Universitatum Observatory** and Governing Council of the Observatory of the Magna Charta Universitatum. He is member of the steering committee **IHEA - Italian Higher Education with Africa Foundation**.

He currently teaches the first module of Mechanics of Solids and Structures for the 1st cycle Degree Programme in Civil Engineering.

His research activity focuses on various aspects of them mechanics of solids and structures, with theoretical and applied contributions in many fields of Engineering. These include in particular a) numerical modelling and structural analysis; b) smart structures and innovative materials; c) historical structures and innovative materials; and d) structural monitoring and diagnostics.

He coordinates a large research group that is very active on the international scene and has participated in different roles in many national and European research projects. **He is author of more than 70 papers in international journals and more than 200 papers in national and international conference proceedings.**




TEXAS SCIENTIFIC ITALIAN COMMUNITY

Program

15th Conference of Italian Researchers in the World
12 December 2020

08:30 (CST) – 15:30 (Italian Time) - Sign in

08:45 Welcome

Alberto Pimpinelli
President, Texas Scientific Italian Community (TSIC)

Federico Ciattaglia
Consul General of Italy, Houston

09:15 Opening Remarks

Vincenzo Arcobelli
Conference Chairman

Gaetano Manfredi
Ministro dell'Università e della Ricerca Scientifica

Pier Paolo Sileri
Vice Ministro della Salute

Francesco Ubertini
Rettore, Università di Bologna

09:50 Introduction Associations of Italian Researchers Abroad

Fabio De Furia
President, Miami Scientific Italian Community (MSIC)

Antonio Giordano
President, Sbarro Health Research Organization (SHRO)

Simone Lucatello
President, Associazione Ricercatori Italiani in Messico (ARIM) &
Emilia Giorgetti
Attaché Scientifica Ambasciata d'Italia in Messico

Cinzia Zuffada
President, Italian Scientists & Scholars in North America Foundation (ISSNAF)

Moderator

Patrizia Angelini
Giornalista Rai 1
Inviata TG1-Uno mattina

10:45 Sessions Presentation

AEROSPACE

Moderator

Francesco Fusco
FISE –Executive Director Foundation for International Space Education

Veronica Bindi
Ph.D., University of Hawaii

Space weather and space radiation for future manned missions to the moon and Mars.

Fabrizio Festa
PA & Safety Engineer, European Space Agency (ESA) - The Hague-Netherlands

Orion Mission overview and the road to the next humans on the moon

11: 15

ENERGY

Moderator

Brando Ballerini
President Italy-America Chamber of Commerce, Texas

Francesco Balestrino
Renewable and Green Technologies product Manager Xsight Division

Floating offshore wind Hexafloat Saipem Solution

11:30

MEDICINE

Moderator

Sara Molinari
Ph.D., Biology Engineering
Rice University - Houston, Texas

Gabriele G. Schiattarella
M.D. Ph.D., Assistant Professor of Cardiology, Università Federico II of Naples, Italy and UT Southwestern Medical Center, Dallas, Texas

Alessio Fasano
M.D., Director at Harvard University Center for Celiac Research, and Director of the Mucosal Immunology and Biology Research Center (MIBRC) at MassGeneral Hospital for Children (MGHfC)

The Healing Power of Nutrition: How Diet Can Reshape Gut Microbiome And Influence The Balance between Health And Disease

Bruna Corradetti
Ph.D., Houston Methodist Research Institute, Houston, TX
Swansea University Medical School, Swansea, UK

Biomimetic and Immunomodulatory Strategies for the Treatment of Chronic Conditions

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Frank M. La Ferla
Ph.D., Dean and Chancellor's Professor School of Biological Sciences
University of California

Studying and Treating Alzheimer's Disease and the Role of Animal Models

Andrea Natale
M.D., Executive Director of the Texas Cardiac Arrhythmia Institute at St. Davis Medical Center in Austin Texas, and the National Medical Director of Cardiac Electrophysiology for HCA Healthcare

The Rationale for an Atrial Fibrillation Center of Excellence

Camillo Ricordi
M.D., Stacy Joy Goodman Professor and Director of the Diabetes Research Institute and the Cell Transplant Center at the University of Miami

Umbilical Cord Derived Mesenchymal Stem Cell Infusions for Treatment of Subjects with COVID-19 and Acute Respiratory Distress Syndrome: a Double Blind, Randomized Controlled Trial

Enrico Santus
Ph.D., Senior Data Scientist at Bayer New Jersey

Artificial Intelligence: Challenges and Opportunities in the Health Care

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13.15

STEAM

Introductory Speaker

Antonino Zichichi
Emeritus Professor of UNIBO
Former President of the World Federation of Scientists

Moderators

Alessandro Alabastri
Ph.D., Assistant Professor, Electrical and Computer Engineering
Rice University, Houston, Texas

Lorenzo Brancaleon
AP Department of Physics and Astronomy University of Texas at San Antonio

Angela Lombardi
Ph.D., Historic Preservation Program at University of Texas at San Antonio

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Mauro Degli Esposti
Senior Researcher Fellow Center for Genomic Science UNAM, National Autonomous University of Mexico

On the Origins of Cellular Respiration

Fabio Finocchi
CNRS Senior Researcher
Institut des NanoScience de Paris (INSP) and Sorbonne Universités, France

Nuclear Quantum Effects in Condensed Matter

Giulia Galli
Liew Family Professor of Molecular Engineering & Chemistry, University of Chicago
Senior Scientist and Director of MICCoM – Argonne National Laboratory

Materials and Molecules through In-silico Lenses

Giuseppe Loianno
Director of the Agile Robotics and Perception Lab, NYU Tandon School of Engineering

Challenges and Opportunities for Autonomous Navigation of Micro Aerial

Matteo Pasquali
Ph.D., Director, The Carbon Hub
Department of Chemical & Biomolecular Engineering Department of Chemistry
Department of Materials Science & NanoEngineering
The Smalley-Curl Institute

The Materials-Energy-Climate Nexus and How it Could Be Solved Making Materials Directly from Hydrocarbons

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14:45

HUMANITIES

Moderators

Francesca D'Alessandro Behr
Professor of Italian and Classis, Department of Modern & Classical Languages, University of Houston

Moira Di Mauro-Jackson
Ph.D., Italian Program Coordinator
Department of World Languages and Literatures
Texas State University, San Marcos

Jason Houston
Professor of Humanities and Dean of the Gonzaga in Florence Program
Gonzaga University

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Program

15th Conference of Italian Researchers in the World
12 December 2020

"Bronzino's Portrait of Dante: Exile and Lust"

Daniela Bini
Professor of Italian Studies and Comparative Literature
Department of French and Italian
The University of Texas, Austin

"Il libro dei sogni: Fellini's Dreams and Nightmares"

15:30 Final Remarks

TEXAS SCIENTIFIC ITALIAN COMMUNITY

MIAMI SCIENTIFIC ITALIAN COMMUNITY

The President

December 12, 2020

Dear Prof. Pimpinelli, caro Alberto,

Thank you for the opportunity given to me to be part of the 15th Conference of Italian Researchers on December 12, 2020 organized by the Texas Scientific Italian Community in collaboration with Rice University.

Miami Scientific Italian Community was pleased to participate with key scientific and community partners, including representatives of the Consulate General of Italy in Houston, senior representatives of leading academic institutions in Texas and Italy and other guests, to help facilitate this important exchange and dialogue between leading members of the academic based in the U.S., Italy and other parts of the globe.

We are committed to helping convene and facilitate thoughtful conversations, exchanges of leading industry research, and to foster and support a strong foundation among partners sharing ideas, initiatives and programs that help build and sustain advancement among all.

During the time of the Coronavirus pandemic, contemporary societies have felt vulnerable in their ability to find a solution that might be easy to understand but difficult to implement. The need for a strategy or rather of a vision and a mission is emerging in order to transform the demand for dialogue into a common path capable of satisfying not always concurring interests and, most importantly, also capable of operating in different countries - from the United States to Europe and from Asia to Africa.

We need rethinking the relationship between science and politics. This ambition aims to a medium and long-term vision looking at science in a conscious way, as a process of cultural and democratic development because it travels at formidable speed and, due to politics, often unable to respond effectively and timely to ongoing changes.
In my opinion, the relationship between politics and science is both a goal to pursue (in the respect of the roles) and a condition to examine and understand a condition, it should be noticed, rarely fulfilled since it depends on several problems that require the reorganization of personal and social values.

I have no doubts, science is the only alternative we can rely on in order top face moments like this.

The scientific evidence and methodologies must be credible and convincing. They must provide practical solutions to current political problems and also be adequately presented in order to attract the interest of the politicians. These are conditions rarely met practically and that must find applications both in the indications (which make the proposed legislation under consideration by a legislature - or bills - legible), and in the enacted laws that make them applicable.

In fact, the laws, which have the ability to influence and organize several social and economic contexts, must be open to the evolution of science.

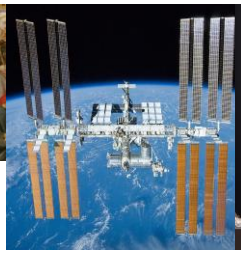
This is to avoid that the dialogue between science and politics remains inconclusive or worse, specious. I am still convinced that the problem urgently arises for the future of many countries including Italy and the US.
Where should we start to strengthen and to rebalance the relationship? I would say we need to start from re-thinking about, and re-evaluating a single "keyword" that is easily found in every Constitution of any Country in the world but that needs to be better considered: **Culture**.

If we want change, we must begin to think that there is a strong relationship between research and culture.

An important role, in my case, is the one of the Universities, which remain the natural seat of research because they are able to combine the momentum of human capital qualification, the advancement of knowledge, and the development of innovation through relations with society and the economy.

1680 Michigan Avenue, Suite 700 Miami Beach, FL 33139 P: +1 305-707-4175 mail: info@miamisic.org




TEXAS SCIENTIFIC ITALIAN COMMUNITY

MIAMI SCIENTIFIC ITALIAN COMMUNITY

The President

Rethinking about the knowledge needed for the advanced training and for the flow of ideas represented by generations of students, is the foundation of the research in the most advanced sectors.

Currently, in our countries [Italy and US], the transfer of knowledge from the university to the civil society occurs through different channels; undoubtedly, the first and the most traditional one is the transfer through staff training. Teachers and researchers transfer knowledge and methods to their students who make the most of it in the civil society. The second channel, increasingly important in advanced societies, is the application of innovative ideas developed "for" and "through" the research. The transfer often occurs with the creation of small spin-off companies from the research.
Finally, in sectors such as medicine or genetics, the same scientific knowledge that is gained through research, can find application in the short- or mid-term. It is an innovation obtained "starting from" the research. Even in these cases, the transfer takes place through spin-off companies or with the acquisition and transfer of patents.

In Italy, for instance, politics, can mobilize resources that attract interests and that promote economic success by promoting the development of culture and research. Even though many agree with the bill (it is difficult not to agree with the fact that culture and research are structurally united), the difficulties arise when it is necessary to combine the decisions with the resources available, and also when the course of action must be planned for the medium and long term like the emergency has dramatically shown these weeks.

It is essential that there will be a widespread and continuous research fabric and that the great peaks of research will be finalized and supported. Today, both are missing (widespread fabric and attention to the peaks), but this cannot be solved with one measure only. It's necessary to structurally increase the funds, so that all at ones, the scientific work will be recognized and valorized as a tangible heritage.

Intangible capital is today the most selective resource in international competition, evidence of the relationship between research and GDP and evidence of how the research is an economic and not only an intellectual resource.

I have always been convinced, and not only in this situation, that research has a fundamental civil function and we all should reason in these terms; research is needed to change a country in its identity and social cohesion and to create a widespread consensus that censors any past practice. To our young people, who today are on the front lines against an enemy better known thanks to their valuable work, we must strongly say that their effort is also needed to create a more aware and more civilized country.

We need research to be more civil, more modern, more capable of telling our young generation to stay in Italy: your country needs you!

Grazie e Viva l'Italia

Fabio De Furia

Prof. Alberto Pimpinelli
President of the Texas Scientific Italian Community
Houston, TEXAS

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TEXAS SCIENTIFIC ITALIAN COMMUNITY

SHRO
SBARRO HEALTH RESEARCH ORG.
www.shro.org

Dr. Giordano earned his MD from the University of Naples in 1986, and he specialized in Pathology at the University of Trieste, earning his Ph.D in Pathology, summa cum laude and he was a student of the Nobel Prize Watson at the Cold Spring Harbor Laboratory. Dr. Antonio Giordano is an Italian-American pathologist and geneticist, best known for his discovery of Rb2/p130, a tumor suppressor gene. Dr. Giordano is the president, founder and chairman of the board of the Sbarro Health Research Organization (SHRO), a nonprofit organization committed to funding excellence in basic genetic research to cure and diagnose cancer, cardiovascular diseases, diabetes and other chronic illnesses, and to foster the training of young doctors in a spirit of professionalism and humanism (www.shro.org). Dr. Giordano is also the founder and director of the SHRO supported Sbarro Institute for Cancer Research and Molecular Medicine, as well as the Center for Biotechnology, which are both located in Temple University's College of Science and Technology. Dr. Giordano is also a 'Chiara fama' professor of pathology in the Department of Medicine, Surgery, and Neuroscience at the University of Siena, Italy where the Temple Summer in Siena Biomedical Research program is based. He has published more than 600 papers in scientific journals of international importance (https://scholar.google.com/citations?user=qTxv3r0AAAAJ&hl=en), holds several international patents and has received more than 30 national and international awards for his contribution to cancer research. Professor Giordano received the honor of Knight of the Republic and Commander of the Order of Merit of the Italian Republic, he is a member of the scientific committee of the ISS as a representative of the Ministry of the Environment and collaborates with the Ministry of Health.

TEXAS SCIENTIFIC ITALIAN COMMUNITY

Associazione dei Ricercatori Italiani in Messico (ARIM)

https://associazionearim.weebly.com/
https://www.facebook.com/arimricercatori/
https://www.youtube.com/channel/UCwSRbyUXNiFdyFjhPAsNCAA

Emilia Giorgetti was born in Florence (Italy) on 09-29-1959.

She finished her degree in Physics at the University of Florence in 1985, graduating cum Laude.

From 1985 to 2005 she worked as a researcher at various centers of the CNR (National Research Council), at first in optics and optical properties of materials and later in the manufacture and characterization of organic materials and study of their spectroscopic properties. From 2006 to 2015 she worked as a senior researcher at the Institute of Complex Systems of the CNR in Firenze, developing innovative nanomaterials, mainly metallic ones. Between 2000 and 2015 she has had constant scientific cooperation ties with Mexico in the field of nanomaterials and spectroscopy, particularly with the Center for Applied Chemistry of CONACYT, in Saltillo.

She is the author of more than 140 articles in international refereed journals, and evaluator of high impact journals in physics, physical chemistry, materials science and optics and of international research projects.

She is in charge of the Office of Scientific and Technological Cooperation of the Italian Embassy since March 1, 2015.

Simone Lucatello, President ARIM

Senior Researcher and Professor at Instituto Mora,
National Agency for Science and Technology of Mexico (CONACYT)

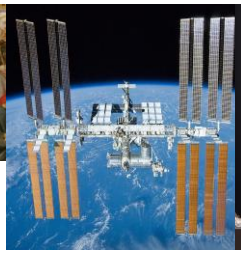
Simone Lucatello is a full-time researcher and professor at the Instituto Mora, a public research centre belonging to the Mexican National Agency for Science and Technology (CONACYT) in Mexico City, Mexico. **He is one of the leading authors of the IPCC (Intergovernmental Panel on Climate Change) Working Group II, which deals with the impacts, adaptation and vulnerability to climate change for the next IPCC Sixth Assessment Report (AR6, due in 2021), and coordinating leading author of the AR6 North American Chapter.** His research interests include climate change impacts in the Global South and risk assessment and disaster risk reduction in Latin America. He served as a consultant to several international organizations, such as the Inter-American Development Bank (IDB), UNEP, UNIDO, OCHA and European Union (Europe Aid) in the Balkans, Central America and Mexico. He is member of the International Network for Sustainable Drylands (RISZA) and of the Scientific Committee of the Humanitarian Encyclopedia at the Genève Centre for Education and Research in Humanitarian Action (CERAH, Switzerland). He is also actively engaged in national and international academic networks and projects across the Americas, Europe and Africa. **He is currently the president of the Association of Italian Researchers in Mexico.** He holds a master's degree in International Relations from the London School of Economics (LSE) UK and a PhD in Governance for Sustainable Development from the Venice International University (VIU), Italy.

TEXAS SCIENTIFIC ITALIAN COMMUNITY

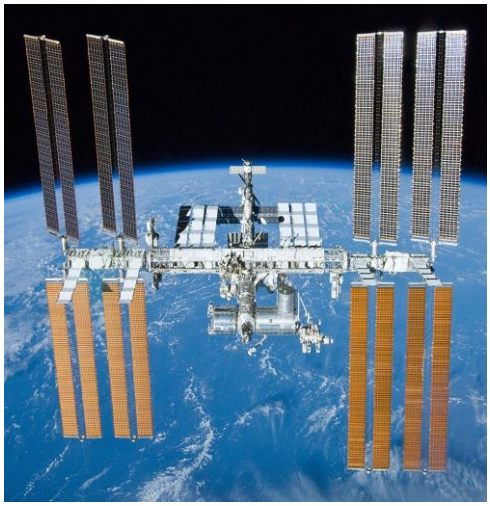
MODERATOR

Patrizia Angelini
Giornalista Rai
Inviata TG1 – Uno mattina
Presidente Osservatorio Nazionale Antimolestie
Vice presidente commissione anti molestie
Federazione Italiana sport equestri Relazione esterne e Comunicazione Etica FISE
Presidente Italian Women in the World
Direttore artistico del Festival del Docufilm italiano nel mondo Italia in the World




BIOS AND ABSTRACTS



AEROSPACE

TEXAS SCIENTIFIC ITALIAN COMMUNITY

SPACE WEATHER AND SPACE RADIATION FOR FUTURE MANNED MISSIONS TO THE MOON AND MARS

Veronica Bindi

ABSTRACT

Humans want to go back to the moon to stay. Space radiation is detrimental for technologies and humans in outer space.
Dr. Bindi at the University of Hawaii, works on the Alpha Magnetic Spectrometer detector, operating since 2011 on board of the International Space Station. Studying AMS data, she is providing invaluable space radiation and space weather information to NASA for future manned missions to the Moon and Mars.

BIOGRAPHY

Dr. Bindi's main research topics are the study of dark matter, cosmic rays, solar modulation of cosmic rays, solar energetic particles, and space radiation for future manned missions to the Moon and Mars. She graduated in astronomy and got her PhD in Physics at the University of Bologna in Italy. From 2002 at the INFN (Italian National Institute for Nuclear research), based at CERN (European Organization for Nuclear Research) in Switzerland, she has been part of the team that constructed and integrated the Alpha Magnetic Spectrometer (AMS) instrument, which has been in operation on the International Space Station since 2011.

Since 2012, Dr. Bindi has been a Professor in the Physics Department of the University of Hawaii at Manoa (UHM). Her group, composed of post docs, research assistants, and several undergraduate students, is involved in the data analysis of the AMS instrument. The current analysis topic is solar modulation of cosmic rays and the study of solar energetic particles with AMS. In 2014 Dr. Bindi received a NSF career award, she is the PI several grants with NASA. She has published several high cited papers in peer reviewed journals, she has been invited as a keynote speaker in many international conferences, and she is the organizer of an annual international workshop that brings together major world experts in her fields. For the year 2019, Dr. Bindi was working at NASA Headquarters in Washington DC in Heliophysics Division and Strategic Integration and Management Division.

Dr. Bindi teaches calculus-based physics to engineering and science majors. As a member of several committees, she is working to improve the physics curriculum and learning outcomes at the University of Hawaii, and to implement new methods for recruitment of physics majors.

Dr. Bindi is dedicated to increasing the diversity in STEM (Science, Technology, Engineering and Math) fields and facilitating the participation of underrepresented groups. In 2013, she was featured in the European Institute for Gender Equality's Women Inspiring Europe initiative. In 2020, she is working as Special Assistant to the Vice Chancellor of Research for diversity, equity and inclusion at the University of Hawaii.

Dr. Bindi has participated in multiple outreach activities for middle and high school students as a lecturer and organizer. She is the Quarknet mentor in Hawaii and a TED educator (her TED animation about cosmic rays is available online and had more than 150K views). Since 2015 she has been a scientific partner for ARTS@CERN and inspiring partner for the visiting artists Fragment.In. In spring 2016, at the Lorenzo de Medici Institute in Florence (Italy), as resident director for study abroad, she designed and taught a course that provides a wonderful insight into how science and art are deeply interconnected. Dr. Bindi is invited as a speaker to many public events. In 2020, she received in Italy the prestigious award ‘Mimosa d’oro’.

TEXAS SCIENTIFIC ITALIAN COMMUNITY

ORION MISSION OVERVIEW AND THE ROAD TO THE NEXT HUMANS ON THE MOON

Fabrizio Festa

ABSTRACT

Interest in returning to the moon has risen dramatically in the recent years. From new orbiting bases around the moon to the futuristic moon village. A key part is the new ESA/NASA spacecraft ORION that will bring us there.

BIOGRAPHY

Mr. Festa is a specialist in the domain of safety and mission assurance applied to human spaceflight.
He graduated with honors in aerospace engineering at the University of Pisa in 2002.
Over the last two decades Mr. Festa contributed together with his colleagues from the European Space Agency to most of the biggest European achievements in human spaceflight, from the International Space Station program, to the Automated Transfer Vehicle (ATV) and now to the European Service Module (ESM) for the Orion Program. In his roles as safety engineer, safety manager and ISS mission operation officer, he contributed to the safety of over 20 missions involving European crew members.
Mr. Festa is the receiver of the ESA ISS award for his efforts in the ISS and ATV programs in 2013 and 2014. He was also awarded the NASA Space Flight Awareness in 2015.
Mr. Festa contributed for several years to the International Association for the Advancement of Space Safety (IAASS) through publication of several papers in the field of space safety.

TEXAS SCIENTIFIC ITALIAN COMMUNITY

MODERATOR

Francesco Fusco
Executive Director FISE
Foundation for International Space Education, Houston, Texas

Mr. Fusco currently works at The Boeing Company, Houston, Texas

Supported CST-100 Starliner as Service Module Hot Fire Test Conductor. Technical lead supporting the development of an interactive analysis tool for the USAF B-1 fuel systems. Provided Design Engineering support for Space Shuttle Data Processing System (DPS), Propulsion, Orbital Maneuvering and Reaction Control Systems (OMS/RCS). Reviewed and approved Deviation Sheets, Engineering Design Change Proposal, Discrepancy Record as responsible RCS rocket propulsion engineer and member of the Prime Material Review Board. Defined and finalized a major modification to the Vernier RCS thruster hot-fire acceptance test procedure. Leaded various failure analysis investigations. Wrote/Reviewed numerous Corrective Action Records (CAR), Memorandum of Agreement (MOA) and Hazard Reports. Provided real-time flight support for the Space Shuttle Orbiter in the Johnson Space Center Mission control complex. Reduced flight data to evaluate past performance and predict future performance of propulsion system components. Designed and developed several analysis tools for the KC-135 Tanker aircraft fuel engine feed and hydraulic systems. Provided expertise and data analysis skills to the Hydraulics Analysis team for the KC-46 Tanker aircraft. Provided Design Engineering support for Space Launch System (SLS) Thrust Vector Control (TVC) system. Designed and implemented TVC hydraulic system model for SLS Vehicle Management (VM). Played a key role into the Circulation Pump testing activities performed at Marshal Space Flight Center. Mentored and motivated other peers as their Technical Lead Engineer (TLE) Developed and integrated software tools for 777-X

University: Politecnico di Torino - Torino, Italy
Professional Engineer accreditation. Laurea in Ingegneria Aerospaziale (Title: Doctor in Aerospace Engineering)

Rice University – Houston, TX: Data Acquisition Systems. Engineer Approach to Mathematical Programming. Engineer Approach to Optimal Control

University of South California – Los Angeles, CA: Liquid Rocket Engines for Spacecraft Pressure-Fed Propulsion Systems. Safety of Space Systems and Space Missions

TEXAS SCIENTIFIC ITALIAN COMMUNITY

ENERGY

FLOATING OFFSHORE WIND HEXAFLOAT SAIPEM SOLUTION

Francesco Balestrino

BIOGRAPHY

Summary

Highly versatile and determined Senior Manager with more than 12 years of experience in the Project Management, developing a strong international profile during the projects execution in all continents.
Since 2017 working in the Renewables energy market and looking to innovative technologies to speed up the energy transition.

Work Experience

06/2017 to Present: Renewables & Green Technologies Product Manager Saipem SpA Xsight division – Milan
Within saipem new division Xsight, appointed as business development manager for the product line Renewables and green technologies.

06/2015 to 05/2017: Project Director of Kashagan trunklines installation Ersai – Atyrau (Kazakhstan)
Project Director accountable for an EPCI of $1.8 Billion for the offshore installation of two 28" carbon steel internally cladded trunklines in the Kashagan oilfield. The project overall includes the pipelines system installation from offshore to onshore processing facilities. The client is a consortium North Caspian Operating Co., composed by ENI, Exxon Mobil, Shell, China's CNPC, Japan's Inpex and KazMunaiGas.

09/2013 to 05/2015: Project Manager for the pipeline installation in the Gulf of Mexico – Saipem America Inc. – Houston
Successfully execution of EPCI contract (total amount of 300MUSD) for the pipeline installation in very deep water (Keathley Canyon Connector Gas export pipeline project).

01/2013 to 05/2015: **Castorone Vessel Operation Manager – Saipem America Inc. – Houston Project and Saipem s.a. – Paris**
Appointed Vessel Operation Manager of the Pipe lay vessel Castorone

11/2011 to 12/2012: Asset Project Manager – Saipem Singapore – Singapore
Assigned to the completion of Pipe lay vessel construction successfully executed within the budget (100MEUR) and the schedule. Accountable for the project execution and the construction activities performed within the main contract assigned to the Keppel.

02/2011 to 01/2011: Asset Project Manager J-Lay Tower System for Castorone – Milano/"Multipurpose Dive Support Construction Vessel – Ulsan
Responsible for a design and construction of the innovative J-Lay system for deep water laying activities. Previously responsible for the design and construction of a new dive support vessel (each project worth 150MEUR).

TEXAS SCIENTIFIC ITALIAN COMMUNITY

MODERATOR

Brando Paolo Ballerini
Mechanical Engineer
President of BPB Energy, LLC
President of the Italy-America Chamber of Commerce of Texas

Brando Ballerini began his career in the drilling industry with his family's company Ballerini S.p.a., a firm specialized in drilling rigs and equipment design and manufacturing, after he was receiving a BS degree in Mechanical Engineering at the Polytechnic University of Milan, Italy in 1980. From 1983 to 2003 he served as Director and CEO for different Companies in the Oil & Gas Industry and managed or owned operations in Italy, Peru and Brazil. Since 2003 he served as CEO of Drillmec Inc, the Americas Drilling Rigs Manufacturing Division of Trevi Group. In April 2019 he joined the Onshore Division of SAIPEM as their Business Development Manager for Americas. Since 2010 he is the President of the Italy-America Chamber of Commerce of Texas, Inc. He has been awarded the title of Knight Order of Merit of Italian Republic.

TEXAS SCIENTIFIC ITALIAN COMMUNITY

MEDICINE

THE KINASE ACTIVITY OF IRAK4 CONTROLS STERILE AUTOINFLAMMATION AND MANIFESTATIONS OF MURINE LUPUS

Federica Agliano, Antoine Ménoret, Keaton S. Karlinsey, Michael Ragazzi, and Anthony T. Vella

Department of Immunology, University of Connecticut Health Center, Farmington, CT, USA.

ABSTRACT

Interleukin-1 receptor-associated kinase (IRAK) 4 is a serine/threonine kinase involved in TLR/IL-1R responses. Upon TLR/IL-1R activation, autophosphorylation of IRAK4 induces proinflammatory gene transcription. In this study we hypothesize that the kinase activity of IRAK 4 may be a druggable target in the treatment of sterile autoinflammation and Lupus. C57BL/6 female mice injected with the hydrocarbon oil Pristane, exhibited a significant Pristane-dependent induction of splenomegaly; whereas treatment with the IRAK 4 kinase inhibitor reduced this inflammatory symptom. Conversely, no significant difference was observed in males. Using mass spectrometry, we found that the urine of Pristane-injected mice contained increased levels of putative markers for several inflammatory diseases, which were reduced by IRAK 4 kinase inhibition. We showed that Pristane-injected mice had increased cell free DNA in serum, which was not impacted by kinase inhibitor treatment. However, chemokine release was significantly reduced in IRAK 4 kinase inhibitor-treated mice. We further analyzed the kinase activity of IRAK4 in MRL-*lpr* mice, which were compared with MRL-*lpr*/IRAK4 kinase-inactive (KDKI) mice (where IRAK 4 is expressed but its kinase activity is lost). We found a significantly reduced splenomegaly in MRL-*lpr*/IRAK4^{KDKI} mice compared to controls, also exhibiting a gender bias. Furthermore, MRL-*lpr*/IRAK4^{KDKI} splenocytes restimulated *in vitro* produced a significantly decreased amount of RANTES in response to TLRs activators (e.g LPS and CpG) and reduced IFNγ in response to PMA/ionomycin, compared to controls Thus, IRAK 4 kinase activity might represent a new therapeutic and druggable target in the recruitment of immune cells during sterile inflammatory diseases, including Systemic Lupus Erythematous (SLE).

BIOGRAPHY

Federica Agliano received her Master's Degree in Biology and her PhD in Medical and Surgical Biotechnologies at the University of Messina, Italy. As a PhD student, she spent 20 months at the Norwegian University of Science and Technology in Trondheim, Norway, where she studied the immune responses against Gram-negative bacteria in human macrophages. Currently, she is a Postdoc at the University of Connecticut Health Center, Department of Immunology. Her studies focus on the role of innate and adaptive immune responses in autoimmune diseases, inflammation and cancer.

TEXAS SCIENTIFIC ITALIAN COMMUNITY

TOWARDS THE USE OF COVERSATIONAL INTERFACES IN HEALTHCARE

E. Sciarretta, L. Alimenti
DASIC, Link Campus University

ABSTRACT

Introduction

The digitization and development of new tools and sensors are spreading to different areas of our daily life and the medical sector is not exempt from these revolutions. Apps, sensors, IoT technologies, and miniaturized devices able to communicate and process data have great potential for innovation in the medical field.
Among the various innovations, this work focuses on the design of conversational interfaces through the use of chatbots.
As technologies progress, chatbots have become more complex. Modern chatbots are no longer based on pattern matching but rather on artificial intelligence and machine learning, using natural language or neural networks to adapt to an ever-increasing amount of information and different demands.

Materials & Methods

Human-machine interfaces based on the voice-channel and used in the digital health sector were examined. Conversational interfaces, used by chatbots themselves, have developed considerably, in recent years. There are several uses in the medical field (e.g. for the assistance in the healthcare sector during the Covid-19), which can benefit from this technology.
The authors reviewed and analysed several chatbots that are currently available and used in the medical field.

Results

This work assesses both benefits and risks of the implementation of chatbots (known as healthbots in the medical field).
Despite healthbots can improve the quality of healthcare and adherence to therapy, by providing adequate information, and reduce both health costs and physical barriers, if not properly designed, they can increase social differences.
During the design process it is necessary to involve users first, to understand the usage environment and to design the level of interaction and communication. Often, the frustration generated by the poor ability of chatbots to respond to user needs leads to an early abandonment of this technology.
Therefore, in the design of a chatbot several professionals have to intervene: the UX specialists and new professional figures such as the conversational interface designer.

TEXAS SCIENTIFIC ITALIAN COMMUNITY

Conclusions

Chatbots are increasingly able to understand effectively the human language and the contexts in which it is used thanks to the increasing computing capability density, the development of new machine learning methods and the availability of large amounts of linguistic data. Chatbots can bring a considerable benefit in the medical field thanks to the increasingly natural interaction, also through the anticipation of users' reactions, making the whole "conversation" as if it was "sewn" on the end user.

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BIOGRAPHY

Lia Alimenti earned a Master Degree in "Cultural Industry and Digital Communication" at the Sapienza University of Rome, in 2014. Her thesis focused on the design of an application telemedicine for monitoring and home support of paediatric patients suffering from two rare diseases. She worked in the field of e-health at the Research Unit of Digital Medicine and telemedicine of the Children's Hospital Bambino Gesù in Rome. She dealt with UX and usability assessment of multi devices for sites of different categories (e-commerce, banks, insurance and consumer products) and the analysis of the user needs. Currently, she is a research fellow at the DASIC (Digital Administration and Social Innovation Center) of Link Campus University, in the Research Unit "eHealth & eInclusion". She is part of the "Club of Innovators. Health km zero" and she is a member of the AiSDeT (Associazione italiana di Sanità Digitale e Telemedicina) and the peer scientific committee of Italian geriatrics.
Passionate about HCI, accessibility, usability, e-health, telemedicine and accessible technology.

HORMONE RECEPTOR INHIBITORS: UNEXPECTED ALLIES IN THE FIGHT AGAINS COVID-19

Sara Bravaccini[1], Eugenio Fonzi[1], Michela Tebaldi[1], Davide Angeli[1], Giovanni Martinelli[1], Fabio Nicolini[1], Paola Parrella[2], Massimiliano Mazza[1]

1. IRCCS Istituto Romagnolo per lo Studio dei Tumori "Dino Amadori" - IRST

2.Fondazione IRCCS Casa Sollievo della Sofferenza Laboratorio di Oncologia, San Giovanni Rotondo, Foggia, Italy.

ABSTRACT

Given the COVID-19 coronavirus emergency, a special focus is needed on the impact of this rapidly spreading viral infection on cancer patients. No prophylactic treatments for COVID-19 have been clearly proven and found. In this pandemic context, cancer patients constitute a particularly fragile population that would benefit the best from such treatments, a present unmet need. TMPRSS2 is essential for COVID-19 replication cycle and it is under androgen control. Estrogen and androgen receptor dependent cues converge on TMPRSS2 regulation through different mechanisms of action that can be blocked by the use of hormonal therapies. Androgen receptor (AR) signaling in the TMPRSS2 regulation is emerging as an important determinant of SARS-CoV-2 susceptibility. In our study, we analyzed AR and TMPRSS2 expression in 17352 normal and 9556 cancer tissues from public repositories and stratified data according to sex and age. The emerging picture is that some patient groups may be particularly susceptible to SARS-CoV-2 infection and may benefit from anti-androgen or anti-estrogen based therapies. These findings are relevant to choose proper treatments in order to protect cancer patients from concomitant SARS-CoV-2 contagion and related symptoms and put forward the idea that hormonal therapies could be used as prophylactic agents against COVID-19. We believe that there is enough body of evidence to foresee a prophylactic use of hormonal therapies against COVID-19 and this hypothesis can be easily tested on cohorts of breast and prostate cancer patients who follow those regimens. In case of pandemic, if the protective effect of hormonal therapies will be proven on cancer patients, the use of specific hormonal therapies could be extended to other oncological groups and to healthy individuals to decrease the overall risk of infection by SARS-CoV-2.

BIOGRAPHY

Sara Bravaccini received her PhD in Medicine in 2014 from the University of Bologna. She is Head of the Gerobiomics and Exposomics Research Group at IRCCS Istituto Romagnolo per lo Studio dei Tumori (IRST) "Dino Amadori", Meldola, Italy, and is currently Principal Investigator of several translational projects on breast cancer. Dr. Bravaccini's research work into inflammation at tissue and systemic level is aimed at identifying new biomarkers for diagnosis, prognosis and prediction of response to treatment. To date she has published more than 85 papers in international scientific journals. She is a highly motivated person capable of working alone and in a team.

THERMAL GRADIENT AND VARIATION OF THE DOSE RESPONSE CURVE OF A DRUG: A NEW HYPOTHESIS

R. Cappelletti[1*], C. Cappelletti[2], M. Nichelatti[3]

[1]ASL NA1, Naples, Italy [2]Dental&Beauty, Naples, Italy [3]Fondazione Malattie del Sangue, Milan, Italy

ABSTRACT

In 1987, a paper by Klein (1) presented a new method of local anesthesia infiltration called *tumescent technique*, highlighting an anomaly in the dose response curve of the involved drugs (local anesthetic plus adrenergic amine): using very diluted solutions (1/20) at room temperature, a certain effectiveness of the drug was preserved.

In 1995, Cappelletti published a paper (2) showing that anesthetic solutions like Klein's ones, at much lower temperature (4-6 °C), could be used in surgical interventions under local anesthesia.

Even if Klein in 1988 (3) denied any clinical efficacy of cold diluted anesthetic solutions, Klein's solution could be also considered a cold solution, since room temperature (e.g., 20-22 °C) is lower than body temperature. On this basis, it is possible to hypothesize that the dose response curve of a drug may depend on thermal gradient: infiltrating a given area of skin with a solution at low temperature creates a thermal gradient depending on surface area, volume, and temperature. The higher the gradient, the higher the efficacy of the solution, and the lower the concentration to be used.

Analyzing the results of different papers (4 and 5) respectively using the solution at room temperature, and the solution at 4-6 °C both used in breast surgery (subglandular prosthetic implant), it is possible to look at the differences in the behavior of the solutions.

1. Klein solution (Lidocaine solution 0.05% + Adrenaline 1/1000000): 20-22 °C; average infiltration volume 1000-1400 mL; onset time 45 min; need to infiltrate the skin incision area with 2% lidocaine solution.

2. Cryotumescence solution (Lidocaine solution 0.1% +Adrenaline 1/10000000): 4-6 °C; total infiltration volume 400-600 mL; immediate onset time; no need for infiltration of the skin incision area

With the Klein solution using a room temperature infusion (20-22 °C), to raise the thermal gradient it is necessary to use large volumes (1000-1400 mL) given the surface to be anesthetized, but with the need to infiltrate the skin area using anesthetic solution, and delayed pharmacokinetics.

With cryotumescence a smaller volume of solution (400-600 mL) is enough to reach an optimal level of anesthesia with a good effect both on pharmacodynamics (no need of infiltration with standard anesthetic solution), and on pharmacokinetics with immediate effect.

Based on this new theory, there could be a correlation between the thermal gradient and the dose response curve; moreover, this general approach could have future potential developments also in other therapeutic fields.

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BIOGRAPHY

Renato Cappelletti, MD, Specialist in anesthesia and resuscitation, worked full time from July 1987 until August 2008 in public hospitals in Italy. He was interested in cardiosurgical intensive care, and in general and local anesthesia, having conceived the first multifunctional portable electroneurostimulator and other specific methods of electrostimulation and electroneurostimulation. He devised the local anesthesia method with cold, diluted solutions. He also worked in the field of clinical nutrition, with a particular focus on lipids.

BIOMIMETIC AND IMMUNOMODULATORY STRATEGIES FOR THE TREATMENT OF CHRONIC CONDITIONS

Bruna Corradetti, PhD
Houston Methodist Research Institute, Houston, TX, USA
Swansea University Medical School, Swansea, UK

ABSTRACT

Therapeutic intervention mediated by immunomodulatory drugs, cells and biomaterials is of a great relevance in a wide spectrum of clinical applications, including regenerative medicine and oncology. Tissue restoration following injury, disease or cancer comprises a precise cascade of cellular and molecular events, spanning from inflammation to tissue remodeling. If such cascade is altered, a chronic dysregulation and non-functional repair of the tissue occur. My research leverages a comprehensive understanding of the biological cues required to modulate the immune system to engineer biomimetic therapeutic approaches that stimulate the body's own potential to attenuate inflammation, regenerate, and support the anti-cancer immune response. In particular, we are interested in studying cell-to-cell communication, looking at both the direct interaction between cells as well as the information they exchange through the release of nanoscopic vesicles, called exosomes. Examples include: *i)* the identification of specific features stem cells acquire when exposed to different inflammatory environments that affect their communication with surrounding immune cells and, ultimately, their therapeutic potential, ii) the observation of the dynamic interactions between ovarian cancer cells and different types of macrophages, which has provided useful insights on the development of the metastatic process, iii) the formulation of biomimetic exosomes and exosomal vaccines for the treatment of advanced ovarian cancer. While clinical trials are currently ongoing to evaluate the therapeutic potential of therapeutic exosomes demonstrating safety and promising outcomes, challenging large-scale production, isolation, modification and purification of clinical-grade exosomes are current limitations for the use of naturally occurring exosomes in the clinics. Biomimetic exosomes offer a promising alternative to natural exosomes due to their scalability and standardization advantages, along with the ample range of engineerable moieties to achieve specific responses. Our efforts in providing a deep understanding on the contribution of the biophysical and molecular properties of the exosomes produced by cells in specific environmental conditions is crucial to fill the current gap in knowledge towards the production of biomimetic immunomodulatory exosomes.

BIOGRAPHY

Bruna Corradetti is Assistant Professor in the Department of Nanomedicine at the Houston Methodist Research Institute (USA) with a joint position as Associate Professor at the Swansea University Medical School (UK). With a doctoral degree in Molecular Biosciences from Polytechnic University of Marche (Italy), she has an established expertise in regenerative medicine applied to inflammatory and degenerative diseases. Dr. Corradetti has published more than 45 peer-reviewed papers and served as the sole Editor of the book "The Immune Response to Implanted Materials and Devices". In 2013, Dr. Corradetti received a 2-year Fellowship for Molecular Medicine sponsored by ISSNAF. In 2015, Dr. Corradetti was selected as one of the 50 most impactful Italians under-35 years of age to participate in the Youth Economic Summit (the first think-tank to lead innovation in Italy). For her capability to inspire and mentor students in the academic environment, she has been the recipient of the 'Premio Italia Giovane' ('Young Italy') Award 2016. Dr. Corradetti has been the first woman to be nominated Scientific Secretary of the European Society for Translational Medicine and was nominated one of the "100 Italian Excellences" awarded in Campidoglio in 2017. In 2018 she obtained a personal fellowship from the Welsh Government under the Marie Curie Marie Skłodowska-Curie Actions and has been the recipient of the Ser Cymru award sponsored by the Welsh Government for her work on the development of synthetic exosomes for chronic diseases in 2019. The same year she has been designated as a Leader for Women in STEM by FIDAPA, International Business and Professional Women Association.

THE HEALING POWER OF NUTRITION: HOW DIET CAN RESHAPE GUT MICROBIOME AND INFLUENCE THE BALANCE BETWEEN HEALTH AND DISEASE

Alessio Fasano, M.D.

Mucosal Immunology and Biology Research Center, Massachusetts General Hospital for Children – Harvard Medical School, Boston, MA – U.S.A. And
European Biomedical Research Institute Salerno (EBRIS) Salerno - Italy

ABSTRACT

Improved hygiene leading to a reduced exposure to microorganisms have been implicated as one possible cause for the recent 'epidemic' of chronic inflammatory diseases (CID) in industrialized countries. That is the essence of the hygiene hypothesis that argues that rising incidence of CID may be, at least in part, the result of lifestyle and environmental changes that have made us too "clean" for our own good. Apart from genetic makeup and exposure to environmental triggers, three more elements have been recently identified being key players in the pathogenesis of autoimmunity. A third element is the inappropriate Increase in intestinal permeability, which may be influenced by the composition of the gut microbiota, has been proposed. The immune system responsible of the tolerance-immune response represents the forth element involved in the pathogenesis of CID. Finally, the composition of gut microbiome and its epigenetic influence on the host genomic expression has been identified as a fifth element in causing CID. The gut microbiome consists of more than 100 trillion microorganisms, most of which are bacteria. It has been just recently recognized that there is a close bidirectional interaction between gut microbiome and our immune system and this cross talk is highly influential in shaping the host gut immune system function and, ultimately, shifting genetic predisposition to clinical outcome. This observation led to a revisitation of the possible causes of CID epidemics, suggesting a key pathogenic role of microbiome composition. While factors such as modality of deliver, neonatal feeding regimens, use of antibiotics, infections can influence microbiota composition, diet is by far the most important variable affecting gut ecosystem. Therefore, re-shaping gut microbiota through dietary manipulation is becoming an extremely active area of research for the prevention or treatment of a multitude of CID.

BIOGRAPHY

Alessio Fasano, MD

W. Allan Walker Chair of Pediatric Gastroenterology and Nutrition

Chief of Division of Pediatric Gastroenterology and Nutrition

Director of Center for Celiac Research and Treatment

Director of Mucosal Immunology and Biology Research Center

Associate Chief of Research , Department of Pediatrics,

MassGeneral Hospital *for* Children

Professor of Pediatrics, Harvard Medical School

Professor of Nutrition, Harvard T. H. Chan School of Public Health

Alessio Fasano, MD, is Professor of Pediatrics at Harvard Medical School, Professor of Nutrition at Harvard T.H. Chen School of Public Health, and Director of the Mucosal Immunology and Biology Research Center (MIBRC) at MassGeneral Hospital for Children (MGHfC). Prof. Fasano's current research expertise encompasses basic science focused on bacterial pathogenesis, gut microbiome composition and function in health and disease, the regulation of gut permeability, and intestinal mucosal biology and immunology, as well as translational science focused on the role of impaired intestinal barrier function in the pathogenesis of autoimmune and inflammatory diseases, including celiac disease, autism and type 1 diabetes.

Prof. Fasano's group was responsible for the discovery of zonulin in 2000, a protein involved in the regulation of tight junctions, which is released in conditions of dysbiosis. Current research directed by Prof. Fasano is focused on the basic science of the gut microbiome and intestinal mucosal biology, as well as translational science focused on interventional clinical trials in autoimmune and inflammatory diseases. Prof. Fasano has been recipient of many awards, including the 2012 Harry Scwachman Award from the North American Society of Pediatric Gastroenterology Hepatology and Nutrition, the 2013 Linus Pauling Award, the 2013 Magister Insignis from the Schola Medica Salernitana, the 2014 Paul Harris Fellow Award from the Rotary Club, and the 2019 Italian Bilateral Cooperation awrd as the best Italian Scientis abroad from the Italian Minister of Foreign Affairs and International Cooperation, and the Minister of Education, University and Research. He has published more than 350 peer review papers, he is in the 2020 Clarivate Analytics' Web of Science Grou annual list of Highly Cited Researchers (top 1% cited scientists) and has been continuously funded by the NIH since 1996.

FROM SEFFI (SUPERFICIAL ENHANCED FLUID FAT INJECTION) TO SEFFILINE MEDICAL DEVICES: THE AUTOLOGOUS REGENERATIVE MEDICINE

Prof. Alessandro Gennai
Plastic Reconstructive Surgery

ABSTRACT

Background

Clinical studies demonstrated the efficacy of therapies based on the autologous grafting of adult mesenchymal stem cells to accelerate the healing and regenerative processes of the skin and mesenchymal tissues. Moreover, such therapies can be applied in the treatment of autoimmune pathologies for their immune modulating capabilities. Adipose-derived stem cells (ADSCs) are pluripotent adult progenitor cells derived from embryonic connective tissue. ADSCs can differentiate towards adipogenic, osteogenic, condrogenic, myogenic cells but also towards non mesodermic cell lines (neuronal, endothelial, epithelial cells, etc.). They are also able to secrete a series of growth factors, such as VEGF (Vascular-Endothelial-Growth- Factor), HGF (Hepatocyte-Growth-Factor), FGF-2 (Fibroblast-Growth-Factor-2) and IGF-1 (Insulin- Like-Growth-Factor-1), which grant them a regenerative and angiogenic power. One of the tissues richest in adult mesenchymal stem cells is the adipose tissue. Today regenerative medicine mostly resorts to adipose-derived stem cells (ADSCs) because of their characteristics and easy availability. ADSCs carry out their regenerative and immune modulatory capabilities thanks to the paracrine effects, through trophic factors that show anti fibrotic, anti-apoptotic and pro- angiogenic activities. Moreover they perform their regenerative activity thanks to their intrinsic capability of transforming into cells of the mesenchymal and endothelial line, promoting tissue reparation.

Method

Such techniques consist in selecting the small dimension of the tissue cellular clusters during the harvesting procedure trough special cannulas, avoiding any kind of manipulation of selected tissue: it is our conviction that any manipulation, both mechanical and chemical, of the harvested tissue can damage the viable cells thus undermining the effectiveness of the engraftment and regenerative effects.
Moreover we standardized a special guide addressed to permit to Colleagues without liposuction skill to harvest the tissue in a safe, effective and standardized way results.
In our studies and publications we proved the adipocytes viability, the good amount of SVF cellularity, ADSCs and the mesenchymal differentiation of ADSCs towards adipogenic, osteogenic and condrogenic lineage.

Conclusions

Regenerative aesthetic medicine is a very promising branch in many fields of Medicine.

SEFFI is a minimal invasive regenerative surgical procedure that requires liposuction skill; SEFFILINE are disposable, all-in-one medical devices designed for Physicians without any liposuction skill who wish to perform the regenerative procedure in a guided, safe, easy, effective, standardized way in their medical facilities.

TEXAS SCIENTIFIC ITALIAN COMMUNITY

EPICARDIAL ADIPOSE TISSUE, FROM BENCH TO BEDSIDE

Gianluca Iacobellis MD, PhD
Professor of Medicine
University of Miami, FL, USA

ABSTRACT

Epicardial fat is the visceral fat of the heart. Interest in the epicardial fat and its clinical implications is rapidly growing. The intriguing aspects of the epicardial fat are its unique anatomical and bio-genetic properties, but also its capability to serve as measurable cardio-metabolic risk factor and modifiable therapeutic target. Epicardial fat thickness can be measured with a not invasive and reliable ultrasound technique that Prof Iacobellis invented and validated. Given the selective responsiveness of the epicardial fat to weight loss treatments, it could serve as a tool to track visceral fat changes during interventions and potentially as selective predictor of the most appropriate and effective pharmacological drugs. Prof. Iacobellis has recently introduced this assessment as standard of care for patients referring to the Obesity Clinic, at the Division of Endocrinology, Diabetes and Metabolism, University of Miami. Epicardial fat thickness can be measured with a portable ultrasound machine during an outpatient visit; this innovative approach takes 5 minutes. Epicardial fat potentially provides energy and heat to heart, features that are down-regulated in patients with heart diseases or diabetes. However, Prof Iacobellis' most recent studies suggested the possibility to restore these beneficial effects through pharmaco-genetic manipulation. These promising results can open new avenues for the prediction and treatment of killing diseases, such as coronary artery disease and diabetes.

BIOGRAPHY

Professor Gianluca Iacobellis M.D., Ph.D, native of Roma and Sapienza University medicine and doctorate graduate, is currently Full Professor of Medicine and Director of the UHEALTH Tower Diabetes Service, at the University of Miami, FL, USA. He was formerly an Associate Professor and Director of Bariatric Endocrinology at McMaster University, ON, Canada, and a post-doc fellow at UTSouthwestern Medical Center, Dallas, TX and at the Karolinska Institute, Stockholm, Sweden. Prof Iacobellis has authored more than 130 scientific articles and 10 textbooks, with a current *h* index of 40 and 6888 citations. Prof Iacobellis is considered the worldwide leading expert in the epicardial fat, the adipose tissue of the heart. He pioneered the research on the epicardial fat and developed a novel technique to measure its thickness, simply by using ultrasound. Prof Iacobellis was the first to show the role of epicardial fat in coronary artery disease and diabetes, top causes of death worldwide. Results of his studies have been published in high ranked journals, such Nature Endocrinology, Nature Cardiology, and presented at conferences of the American Diabetes Association, American Heart Association, European Society of Cardiology and Endocrine Society. Prof Iacobellis leads several clinical trials and is co-principal investigator of a 2 million $ NIH R01 grant "LEAF" focusing of the role of epicardial fat in atrial fibrillation, the most common arrhythmia worldwide. He edited the first authorative book on epicardial adipose tissue, published by Springer Nature in 2020.

STUDYING AND TREATING ALZHEIMER'S DISEASE AND THE ROLE OF ANIMAL MODELS

Frank LaFerla, Ph.D.
Dean, School of Biological Sciences
Chancellor's Professor, Neurobiology and Behavior

ABSTRACT

Alzheimer's disease is the most common cause of dementia, and a major public health problem. Age is the most significant risk factor, and 5% of the population over age 65 are afflicted, with the incidence doubling every 5 years thereafter. At present, over 5.8 million Americans are suffering from this insidious disorder. There is an urgent need to develop new therapies that can slow, reverse or halt the disease course. In this regard, mouse models of human diseases are invaluable tools for studying pathogenic mechanisms and testing interventions and therapeutics. Alzheimer's mouse models have provided key insights into understanding key features of AD pathology and for helping to evaluate and discover new therapeutic targets and disease-modifying strategies. As the field advances, so too must our development of animal models, with particular emphasis being focused on generating models of late-onset AD. The goal of the MODEL-AD consortium is to produce, characterize and make available the next generation of animal models for AD through comprehensive and systematic analysis and to standardize a phenotyping pipeline to understand the strength of each model.

BIOGRAPHY

Professor Frank LaFerla is the Dean of the UC Irvine School of Biological Sciences and a Chancellor's Professor in the Department of Neurobiology and Behavior. He is the Director of the NIH-funded Alzheimer's Disease Research Center and Co-Director of the NIH consortium called MODEL-AD. He previously served as the department chair from 2011-2014 and Director of Institute for Memory Impairments and Neurological Disorders (UCI MIND) from 2008-2018.

Professor LaFerla's research focuses on understanding the pathogenesis of Alzheimer's Disease, the most common form of dementia. His scholarly work has had a global influence on the field, as some of the models he has generated have been distributed to over 150+ researchers in more than 20 countries throughout the world; he has published over 200 original peer-reviewed articles and has been listed among the top 1% cited researchers in his field. He has received several honors for his research accomplishments including the Ruth Salta Junior Investigator Achievement Award from the American Health Assistance Foundation, Zenith Fellows Award from the Alzheimer's Association, Distinguished Mid-Career Faculty Research Award, Promising Work Award from the Metropolitan Life Foundation for Medical Research, and was elected as a Fellow to the American Association for the Advancement of Science and the American Neurological Association.

TEXAS SCIENTIFIC ITALIAN COMMUNITY

MECHANISMS OF RESISTANCE ASSOCIATED WITH INCORPORATION OF TARGETED THERAPHY TO CYTOTOXIC AGENTS AS A MODEL FOR THE RATIONAL ASSOCIATION OF THESE AGENTS TO STANDARD CHEMOTHERAPY USING GENOMIC, PROTEOMIC AND DNA BARCODING

Giuseppe Longo, MD, Ph.D.
Visiting Scientist at Department of Pediatrics-Research

ABSTRACT

This project will evaluate the mechanisms of resistance associated with incorporation of targeted therapy to cytotoxic agents as a model for the rational incorporation of these agents to standard chemotherapy.

Specific Aim 1 Using patient derived xenografts (PDX) models of osteosarcoma, resistant clones will be generated by treating with single agent ganitumab, AZD1775, cyclophosphamide, and irinotecan. Multiple mice and multiple models will be used to help elucidate the variability in the mechanisms associated with acquired unresponsiveness. Whole exome sequencing (WES) and DNA barcoding will be performed to determine if the genomic signature of the resistant clone is present in a subpopulation at the onset of treatment to elucidate if resistance arises from Darwinian selection or if stochastic alterations during and potentially related to treatment lead to the emergence of a new resistant phenotype. WES will define whether resistance occurs through common pathways or if multiple mechanisms are possible within a given PDX model. RNA sequencing (RNA-Seq) will describe the pathway alteration associated with the emergence of resistance. This will be validated by RPPA. Resistance to targeted therapy may occur via activation of alternative signaling pathways which assume the function of promulgating growth when a pathway is perturbed by the targeted therapy. The resistant tumors will be tested for the development of cross resistance. Based on the genomic and expression profile associated with resistance, this may lead to a signature for the prediction of the tumors likely to respond to targeted or cytotoxic therapy.

Specific Aim 2. Combination therapy of targeted and cytotoxic therapy will be tested when administered sequentially and concurrently. Ganitumab will be tested with irinotecan and cyclophosphamide. AZD1775 will be tested with irinotecan and cyclophosphamide. A comparison of the effects of combination therapy will be correlated with the mechanisms of resistance believed to be present to determine if a relationship exists. Based on the patterns of resistance occurring in Specific Aim 1, this will validate the ability to predict the responder hypothesis and whether the sequence and timing of administration can alter tumor response and progression-free survival of the osteosarcoma PDX models *in vivo*. Extrapolation of these results will have clinical implications for how these therapies should be introduced into the clinical setting.

Specific Aim 3. The proteogenomic profiles of resistance in the osteosarcoma PDX models will be evaluated for predictability of response in Ewing sarcoma, a translocation associated sarcoma with minimal mutational events, to evaluate the effect of genomic complexity on the mechanisms of resistance. PDX models of Ewing sarcoma will be evaluated by similar proteogenomic profiling. Ewing sarcoma PDX models will then be treated with combination therapy with ganitumab and irinotecan or cyclophosphamide and AZD1775 and irinotecan or cyclophosphamide. Comparison will be made between the operative mechanisms of resistance that emerge and whether the proteogenomic profile of resistance varies with differences in genomic complexity.

Significance: The innovation of this proposal is the use of genomic and proteomic profiling and DNA barcoding to understand mechanisms of intrinsic and acquired drug resistance that occurs with treatment in osteosarcoma PDX models. This proposal is clinically significant as it will guide the development of targeted therapy in osteosarcoma. Given the clinical challenge of adding agents, the approach that is often adopted is adding novel agents as a maintenance chemotherapy after the completion of standard chemotherapy. This proposal may provide data to suggest that this approach is futile, possibly explain the lack of progress, and drive approaches to move novel agents forward, perhaps by moving to similar but less standard upfront treatment regimens to permit that to occur. In Aim 3, these findings will be extended further by expanding the observation to genomically less complex malignancies, which encompass a greater proportion of pediatric malignancies.

TEXAS SCIENTIFIC ITALIAN COMMUNITY

BIOGRAPHY

Giuseppe Longo MD had his Medical Degree cum Laude at the Medical School of the University of Catania, where he obtained also his specialization in Hematology.

He won scholarships at the University of Cairo (Egypt), University of Graz (Austria), University of Berlin (Germany).

In 1995 he was appointed as Visiting Investigator at the Department of Molecular Pharmacology & Therapeutics at Memorial Sloan Kettering Cancer Center in New York (USA) where he was also Scientific Consultant for the Catholic Medical Center of Brooklyn & Queens.

In 1996 he was fellow of the American Italian Cancer Foundation receiving a grant for a research project on "Mechanism of resistance to antifolates in Acute Leukemias".

In 2003 he was Visiting Professor at the Robert Wood Johnson Medical School-The Rutgers Cancer Institute of New Jersey, where in 2005 he was appointed as Adjunct Assistant Professor at the Department of Medicine & Pharmacology.

In Italy he is Head of the Division Hematology of the Department of Medical Oncology at Ospedale San Vincenzo in Taormina, where he is also Director of the Program of Molecular Diagnostic and Director of the Program of Bone Marrow Transplantation.

He has studied the mechanisms of resistance of the neoplastic cells (Leukemias and Lymphomas) to chemotherapeutic drugs showing the importance of a particular cellular enzyme in determining the sensitivity to therapies.

In 2003 he was part of the team that discovered the presence of a mutation in a particular microRNA responsible for the resistance to Methotrexate, an important drug used in the treatment of many tumors.

From 2003 he has been involved in research projects that study the mechanism of action of new drugs developed from marine organisms and that are very active in the treatment of the neoplastic diseases.

RATIONALE AND IMPLEMENTATION OF CENTER OF EXCELLENCE FOR ATRIAL FIBRILLATION

Andrea Natale, MD, FHRS, FACC, FESC

ABSTRACT

EPLIVE is one of the many pioneering accomplishments of Dr. Natale's passionate mission to training and education: every two years a 2-day intensive educational meeting conducted under his direct guidance and supervision. Hundreds of health care providers (specialists, trainees, nurses, and industry) attend the meeting and benefit from first-hand information on the recent advancements in arrhythmia treatment and research as well as get the opportunity to interact with authorities in electrophysiology. His EPLIVE formula has been so successfully received that besides EPLIVE at TCA at St. David's Medical Center in Austin, Texas, he developed EPLATAM (Latin America), EPLIVE Europe, EPLIVE Dubai and starting in 2019 EPLIVE INDIA. He has been President of the historical workshop VeniceArrhythmia since 2007 and is Director of several prestigious courses and summits. His goal is to improve patient care through innovative advances in technologies such as robotic devices, highly specialized ablation catheters, and treatments ensuring his many patients the best quality of life possible.

BIOGRAPHY

Dr. Andrea Natale received his degree in Medicine and Surgery in 1985, and his Board Certifications from the American Board of Internal Medicine (Internal Medicine, Cardiovascular Disease and Clinical Cardiac Electrophysiology). He is the Executive Medical Director of the Texas Cardiac Arrhythmia Institute at St. David's Medical Center, Austin, Texas and the National Medical Director of Cardiac Electrophysiology for HCA Healthcare. A dedicated researcher and a pioneer, Dr. Natale focuses on innovative advances in the treatment of atrial fibrillation and ventricular arrhythmia. He perfected a circumferential ultrasound pulmonary vein-ablation system to correct atrial fibrillation and performed the procedure on the world's first five patients. He also developed some of the current catheter-based cures for atrial fibrillation, and was the first cardiac electrophysiologist in the nation to perform percutaneous epicardial radiofrequency ablation, which is a treatment for people who fail conventional ablation. A very active member of HRS for years, among the many accolades and recognitions received, in 2017 he was awarded the '2017 Eric N. Prystowsky Advocate for Patients Award' for outstanding service to and contributions for the benefit of Afib patients and their families. In 2018 he received the prestigious 'Star of Texas Healthcare Award' for his commitment to healthcare through professional achievement, nationally and internationally.

Dr. Natale has been an invited speaker to hundreds of symposia and conferences around the world. Moreover, he has authored numerous published articles on pacing and electrophysiology in high-impact peer-reviewed journals in addition to serving on the editorial boards of several major medical journals.

In 2018, he was appointed Editor-in-Chief of the *Journal of Interventional Cardiac Electrophysiology (JICE),* and remains in the leadership of the *Journal of Atrial Fibrillation* he founded and leads as Editor-in Chief-until 2018.

He has always been passionately dedicated to the training of new cardiac electrophysiologists, mentoring many of today and tomorrow's best.

BIOMARKERS AND DRUG TARGETS FOR PERINATAL DEPRESSION AT THE INTERFACE OF THE NEUROSTEROID AND ENDOCANNABINOID SYSTEMS

Graziano Pinna
The Psychiatric Institute, Department of Psychiatry, College of Medicine, University of Illinois at Chicago, Chicago.

ABSTRACT

Allopregnanolone, a GABAergic progesterone-derived neurosteroid, was recently approved to treat postpartum depression (PPD). Following childbirth, levels of this neurohormone abruptly drop and among the hypotheses that link allopregnanolone with PPD, the suggestion that allopregnanolone concentration decrease quicker and to lower levels than in mothers who fail to develop PPD is particularly intriguing. Unhealthy diets have been recently associated with increased prevalence of PPD. On the other hand, healthy diets by decreasing chronic low-grade systemic inflammation and reshaping the microbiome composition may lower the risk for peripartum depression. Intriguingly, a common molecular substrate linking systemic inflammation, mood disorders, and functional foods is represented by the nuclear receptor, transcription factor, peroxisome-proliferator activated receptor (PPAR)-alpha, which is also the target of endocannabinoids, endogenous endocannabinoid-like molecules, including palmitoylethanolamide (PEA), as well as micronutrients. Furthermore, PPAR-alpha activation can regulate allopregnanolone biosynthesis and, thereby, reduce inflammation and elevate mood. Herein, we discuss the potential benefits of assessing biomarker candidates for mood disorders at the interphase of the endocannabinoid system and neurosteroid biosynthesis. We suggest that healthy diets and functional foods by targeting the PPAR-allopregnanolone axis, restoring GABAergic neurotransmission and normalizing neuroinflammation may offer a suitable functional strategy to prevent and treat perinatal depression more safely.

BIOGRAPHY

Graziano Pinna received a PhD in Neuroendocrinology, Free University of Berlin, Germany and a Laura of Doctor in Neuropharmacology, University of Cagliari, Italy. He is a Research Associate Professor with the Psychiatric Institute, College of Medicine, UIC. He has authored almost 100 articles in impact journals of psychiatry and neuroscience, edited two books, was a guest speaker in numerous national and international meetings and an organizer for drug discovery symposia on mood disorders. Dr. Pinna is a member of the editorial board of numerous neuroscience journals, including Neurobiology of Stress and Neuropharmacology and has received NIH, DOD and VA grants. His research focus on biomarker discovery and scientific achievements in neuropsychopharmacology include the contribution to the discovery of a novel mechanism for SSRI antidepressants and of neurosteroid-based treatment targets with impact for PTSD and depression therapy.

TEXAS SCIENTIFIC ITALIAN COMMUNITY

M. Cristina Polidori

Long-term strenghts and benefits of an established network of italian researchers in Germany: implications in the time of covid-19

M. Cristina Polidori[1], Fiorella Retucci[2], Luisa Sodano[3], Federico Caobelli[4]

[1] Head Ageing Clinical Research, Dpt. II of Internal Medicine and Center of Molecular Medicine, Medical Faculty, University Hospital of Cologne; PI Associate, CECAD Cluster of Excellence, University of Cologne, Cologne, Germany; Scientific Advisor, Forum Accademico Italiano e.V.; [2]Philosophische Fakultät, University of Cologne, Cologne, Germany; Dipartimento di Studi Umanistici, Universitá del Salento, Italy; President, Forum Accademico Italiano e.V.; [3]Former Deputy Health Director "San Camillo Forlanini" Hospital, Rome, Italy; Curator of the book "Emozioni virali", Pensiero Scientifico Editore 2020; [4]Clinic of Radiology and Nuclear Medicine University Hospital Basel and University of Basel, Basel, Switzerland; Founder and Co-chair, International Question Time

Some of the characteristics of Italians abroad are exemplarily represented by the rapid growth of a network of italian researchers since the foundation, in 2010, of one of the first associations of its kind worldwide, the non-profit association Forum Accademico Italiano e.V. (fai.science). While the latter organized during the years high-ranked scientific events and cultural happenings to promote trans-generational and transnational education and knowledge, its rapidly growing activities reflect in recent times two remarkable phenomena: the first, quite silent but overwhelming, is the exodus of millions of expatriating countrymen reaching only between 2017 and 2019 the number of 115000 with 75000 remaining abroad. The second is the tragic, loud syndemic-related situation, which unmasked unique long-lasting dramatic neglected features of socioeconomic, politic and healthcare systems (http://www.genteditalia.org/2019/09/25/italiani-allestero-intelligenze-senza-confini/; https://pubmed.ncbi.nlm.nih.gov/32586683/). The incredible amount of humanitarian and divulgative activities initiated by italian expatriats worldwide recently is an unsurpassed sign of attention towards the country of origin. Here, we present initiatives like International Question Time, Vicini Vinciamo, Emozioni Virali, Exploring and I Venerdí della Scienza among others, which all share the common goal of lowering, and maybe reversing, the acute frailty of a culture sharing challenges and opportunities with the rest of the world.

UMBILICAL CORD DERIVED MESENCHYMAL STEM CELL INFUSIONS FOR TREATMENT OF SUBJECTS WITH COVID-19 AND ACUTE RESPIRATORY DISTRESS SYNDROME: A DOUBLE BLIND, RANDOMIZED CONTROLLED TRIAL

Camillo Ricordi [1] and Giacomo Lanzoni [1,2]

1) Diabetes Research Institute, Cell Transplant Center, University of Miami Miller School of Medicine, Miami, FL, USA
2) Department of Biochemistry and Molecular Biology, University of Miami Miller School of Medicine, Miami, FL, USA

ABSTRACT

A subset of subjects infected by SARS-CoV-2 develops severe COVID-19 requiring hospitalization. Severe COVID-19 is believed to result from hyperinflammation, overactive immune response triggering cytokine storm, and a pro-thrombotic state, collectively determined as immuno-thrombosis, all elicited by SARS-CoV-2 infection. Subjects progressing to Acute Respiratory Distress Syndrome (ARDS) require high flow oxygen therapy, intensive care, and can require mechanical ventilation. Mortality in subjects with COVID-19 ARDS was reported to be 52.4%. There is an urgent need for novel therapies that can attenuate the excessive inflammatory response associated with the immunopathological cytokine storm and immuno-thrombosis, that can accelerate the recovery of functional lung tissue, and that can abate mortality in patients with severe COVID-19.

Mesenchymal Stem Cells, also known as Mesenchymal Stromal Cells or Medicinal Signaling Cells (MSCs), have been shown to modulate overactive immune and hyper-inflammatory processes, promote tissue repair, and secrete antimicrobial molecules. These cells, with established safety profile when administered intravenously, have been studied for treatment of autoimmune diseases (e.g., type 1 diabetes), systemic lupus erythematous, inflammatory disorders, and steroid-refractory Graft-versus-Host-Disease. MSCs have been reported to limit inflammation and fibrosis in the lungs, and have generated variable yet promising results in ARDS of viral and non-viral etiology. Ongoing trials are now testing MSCs in patients with severe COVID-19, and pilot uncontrolled trials have reported promising results. MSCs can be isolated and expanded from multiple tissues, including the Umbilical Cord (UC). UC-MSC constitute a cell type of choice in cell therapy trials, including for COVID-19. The experience accumulated thus far indicates that allogeneic UC-MSC administration is safe in a multitude of diseases. These cells can be derived from umbilical cords discarded after delivery and quickly expanded to clinically relevant numbers. They express low levels of Class I and Class II HLA, which may reduce alloreactivity. Our cGMP manufacturing facility is now scaling up UC-MSC manufacturing to support upcoming multisite clinical trials, where large numbers of cell doses will be required.

The objective of this study was to determine safety and explore efficacy of Umbilical Cord Mesenchymal Stem Cells (UC-MSC) infusions in subjects with COVID-19 ARDS. A double-blind, phase 1/2a,

randomized, controlled trial was performed. Randomization and stratification by ARDS severity was used to foster balance among groups. All subjects were analyzed under intention to treat design. 24 subjects were randomized 1:1 to either UC-MSC treatment (n=12) or Control group (n=12). Subjects in the UC-MSC treatment group received two intravenous infusions (at day 0 and 3) of 100±20 $x10^6$ UC-MSC, controls received two infusions of vehicle solution. Both groups received best standard of care.

Primary endpoint was safety (Adverse Events (AEs) within 6h, cardiac arrest or death within 24h post infusion). Secondary endpoints included patient survival at 31 days post first infusion and time to recovery. No difference was observed between groups in infusion-associated AEs. No serious adverse events (SAEs) were observed related to UC-MSC infusions.

UC-MSC infusions in COVID-19 ARDS were found to be safe. Inflammatory cytokines were significantly decreased in UC-MSC-treated subjects at day 6. Treatment was associated with significantly improved patient survival (91% vs. 42%, p=0.015), SAE-free survival (p=0.008), and time to recovery (p=0.03). In conclusion, UC-MSC infusions are safe and could be beneficial in treating subjects with COVID-19 ARDS.

BIOGRAPHY

Camillo Ricordi, M.D. is the Stacy Joy Goodman Professor and Director of the Diabetes Research Institute (DRI; www.diabetesresearch.org) and the Cell Transplant Center at the University of Miami.

Acknowledged as a leading scientist in diabetes cure-focused research and cell transplantation, Ricordi is known for inventing the method that made it possible to isolate large numbers of insulin-producing cells from the human pancreas and for performing the first series of successful clinical islet allotransplants that reversed diabetes. The procedure is now used worldwide and in 2017 the first NIH funded, FDA Phase 3 multicenter trial was successfully completed by the NIH Clinical Islet Transplantation Consortium (Ricordi SC Chairperson). Ricordi's research interests include reversal of autoimmunity, transplant tolerance, modulation of immunity and inflammation and regenerative medicine, to prevent or treat chronic degenerative disease conditions, and to prolong healthy lifespan (healthspan). More recently he has been on the front lines in the battle against COVID-19, leading the international team that successfully completed the first randomized controlled trial to treat the most severe cases of COVID-19 and ARDS with Umbilical Cord Mesenchymal Stem Cells (UC-MSC).

Ricordi has received numerous honors and awards, including the Outstanding Scientific Achievement Award by the American Diabetes Association (2002). Knighted by the President of the Republic of Italy in the highest Order of the Republic (the Order of Merit), in 2018 Ricordi was inducted into the National Academy of Inventors, and ranked as #1 world expert in transplantation of insulin producing cells for

treatment of diabetes among over 4,000 surgeons, physicians and scientists evaluated (2008-2018). He is also serving on the Supreme Council of Health (Consiglio Superiore di Sanita') of Italy.

Ricordi is author of over 1,150 scientific publications that have been cited over 45,700 times (h-index 100) and as an inventor, he has been awarded 27 patents.

Giacomo Lanzoni, Ph.D. is Research Assistant Professor at the Diabetes Research Institute, Department of Biochemistry and Molecular Biology, University of Miami. Dr. Lanzoni has 15 years of experience on placenta- and umbilical cord-derived MSCs. He has extensive experience in the development and characterization of MSC and stem cell products for cell therapy.

Dr. Lanzoni's main research interest is on the clinical translation of the immunomodulatory and regenerative properties of MSCs.

Dr. Lanzoni has experience in clinical trial design and coordination, and has been responsible for the establishment of UC-MSC cultures. Moreover, he has been responsible for the characterization of the UC-MSC immunomodulatory potency, both *in vitro* and in treatment recipients, and has overseen mechanistic analyses in the clinical trial.

ARTIFICIAL INTELLIGENCE: CHALLENGES AND OPPORUNITIES IN THE HEALTHCARE

Enrico Santus, PhD
Senior Data Scientist at Bayer

ABSTRACT

The recent pandemic has shown how crucial information is to make informed decisions about a phenomenon. As of today, thousands of reports, papers and statistics have been published about COVID-19. Yet, this massively amount of documents suffers from the same three Vs that characterize big data, namely velocity (i.e. data is produced at a higher speed than what we are able to digest), variability (i.e. data is produced in various formats, which are hard to analyze and often not interoperable) and veracity (i.e. not all data is equally trustable). As these three Vs limit our actionable capabilities, the COVID-19 is hardly testing the resilience of our healthcare systems, finally impacting their final users: the patients. In recent years, Artificial Intelligence (AI), and in particular Natural Language Processing (NLP), have been adopted to extract actionable insights from data to increase healthcare efficiency and effectiveness. In this talk, I will describe some state-of-the-art algorithms that have been recently utilized in collaborations between academic institutions (such as MIT) and clinics (such as the Massachusetts General Hospital and Dana Farber) to improve prevention and therapeutic outcomes. In particular, I will discuss how AI can be utilized to optimize clinical processes (e.g. through risk management and patient selection for oncology and cardiovascular diseases), drug development and adverse events monitoring. I will also show how we recently model the impact of utilizing tracing apps, such as the well-known *Immuni* app, to reduce (and possibly suppress) the diffusion of the virus. While the exploitation of AI in the healthcare domain is just at its initial stage, we can expect an enormous impact in the next few years. Had we started this process a few years before, the COVID pandemic would have probably been under control and 2020 would have been a completely different year.

As appendix of this talk, I will mention my activity with AiSDeT, the Italian Association of Digital Health and Telemedicine, which is meant to bring together managers, physicians, researchers, start-ups, enterprises and universities to encourage the transition of the National Health Service (NHS) towards innovation and digitization models, with the final goal of improving communication and outcomes for the patients. While the focus of AiSDeT is the Italian NHS, its network extends to worldwide collaborations with foreign specialists to foster cooperation, exchange and knowledge transfer, also launching international projects. As of today, AiSDeT boasts foreign collaborations with health and university representatives, (Israel, Albania, Argentina, Chile, Mexico) and participation in European projects H2020. AiSDeT collaborates with the Italian Agency for Digital Development (Agid) and with the Italian universities of Bari, Naples, Palermo, Catania, Milan and Rome.

TEXAS SCIENTIFIC ITALIAN COMMUNITY

BIOGRAPHY

Enrico Santus is a senior data scientist at **Bayer**.

After his PhD at the Hong Kong Polytechnic University, he worked as postdoc at the Singapore University of Technology and Design and at the Computer Science and Artificial Intelligence Lab of **MIT** (CSAIL), in the group of Regina Barzilay.

His academic career includes affiliations with the King's College of London, the University of Pisa, the University of Stuttgart, the Nara Institute of Technology and **Harvard**. His work touches topics such as NLP in Oncology, Cardiology and Palliative Care. Enrico has also worked on Epidemiology, Fake News Detection, Sentiment Analysis and Lexical Semantics.

As of today, Enrico has published over 50 papers (some of which appeared in top journals, such as **Nature Digital Medicine**), with over 650 citations. He collaborated to the creation of The Prayer (artist: Diemut Strebe), a mouth-shaped robot that pronounces original prayers, generated with Artificial Intelligence, exposed at the **Centre Pompidou**, in Paris. He was also involved in the creation of Safe Paths, the MIT tracing app. He is CEO of RenaiXance and advisor of three start ups: K-Juicer, MindPhi and MedLyticsAI.

Enrico was also invited to speak at the **White House** about how to utilize natural language processing for optimizing document management, and he is first author of a fact sheet about Artificial Intelligence for the **American Congress**:
https://www.belfercenter.org/publication/technology-factsheet-artificial-intelligence

TEXAS SCIENTIFIC ITALIAN COMMUNITY

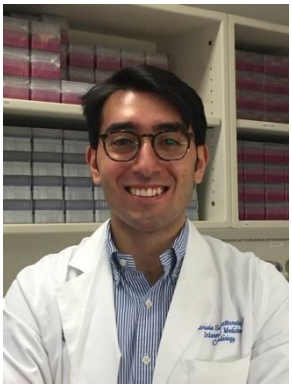
MODERATOR

Sara Molinari
PhD Biology Engineering
Post-doc Research Associate
Caroline Ajo-Franklin Lab
Rice University - Houston, Texas

After a few training years in cancer cell studies and systems biology, I turned my attention to synthetic biology. During my PhD, I engineered a genetic circuit capable of inducing asymmetric cell division of E. coli. In this way, I obtained a microbial strain with the ability to differentiate into genetically distinct cell lineages, similarly to stem cells. This opens the way to the engineering of microbial multicellular systems, as well as to new strategies for pattern formation. Currently I am working on engineering a living hydrogel made of recombinant bacteria producing a protein-based extracellular matrix. This work is part of a broader effort to discover the fundamental principles to create synthetic living materials.

TEXAS SCIENTIFIC ITALIAN COMMUNITY

MODERATOR



Gabrielle G. Schiattarella
M.D., Ph.D., Assistant Professor of Cardiology
Università Federico II of Naples, Italy and
UT Southwestern Medical Center, Dallas, Texas

WORK EXPERIENCE EDUCATION AND TRAINING CURRENT POSITION: Postdoctoral Researcher, Division of Cardiology, University of Texas Southwestern Medical Center, Dallas, Texas, USA

01/2015 – Today Researcher, Laboratory Molecular Cardiology, Division of Cardiology, UT Southwestern Medical Center, Dallas, Texas, USA. Supervisor: Joseph A. Hill M.D., Ph.D. ▪ Main subjects: Heart failure with preserved ejection fraction (HFpEF); unfolded protein response; FOXOs signaling; autophagy; lipid signaling.

04/2010 – 05/2015 Fellow in Cardiology, Division of Cardiology, Federico II University, Naples, Italy. Supervisors: Giovanni Esposito M.D., Ph.D. and Cinzia Perrino M.D., Ph.D. ▪ Main subjects: mechanisms of cardiac hypertrophy and remodeling; heart failure; pre-clinical models of cardiovascular diseases; mechanisms of peripheral arterial disease.

EDUCATION:

09/2002 – 07/2009 Medical Degree (MD) “Magna cum Laude”, Federico II University, Naples, Italy.

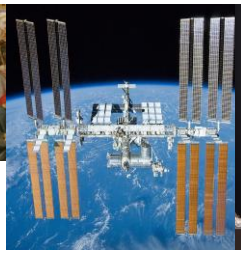
01/2010 – today Unrestricted License to practice Medicine and Surgery in Italy and all other Countries of the European Community.

01/2010 – 05/2015 Specialization in Cardiology (board in Cardiology) with “highest score” Division of Cardiology, Federico II University, Naples, Italy.

TEXAS SCIENTIFIC ITALIAN COMMUNITY

STEAM



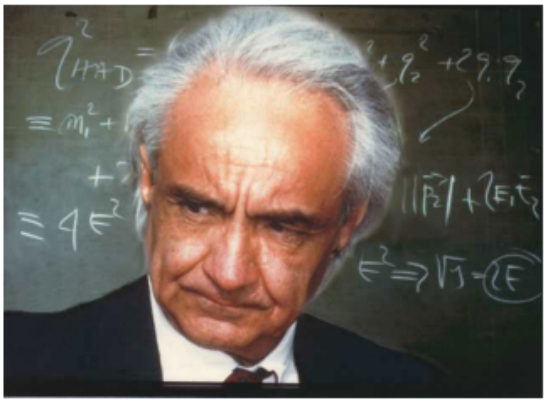




TEXAS SCIENTIFIC ITALIAN COMMUNITY

INTRODUCTORY SPEAKER

ETTORE MAJORANA FOUNDATION AND CENTRE FOR SCIENTIFIC CULTURE

TO PAY A PERMANENT TRIBUTE TO ARCHIMEDES AND GALILEO GALILEI, FOUNDERS OF MODERN SCIENCE AND TO ENRICO FERMI, THE "ITALIAN NAVIGATOR", FATHER OF THE WEAK FORCES



Professor Antonino Zichichi

Professor Antonino Zichichi is Emeritus Professor of Advanced Physics at the University of Bologna, has authored over 1100 scientific papers which include: 7 discoveries, 5 inventions, 3 original ideas which opened new avenues in high energy Subnuclear Physics and 5 high-precision measurements of fundamental physics properties. Among the discoveries are the pair production of heavy mesons with positive and negative strangeness (the decisive proof for the existence of the strangeness quantum number in the Subnuclear Universe), the Effective Energy in QCD and the nuclear antimatter; among the inventions are a new technology for constructing high-precision polynomial magnetic fields 100 times cheaper and 100 times faster than other technologies, the electronic circuit for time-of-flight measurements with a precision of fifteen picoseconds (thousandths of nanosecond); among the original ideas is that which brought the discovery of the third column in the fundamental structure of the Universe. The great projects of European Physics – LEP and LHC at CERN, GRAN SASSO at INFN, HERA at DESY – are all linked to his name for his seminal contributions in their conception consequent study and implementation phases. He has been in charge at the European and National level (EPS and INFN). He founded the "Ettore Majorana Center for Scientific Culture" in Erice and the "Enrico Fermi Centre" in Rome. He is President of the "World Federation of Scientists". Nine books were written by eminent scientists about his discoveries and inventions. The asteroid discovered in 1986 has been dedicated to him, *3951 Zichichi*. He has written 24 books; received 105 Prizes, 24 honorary citizenships, 10 Gold Medals, 9 honorary Ph.D. degrees and is member of 13 scientific Academies. He was awarded honours in 16 Countries: Argentina, China, Georgia, Germany, Italy, Kyrgyzstan, Lithuania, Malta, Moldova, Poland, Romania, Russia, Ukraine, UK, USA and Vatican City.

THE EMERALD AND GOLD NECKLACE FROM OPLONTIS, VESUVIAN AREA, NAPLES, ITALY

Carlo Aurisicchio, A. Corami, S. Ehrman, G.Graziani, S. Nunziante Cesaro
CNR – Istituto di Geoscienze e Georisorse

ABSTRACT

The present study refers to the characterization of an Emerald and gold necklace, dating from the first century A.D., found in Oplontis (Torre Annunziata, Naples, Italy), using non-destructive methodologies such as EPMA and microFTIR. Reference samples, from mines known to be active in the Roman Imperial period, were collected and analyzed using the same techniques. Experimental data were also statistically treated in order to classify the emeralds' mines. The comparison of archaeological and reference data allowed to hypothesize, with high probability, an Egyptian origin for Oplontis emeralds – even if the Habachtal mine cannot be definitively excluded.

BRIOGRAPHY

Dr. Carlo Aurisicchio received his degree in chemistry from Rome university La Sapienza. His thesis dealt with applications of the Mossbauer effect on compounds (General and Inorganic Chemistry).

The National Research Council accorded him the status of “Prime Researcher.” On numerous occasions he has studied and done research abroad, financed by scholarships and grants from research projects. The National Research Council named him Director of the Center for Study of Experimental Equilibriums in Rocks and Minerals.

He has headed numerous Italian and international scientific research projects, his activity being focused on mineralogical and crystallographic chemistry. He has devoted particular attention to investigating the chemical composition, structure and genetic conditions of natural accessory phases of Li, Be and B in pegmatitic veins.

These research undertakings have involved minerals in the cyclosilicate group (beryl, tourmaline and cordierite) and the oxides of Nb and Ta, present in the aforementioned associations. These minerals are interesting both from the standpoint of their composition (presence of rare elements) and structure.

THE ORIGIN OF CELLULAR RESPIRATION AS WE KNOW IT

Mauro Degli Esposti

Senior Research Fellow,
Centre for Genomic Science
UNAM, National Autonomous University of Mexico

ABSTRACT

Mitochondria carry out the great majority of cellular respiration, namely oxygen consumption, and derive from aerobic bacteria. The quest of the bacterial ancestors of mitochondria brought me to Mexico; after decades of work on the biochemistry, biophysics (mostly undertaken during post-doctoral stays at Rice University, Houston, Texas) and cell biology of mitochondria, I have focused my work on the evolution of these organelles. I will report my recent findings and insights on the origin of mitochondrial and cellular respiration as we know it, which is actually as old as oxygen on earth.

BIOGRAPHY

Date of birth May 20, 1955 **Citizenship:** Italian

Education *Laurea* in Biological Sciences, *summa cum laude*, University of Bologna, 1978.

Employment

January 2016 – current	**Investigator**, Center for Genomic Sciences UNAM, Cuernavaca, Mexico
Oct 2015 – Dec 2016	**Sabbatical Investigator**, Center for Genomic Sciences UNAM, Cuernavaca, Mexico
October 2011 – September 2017	**Senior Scientist**, Italian Institute of Technology (IIT), Genoa, Italy
September 2003 – 2012	**Lecturer**, School of Biological Sciences, University of Manchester, UK
April 2000 – Aug 2003	**Senior Research Fellow**, Cancer Research UK Molecular Pharmacology Group, School of Biological Sciences, University of Manchester, UK.

January-March 1999	**Visiting Scientist,** La Jolla Institute for Allergy and Immunology (LIAI), (and August 1998) San Diego, California, USA.
February 1995 -	**Senior Research Fellow**, Department of Biochemistry and Molecular
December 1998	Biology, Monash University, Clayton, Victoria, Australia.
April 1983	**Ricercatore**, Department of Biology, University of Bologna,
January 1995	School of Biological Sciences, Bologna, Italy.
October 1986 -	**Sabbatical Postdoctoral Scientist**, Department of Biochemistry,
April 1987	Rice University, Houston, Texas, USA

Research Production and Impact

From 1982 onwards I have managed research groups in Italy, Australia, UK and Mexico. My research has produced over 120 papers in peer review journals and over 50 other publications, including a recent book for CRC press as editor.

Total citations, over 8600; h-index, 48 - http://scholar.google.com/citations?user=_FeH-rcAAAAJ&hl=en

GENETIC CONNECTIVITY AND PHYLOGENETIC PLACEMENT OF SOUTH AFRICA POPULATIO OF THE ASCIDIANS *PYURA HERDMANI* AND *PYURA STOLONIFERA*

Alessia Dinoi[1]

[1]*University of Johannesburg, Johannesburg, South Africa*

ABSTRACT

Along the South African coast, there is an important coastal bioengineer that covers most of the rocky shores. Commonly known as red bait, the ascidians of the genus *Pyura* are present in the intertidal zone. It is known that *Pyura herdmani* occurs in temperate and subtropical marine bioregions and *Pyura stolonifera* in temperate ones. However, the sea temperature along the east-south African coast has been differently influenced by the Agulhas current. The present study interprets the effect of the climate change with these non-model organisms investigating the genetic connectivity. Utilizing ANT intron and 5 microsatellites markers for understanding the abundance and distribution of these species. Furthermore, the mitochondrial genomes and 20225 SNPs for interpreting the phylogenetic relationship within *Pyura* spp. and related species. Out of 260 individuals collected at 13 different sites, from Port Edward to Port Elizabeth, 24 haplotypes from ANT marker were found. Three lineages were identified, one for *Pyura stolonifera* and two for *Pyura herdmani*. A detailed distribution revealed the dispersal of species facilitated by the southward-flowing Agulhas current. Few sites showed the co-presence of the lineages. This research represents a detailed work into the genetic population structure and extends the available information on *Pyura* spp.

Biography

Alessia Dinoi is a Coastal and Marine Biologist and Ecologist.

She was born in the cold city of Milan, in Italy, but she had always been fascinated by the nature, in particular, by the sea.

For this reason, she built up her academic and professional career always in the marine field. She attended the Bachelor Degree at the University of Milano-Bicocca and the Master degree at the University of Salento-Lecce Italy achieving high results. She collaborated with the Molecular lab of the University of Perpignan in France and later with the University of Male - Maldives for different research projects.

Nowadays she's attending her fourth year of the Ph.D. in Molecular Zoology at the University of Johannesburg under the supervisor of Prof, Peter Teske.

Full of enthusiasm for her passion and her research, she hopes to improve her academic career growing the scientific knowledge.

TEXAS SCIENTIFIC ITALIAN COMMUNITY

Nuclear Quantum Effects in Condensed Matter

Modeling Materials at the Edge between Classical and Quantum Mechanics

Fabio Tesa Finocchi

Institut des NanoSciences de Paris (INSP), UMR CNRS 7588 and Sorbonne Université

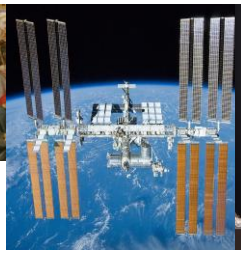
Modeling the properties of materials is a rapidly expanding area of research, as it becomes nowadays possible to conceive and design materials with specific properties, almost from scratch. Materials consist of an assembly of electrons and nuclei. For the electrons, we use first-principles theories, which are based on the fundamental theorems of quantum mechanics. In contrast, nuclei are usually treated as particles obeying the laws of classical mechanics. Although much heavier than electrons, light nuclei, mainly hydrogen, exhibit quantization of the vibrational levels, zero-point energy and tunneling. These so-called Nuclear Quantum Effects (NQE) can have a large impact on the structure and the dynamics of materials [1]. NQE are also crucial for describing heavier nuclei at low temperatures and isotope effects (such as isotope fractionation) and other phenomena that escape a purely classical frame.

From several years, we develop numerical models and theories that account for nuclear quantum effects, at various approximation levels. In this talk, I will briefly describe how we treat nuclei in a hybrid quantum-classical regime [2], that is, between classical and quantum mechanics, and illustrate with selected examples some paradoxical effects that can be encountered in condensed matter: from water [3,4] and other water-containing systems [5,6] at extreme pressures, typical of those inside giant icy planets of the solar system, to inorganic crystals with hydrogen bonds at ordinary conditions [7]. The behavior of systems that are at the borderline between the classical and quantum worlds is in general complex. The genuine quantum characteristics might be spoiled by several physical factors, such as electric fields, high disorder, etc.

I will conclude by discussing the importance of simulation methods that are able to account for the quantum dynamics of nuclei. The advent of machine-learning based techniques has opened the way to refine models for describing the inter-atomic forces, and the nuclear quantum effects, even if modest, might therefore change the force fields appreciably. The explicit inclusion of NQE in simulations is a passionating and emerging field of research, with impact on many fields, spanning materials science, geophysics, theoretical physical chemistry and biochemistry.

[1] T. Markland and M. Ceriotti, Nuclear quantum effects enter the mainstream, Nature Rev. Chem. 2 (2018), 0109.
[2] E. Mangaud et al., The fluctuation–dissipation theorem as a diagnosis and cure for zero-point energy leakage in quantum thermal bath simulations, J. Chem. Theory Comput. 15 (2019) 2863.
[3] Y. Bronstein, P. Depondt, F. Finocchi, and A. M. Saitta, Quantum-driven phase transition in ice described via an efficient Langevin approach, Phys. Rev. B 89 (2014), 214101.
[4] Y. Bronstein, P. Depondt, F. Finocchi, et al., Quantum versus classical protons in pure and salty ice under pressure, Phys. Rev. B 93 (2016), 024104.
[5] S. Schaack et al., Observation of methane filled hexagonal ice stable up to 150 GPa, Proc. Natl. Acad. Sci. 116 (2019) 16204.
[6] S. Schaack, P. Depondt, M. Moog, F. Pietrucci, and F. Finocchi, How methane hydrate recovers at very high pressure the hexagonal ice structure, J. Chem. Phys. 152 (2020), 024504.
[7] S. Schaack, P. Depondt, S. Huppert, and F. Finocchi, Quantum driven proton diffusion in brucite-like minerals under high pressure, Sci. Rep. 10 (2020) 1.




TEXAS SCIENTIFIC ITALIAN COMMUNITY

Dr. Fabio Finocchi's Curriculum Vitæ

Institut des NanoSciences de Paris (INSP),
Sorbonne Universités, UPMC and CNRS, UMR 7588, 4 place Jussieu, F-75005 Paris, France
Tel.: 01 4427 5116, E-mail: fabio.finocchi@upmc.fr,
web: http://www.insp.jussieu.fr/-Finocchi-Fabio-.html?lang=fr

Academic positions

May 2011: Invited Professor at the Physics Department of Cagliari University, Italy (one month).
Since 2005: CNRS Senior Researcher, Institut des NanoSciences de Paris (INSP), France.
2002-2004: CNRS Associate Researcher, Groupe de Physique des Solides (GPS), Paris, France.
1993-2001: CNRS Associate Researcher, Laboratoire de Physique des Solides (LPS), Orsay, France.
1992-1993: Research fellow, Centre de Calcul Atomique et Moléculaire (CECAM), Orsay, France.
1991-1992: Post-Doc fellow, IBM Laboratories, Ruschlikön, Switzerland.

Education and Diploma

2004: Habilitation, Paris-Sud University (Paris-XI), Orsay, France.
1991: Ph.D. in Physics, "Tor Vergata" University, Rome, Italy.
1987: Laurea in Physics *summa cum laude*, "La Sapienza" University, Rome, Italy.

Main Research Topics

- Theory and simulation of nuclear quantum effects in condensed matter via stochastic approaches (Generalized Langevin Equation) and approximate quantum dynamics for light atoms.
- Interpretation of grazing-incidence, fast-atom diffraction (GIFAD) experiments.
- Study of the structural, vibrational, electronic and magnetic properties of clusters, surfaces and interfaces.
- *Ab initio* thermodynamics and application to surface hydration and hydrogenation.
- First-principles (Car-Parrinello) molecular dynamics.
- Non-local exchange and correlation effects at metallic surfaces.

Scientific Production

- 88 publications in peer-reviewed journals, 8 conferences proceedings, 5 chapters in books. H=31, about 3400 citations.
- 16 invited conferences ; about 60 communications at international and national conferences or seminars.

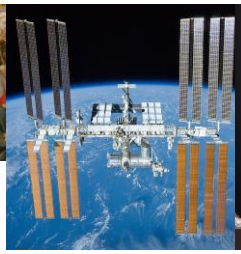
Five selected publications :

- S. Schaack et al., Observation of methane filled hexagonal ice stable up to 150 GPa, Proc. Natl. Acad. Sci. 116 (2019) 16204.
- Y. Bronstein, P. Depondt, L.E. Bove, R. Gaal, A.M. Saitta, F. Finocchi, « Quantum versus classical protons in pure and salty ice under pressure », Phys. Rev. B 93 (2016) 024104.
- H Khemliche, P Rousseau, P Roncin, VH Etgens, F Finocchi, « Grazing incidence fast atom diffraction : an innovative approach to surface structure analysis », Appl. Phys. Lett. 95 (2009), 151901.
- P. Geysermans, F. Finocchi, J. Goniakowski, R. Hacquart, J. Jupille, "Combination of (100), (110) and (111) facets in MgO crystal shapes from dry to wet environments", Phys. Chem. Chem. Phys. 11 (2009) 2228.
- J. Goniakowski, F. Finocchi, C. Noguera, "Polarity of oxide surfaces and nanostructures", Rep. Prog. Phys. 71 (2008) 016501. (Review paper).

Lectures and teaching

- Lecturer of "Fundamentals of Solid State Physics" (2003-2013) for the Master in Nano- and Materials Science, Paris 6 University.
- Lecturer of "Numerical Methods and Simulations" (since 2003) for the Master in Nano- and Materials Science, Paris 6 University.
- Teacher and co-lecturer in "Solid State Physics" (2009-2014) for the International Master "NanoMat", a common project by the Uppsala University (Sweden), Roma-3 University (Italy) and Paris-6 University.
- Lecturer of "Numerical Methods and Simulations", (1998-2003) DEA, Paris 6 University.




TEXAS SCIENTIFIC ITALIAN COMMUNITY

Since 1995, Dr. Finocchi has been supervising (alone or with colleagues) 14 Ph.D. thesis works and about 30 Master Internships.

External and University Committees

- Coordinator of the theoretical axis in the excellence lab "Matisse" at Paris 6 University (2014-2018).
- Member of the INSP local council, (2004-2008) and the INSP scientific council, since 2012.
- Member of the CECAM council ("Centre Européen de Calcul Atomique et Moléculaire"), now based at EPFL, Lausanne (Switzerland), for two years (2008-2009), as CNRS representative.
- Member of "Commission de Spécialistes" of the Paris 6 University (2003-2004).
- Member of the IDRIS (CNRS computational facility, Orsay, France) Users' Committee (1998-2002) and IDRIS Scientific Committee (1996-2004).
- Member of "SEMAT" (Structure Electronique des MATériaux) Board (1996-2000). SEMAT was a French initiative to promote new developments and joint projects in computational solid state physics, which was at the roots of other, more recent initiatives in the field (GDR CNRS).
- Coordinator of the theoreticians' group at LPS, Orsay (1996-1999).

Workshop and Conference Organization

- CECAM Workshop on "Semi-classical methods for quantum dynamics", Paris (2017), with Ph. Depondt.
- Colloquium at "Journées de la Matière Condensée", Bordeaux (2016), with J. Teixeira.
- Annual Workshop of the COST-D41 European Action, Paris (2008), member of the local committee.
- Annual « Journées de Simulation Numérique », Paris (2003-2014), with Ph. Depondt and J.-C. Levy.
- International School "State of the Art Simulations in Electronic Structure and Total Energy for Surface Science", Cargèse, France (2001), member of the scientific committee.
- Workshop "SEMAT-99", Mont Sainte-Odile, France (1999), member of the scientific committee.
- Workshop "SEMAT-97", Orsay, France (1997), member of the local and scientific committees.
- International Workshop on Oxide Surfaces ("IWOX-0") Les Houches, France (1997), with C. Noguera.

Networks and contracts

- Contracts (2017-2019) with Saint-Gobain Recherche on the simulation of electrochromic glasses.
- Ph.D. Thesis fellowship for Yael Bronstein by the Ile-de-France region (2013-2016).
- Member of the EEC COST Action D-41 (Inorganic Oxides: Surfaces and Interfaces) (2006-2010).
- Contract "SIMINOX", (main coordinator: J. Goniakowski, 2007–2010) with the French Research Agency (ANR) for the simulation of nano-scale oxide systems. This included a grant for a post doc fellowship (person in charge: A. Bourgeois) and the installation of a local computing cluster.
- Member of the EEC FP-6 network "CONCORDE" (Coordination of Nano-structured Catalytic Oxides Research and Development in Europe), (2004-2006).
- One-year contract (2004) of about 20,000 €, with the Paris-VI University, for the study of the interaction between water and oxide surfaces (plan "BQR").
- Two-years contract (2000-2001) of about 30,000 €, with Paris-XI University and Thales Laboratories, for the study of oxide interfaces and surfaces (plan "ISARD").
- Member of the EEC network "Modifications of the structural, vibrational and electronic characteristics of oxides induced by defects at the surfaces and in ultra-thin films" (1995-1998).
- Grant with the Scientific Department of the French Army for a one-year fellowship (person in charge: B. Amadon, 1996). Subject: "Theoretical study of ternary Si-C-N semiconductors".

MATERIALS AND MOLECULES THROUGH IN-SILICO LENSES

Giulia Galli
University of Chicago & Argonne National Laboratory

ABSTRACT

Materials are enablers of innovation in science and technology and have brought about revolutionary changes to society: familiar examples are the materials used in transistors and in batteries that have become omnipresent in our daily lives. In this talk we will tell an atomic-level story of how we can predict and design materials for next generation technologies, by combining theories based on quantum mechanics, software running on high performance computers and ever-growing amounts of data. We aim to tackle two outstanding challenges: designing sustainable materials to efficiently capture solar energy and enable technologies deployable in both developed and developing countries, and inventing materials to build radically novel sensors and computers, to move in earnest into the quantum information age.

BIOGRAPHY

Giulia Galli is the Liew Family professor of Electronic Structure and Simulations in the Pritzker School of Molecular Engineering and Professor of Chemistry at the University of Chicago. She also holds a Senior Scientist position at Argonne National Laboratory, where she is the director of the Midwest Integrated Center for Computational Materials. Prior to joining UChicago, she was Professor of Chemistry and Physics at UC Davis (2005-2013) and the head of the Quantum Simulations group at the Lawrence Livermore National Laboratory (LLNL, 1998-2005). She holds a Ph.D. in Physics from the International School of Advanced Studies in Italy. She is a Fellow of the American Physical Society (APS), American Association for the Advancement of Science and an elected member of the American Academy of Arts and Science and the National Academy of Sciences. She is the recipient of numerous awards, including the LLNL Science and Technology Award, the US Department of Energy Award of Excellence, the Materials Research Society Theory Award, the APS David Adler Lectureship in Materials Physics, the Feynman Nanotechnology Prize in Theory, the medal of the Schola Physica Romana and the Tomassoni-Chisesi award by the Sapienza University of Rome. Her research activity is focused on the development and use of theoretical and computational methods to understand and predict the properties and behavior of materials (solids, liquids and nanostructures) from first principles (https://galligroup.uchicago.edu/).

XV ITALIAN CONFERENCE OF ITALIAN RESEARCHERS IN THE WORLD INVITATION

Elisa Rita Garro
Universidad Andrés Bello (UNAB)
Santiago, Chile

ABSTRACT

Context. Globular clusters (GCs) are recognized as important tools to understand the formation and evolution of the Milky Way (MW) because they are the oldest objects in our Galaxy. Unfortunately, the known sample in our MW is still incomplete, especially towards the innermost regions, due to the high differential reddening, extinction, and stellar crowding. Therefore, the discovery of new GC candidates and the confirmation of their true nature are crucial for the census of the MW GC system.

Aims. Our main goal is to confirm the physical nature of two GC candidates: Patchick 99 (P99) and TBJ 3. They are located towards the Galactic bulge. We use public data in the near-infrared (IR) passband from the VISTA Variables in the Via Láctea Survey (VVV), VVV eXtended (VVVX) and the Two Micron All Sky Survey (2MASS) along with deep optical data from the Gaia Mission DR 2, in order to estimate their main astrophysical parameters, such as reddening and extinction, distance, total luminosity, mean cluster proper motions, size, metallicity and age.

Methods. We investigated both candidates at different wavelengths. We use near-IR (K_S *vs.* ($J - K_S$)) and optical (*G vs.* (*BP* − *RP*)) colour-magnitude diagrams (CMDs). First, we decontaminate CMDs, following a statistical procedure, as well as selecting only stars which have similar proper motions (PMs) and are situated within 3 ’from the centre. Mean PMs are measured from Gaia DR 2 data. Reddening and extinction are derived from adopting optical and near-IR reddening maps, and then we use them to estimate the distance modulus and the heliocentric distance. Metallicity and age are evaluated fitting theoretical stellar isochrones. Results. Reddening and extinction values for P99 are $E(J-K_S)$=(0.12±0.02)mag and A_{K_S} =(0.09±0.01) mag from the VVV data, whereas we calculate $E(BP-RP)$=(0.21±0.03) mag and A_G=(0.68±0.08) mag from Gaia DR2 data.We use those values and the magnitude of the RC to estimate the distance, finding a good agreement between the near-IR and optical measurements. In fact, we obtain $(m-M)_0$=(14.02±0.01) mag, equivalent to a distance D=(6.4±0.2) kpc in near-IR and $(m-M)_0$=(14.23±0.1) mag and so D = (7.0 ±0.2) kpc in optical. In addition, we derive the metallicity and age for P99 using our distance and extinction values and fitting PARSEC isochrones. We find [*Fe*/*H*] = (−0.2 ±0.2) dex and t = (10 ±1) Gyr. The mean PMs for P99 are μ_α = (−2.98 ±1.74) mas yr^{-1} and μ_δ = (−5.49±2.02) mas yr^{-1}, using the Gaia DR 2 data. They are consistent with the bulge kinematics. We also calculate the total luminosity of our cluster and confirm that it is a low-luminosity GC, with M_{K_S} = (−7.0 ±0.6) mag. The radius estimation is performed building the radial density

profile and we find its angular radius $r_{P99} \sim 10'$. We also recognize seven RR Lyrae star members within 8.2 arcmin from the P99 centre, confirming the distance found by other methods.

Conclusions. We found that TBJ 3 shows mid-IR emissions that are not typical of GCs. Hence, we discard TBJ 3 as GC candidate and we focus our work on P99. We conclude that P99 is an old metal-rich GC, situated in the Galactic bulge. TBJ 3 is a background galaxy.

BIOGRAPHY

Elisa Rita Garro is currently a Ph.D. student in *Astrophysics* at the "Universidad Andrés Bello (UNAB)", at Santiago de Chile. She is working with Dr. Dante Minniti on the confirmation and physical characterization of new globular clusters. She graduated in *Astrophysics and Cosmology* in March 2017 at "Alma Mater Studiorum University of Bologna", under the supervision of Prof. Barbara Lanzoni. Her thesis was focused on the kinematic study of the central regions of the galactic globular cluster NGC 6440 to search for the observational evidence of an intermediate-mass black hole. Previously, she obtained a Bachelor's degree in *Astronomy* in December 2014 at University of Bologna, presenting her thesis about the main features of the emission of elliptical galaxies. During both degrees, she has acquired excellent mathematical, physical and astrophysical knowledge, which allowed her to understand and deepen topics such as: formation and evolution of galaxies, cosmology, stellar evolution and resolved stellar populations. Also, she was a co-tutor of an undergraduate and she took part some observational and outreach activities many times to improve and share her astrophysics knowledge. She has a solid astrophysics background and she is very motivated to continue this kind of studies for achieving important results.

CHALLENGES AND OPPORTUNITIES FOR AUTONOMOUS NAVIGATION OF MICRO AERIAL VEHICLES

Prof. Giuseppe Loianno
New York University

ABSTRACT

Flying Robots often called drones are starting to play a major role in several tasks such as search and rescue, interaction with the environment, inspection, patrolling and monitoring. Agile navigation of Micro Aerial Vehicles (MAVs) through unknown environments poses a number of challenges in terms of perception, state estimation, planning, and control. To achieve this, MAVs have to localize themselves and coordinate between each other in unstructured environments. In this talk, I will present some recent research results on high speed and agile flight maneuvers for navigation, transportation, physical environment interaction, and human drone collaboration using a minimal on-board sensor suite composed by a single camera system and IMU. Finally, I will also present some recent achievements that can improve the autonomy and resilience of micro and nano platforms.

BIOGRAPHY

Prof. Giuseppe Loianno is with the New York University and is the director of the Agile Robotics and Perception Lab (https://wp.nyu.edu/arpl/) working on autonomous Micro Aerial Vehicles. Prior to NYU he was a lecturer, research scientist, and team leader at the General Robotics, Automation, Sensing and Perception (GRASP) Laboratory at the University of Pennsylvania. He received his BSc and MSc degrees in automation engineering, both with honors, from the University of Naples "Federico II" in December 2007 and February 2010, respectively. He received his PhD in computer and control engineering focusing in robotics in May 2014 in the PRISMA Lab group. Dr. Loianno has published more than 70 conference papers, journal papers, and book chapters. His research interests include visual odometry, sensor fusion, and visual servoing for micro aerial vehicles. He is worldwide recognized for his expertise in autonomy for agile small-scale aircrafts. He received the Conference Editorial Board Best Reviewer Award at ICRA 2016, National Italian American Foundation (NIAF) Young Investigator Award 2018. He is the program chair for IEEE SSRR 2019 and SSRR 2020. He has organized multiple workshops on Micro Aerial Vehicles during IROS conferences and created the new International Symposium on Aerial Robotics (ISAR). His work has been featured in a large number of renowned international news and magazines.

Visiting professor at the University of Texas at San Antonio (fall 2019) and research fellow at the Catholic University Center of Rome (spring 2020), in 2020 he receives his qualification as associate professor and is still currently serving as adjunct professor in “History and research method for cities” (Sapienza – University of Rome) and in “History of Architecture” (University of Roma Tre).
Leitmotif of his interests is spread of Baroque language out of Rome. He publishes scientific papers in academic journals and joins national and international conferences including, recently, the “15th international congress on the enlightenment” (Edinburgh, July 2019).
As an architect, Benincampi joined numerous workshops related to the recovery of degraded historical suburbs in Seoul (2012-13), Santiago of Chile (2013), Hanghzou (2013), Durban (2014) and Tehran (2015).

TEXAS SCIENTIFIC ITALIAN COMMUNITY

CLIMATE CHANGE IN NORTH AMERICA: ASSESSING IMPACT AND VULNERABILITES

Dr. Simone Lucatello
Instituto Mora
Mexico City, Mexico

ABSTRACT

Climate change poses serious threats to natural and human ecosystems in North America. Impacts vary differently through US, Mexico and Canada: direct effects are already felt in different areas of the region (e.g., temperature shifts, changes in sea level, extreme weather events, and precipitation changes) and indirect effects (e.g., migrations of species and changes in ecosystems) are evident.

North America is also facing unprecedented threats in terms of mitigation and adaptation actions as well as differentiated vulnerabilities brought on by climate change. Moreover, interrelated impacts have been forecast to occur in North America stemming from variations due to climate change, including economic, ecological, environmental, and social impacts, as well as social and ecological changes. Starting from the next AR6 IPCC assessment report on climate change and built upon previous international influential reports, the presentation aims to provide a state of the art of climate change impacts (direct and indirect) on various sectors in North America. A strong cooperation effort among the three countries is required to deal with the threat and challenges should focus on more integrated regional climate change studies, impacts of extreme weather events, and in-depth integrated models for mitigation, adaptation among other issues.

BIOGRAPHY

Simone Lucatello is a full-time researcher and professor at the Instituto Mora, a public research centre belonging to the Mexican National Agency for Science and Technology (CONACYT) in Mexico City, Mexico. **He is one of the leading authors of the IPCC (Intergovernmental Panel on Climate Change) Working Group II, which deals with the impacts, adaptation and vulnerability to climate change for the next IPCC Sixth Assessment Report (AR6, due in 2021), and coordinating leading author of the AR6 North American Chapter.** His research interests include climate change impacts in the Global South and risk assessment and disaster risk reduction in Latin America. He served as a consultant to several international organizations, such as the Inter-American Development Bank (IDB), UNEP, UNIDO, OCHA and European Union (Europe Aid) in the Balkans, Central America and Mexico. He is member of the International Network for Sustainable Drylands (RISZA) and of the Scientific Committee of the Humanitarian Encyclopedia at the Genève Centre for Education and Research in Humanitarian Action (CERAH, Switzerland). He is also actively engaged in national and international academic networks and projects across the Americas, Europe and Africa. **He is currently the president of the Association of Italian Researchers in Mexico.** He holds a master's degree in International Relations from the London School of Economics (LSE) UK and a PhD in Governance for Sustainable Development from the Venice International University (VIU), Italy.

Most recent publication:

https://link.springer.com/book/10.1007/978-3-030-22464-6#toc

BUILDING COMPUTATIONAL CHEMISTRY RESEARCH CAPACITY *DE NOVO*: CHALLENGES, EXPERIENCES AND GROWTH

Liliana Mammino
University of Venda, Thohoyandou, South Africa

ABSTRACT

Computational chemistry is a fast growing area of modern chemistry, capable of providing information relevant to many chemistry areas. The development of computational chemistry research in Sub-Saharan Africa experienced a huge gap with respect to the other continents, making the design of viable capacity-building options particularly important. The author has developed such capacity at the University of Venda, starting from scratch. The challenges encountered in the process, the options designed or adopted to address them, and the obtained outcomes are the most interesting features of the process.

The initial challenges were mostly related to the novelty of the field (unfamiliar to the other researchers) and to the absence of computational facilities. Assistance from Italian colleagues was precious to address the latter challenge in initial years. The fact that the theory underpinning computational studies requires adequate mastery of mathematics and familiarity with abstract thinking entailed additional specific training for postgraduate students.

The study of biologically active molecules was selected as leading theme because its significance for drug design can better underline the relevance of computational studies for major issues of chemistry research as well as for recognised societal needs. The major themes included: a systematic study of acylphloroglucinols as a class of compounds, and of some individual acylphloroglucinols with specific activities (e.g., antioxidant); the study of antimalarial alkaloids of plant origin; the study of possible bowl-shaped and tube-shaped structures built from acylphloroglucinols; and the study of magnetically-induced currents through chemical bonds. The obtained results confirm the viability and soundness of the selected approaches and suggest that they can be proposed as models for analogous developments. The inclusion of specifically-designed knowledge-enhancing options proved particularly important for the training of postgraduate students. International linkages proved highly valuable for the quality of the overall building process.

BIOGRAPHY

Education: degree in chemistry, University of Pisa; PhD in chemistry, Moscow State University. Main research interests: computational chemistry; chemistry education. Selected work experiences: at the University of Venda since 1997; previously at the University of Zambia and National University of Lesotho. Publications: 95 articles in various journals plus 38 articles in *ALDEQ*; 7 papers in book series; 16 chapters in books; 41 papers in peer-reviewed conference proceedings. Editor or co-editor of 7 books. 181 other papers presented at conferences. Titular member of Division III of IUPAC.

ENGINEERED LIVING MATERIALS

Sara Molinari, PhD
Postdoctoral Research Associate - Department of Biosciences
Rice University – Houston, (TX)

ABSTRACT

Life is made of living materials. From animal organs, to wood and bacterial biofilms, these materials form intricate structures and perform a variety of functions, ultimately constituting the scaffold of most biological activities. Living materials have extraordinary properties, unmatched by any artificially-assembled matter: they grow autonomously from a single cell, self-heal and dynamically adapt to changing surroundings. My research is focused on growing **engineered living materials (ELMs)** to create new structures with similar capabilities to natural living materials and tailored functions. In particular, I develop cell engineering strategies to bridge the gap between artificial and natural living materials. My work will enable the creation of living devices that, thanks to the presence of multiple lineages of engineered cells can dynamically adapt their structure, composition and function to a changing environment to optimize their performances in a variety of conditions. Similar to the revolution of digital technology, ELMs will transform daily object into interactive devices, with also the advantages that living cells can self-assemble, counteract deterioration by self-regenerating and process information with more precision and sophistication than artificial technology. In addition, my research will allow to *grow* materials, thus creating a sustainable and economical alternative to standard manufacturing processes. For such an ambitious vision to become reality, there are several challenges uniquely associated with ELMs, in particular, this field is still far from delivering materials with a (i) structural sophistication similar to their natural counterparts, (ii) capable of autonomous production and (iii) with adequate mechanical properties. I will give an overview on different bioengineering strategies that I successfully implemented to overcome these obstacles and push the field forward. In particular, I will describe the achievement of bacterial differentiation and the largest self-producing living material to date. Moreover, I will give a glimpse over the future of ELMs and their greater impact on our society.

BIOGRAPHY

I started my academic career at the University of Perugia where I studied Pharmaceutical Biotechnology (2007-2011). I received my Master in Bioinformatics (2013) from the University of Milan-Bicocca where I trained in cancer cell studies and systems biology. I, then, turned my attention to synthetic biology and joined the Systems, Synthetic and Physical Biology Graduate Program at Rice University (2014-2019). Since then my research focus has been Engineered Living Materials (ELMs).

ETHICS IN ENGINEERING AND THE ROLE OF RESPONSIBLE TECHNOLOGY

Raffaella Ocone OBE FREng FRSE
Professor of Chemical Engineering
School of Engineering and Physical Sciences
Heriot-Watt University

ABSTRACT

Technology is at the heart of the world where we live providing, among other things, energy solutions, assuring food and drinking water, generating electricity, goods and services. Emerging technologies rise fast carrying the potential to deliver economic and social benefits to a world challenged to sustain 10 billion people. Technological and scientific achievements pose challenges and opportunities. The exponential growth of artificial intelligence, for example, is changing the way we work and think, impacting on human activities and ways of living; unwanted and unforeseen consequences of such an enabling and pervasive technology must receive attention. The work explores the embedding of professional responsibility in technological solutions and how ethics affects the way scientists and engineers operate.

BIOGRAPHY

Raffaella Ocone https://en.wikipedia.org/wiki/Raffaella_Ocone graduated in Chemical Engineering from the Università di Napoli and obtained her MA and PhD from Princeton University. She holds the Chair of Chemical Engineering at Heriot-Watt University (HWU) since 1999. She is a Fellow of the Royal Academy of Engineering, the Royal Society of Edinburgh, the Institution of Chemical Engineers, and the Royal Society of Chemistry. In 2007 she was appointed Cavaliere of the Order of the Star of Italian Solidarity by the President of the Italian Republic. In The Queen's 2019 New Year Honours she was appointed Officer of the British Empire (OBE) for services to engineering. Raffaella was named as one of the top 100 Most Influential Women in the Engineering Sector in 2019 in the list produced by board appointments firm Inclusive Boards in partnership with the Financial Times.

At HWU, Raffaella is the Head of the Multiphase Multiscale Engineering Modelling research group. Raffaella has worked in a number of highly recognised international Institutions such as the Università di Napoli (Italy); Claude Bérnard Université, Lyon (France); Louisiana State University (USA); Princeton University (USA). She was the first "Caroline Herschel Visiting Professor" in Engineering at RUHR Universität, Bochum, Germany (July-November 2017) and the recipient of a Visiting Research Fellowship from the Institute for Advanced Studies, Università di Bologna, Italy (March-April 2018). Raffaella's main area of research is in the field of modelling complex reactive systems with emphasis to the development of responsible technologies in the energy arena. She has taken the lead in the teaching of engineering ethics, a field where she has contributed invited lectures and publications. Currently she is the EPSRC Established Career Fellow in Particle Technology.

THE MATERIALS-ENERGY-CLIMATE NEXUS AND HOW IT COULD BE SOLVED BY MAKING MATERIALS DIRECTLY FROM HYDROCARBONS

Matteo Pasquali
Director, The Carbon Hub
Department of Chemical & Biomolecular Engineering
Department of Chemistry
Department of Materials Science & NanoEngineering
The Smalley-Curl Institute
Rice University, Houston, TX 77005

ABSTRACT

We are facing multiple massive challenges: creating new sources of clean energy beyond solar and wind; lightweighting and electrifying our air, land, and sea transportation systems; decarbonizing the industrial sector; and the potential obliteration of our fossil hydrocarbon sector (~8% of the world economy). Are there potential technological solutions that could impact most or all the areas above, and do so simultaneously?

In this presentation, we will discuss the connection between materials, energy, and carbon dioxide emissions. I will discuss how making materials directly from natural gas and light hydrocarbons could solve simultaneously many of these interconnected problems if (1) we can make the right materials and (2) we can achieve sufficient efficiency. I will show that carbon nanotubes (CNTs) and related carbon nanomaterials, which initially under-delivered on their promises, can now yield macroscopic objects whose macroscale properties rival those of our primary industrial metals (steel, aluminum, and copper). CNTs can be made from natural gas and other light hydrocarbons and can be converted into macroscopic materials via scalable processes. In terms of properties, CNT materials could displace metals (and perhaps even concrete) in stationary applications, providing a path towards abating ~50% of the industrial sector CO_2 emissions. Moreover, making CNTs from natural gas and light hydrocarbons co-produces hydrogen, a clean fuel that could displace other emissions, e.g., in transportation systems.

For this future to become reality, significant challenges must be solved. Synthesis and processing must become one to two orders of magnitude more efficient, so as to reduce processing energy (and have net positive hydrogen output) and costs. Moreover, new manufacturing and supply chains must be developed for CNT materials, which requires developing new high-value applications at the early stage, and redesigning manufacturing and architectures for existing applications.

TEXAS SCIENTIFIC ITALIAN COMMUNITY

BIOGRAPHY

Matteo Pasquali is the A. J. Hartsook Professor of Chemical & Biomolecular Engineering, Chemistry, and Materials Science & NanoEngineering at Rice University. Matteo also serves as the Director of the Carbon Hub, a partnership between academic institutions and corporations aimed at co-producing valuable carbon materials and hydrogen from hydrocarbons. At Rice, Matteo also served as Chair of the Chemistry Department, Co-Director of the Carbon NanoTechnology Laboratory, Master of Lovett College and Senate member. After his Laurea (University of Bologna) and PhD (University of Minnesota), Matteo joined Rice in 2000 to start a laboratory on soft materials, which evolved into a key center for the scalable manufacturing and application of carbon nanotubes (CNTs) and graphene materials with enhanced mechanical, electrical and thermal properties. The laboratory houses ~ 15 PhD students and postdocs and targets applications in energy transmission and harvesting, biomedicine, wearables, aerospace, and defense. Matteo has advised over 90 graduate students and postdocs, who are now in industry, academia, national laboratories, startups, and finance. Matteo's work is funded by government (DOE, DOD, NASA, NSF, NIH), philanthropic foundations (Welch, AHA), and private corporations in the energy, automotive, aerospace, electronics, and high-tech sectors. Matteo founded two companies, DexMat (smart CNT materials) and NanoLinea (medical applications of CNT fibers). In 2018-2019, Matteo spent a sabbatical at Shell, where he served as Chief Scientific Advisor. Matteo's work has been recognized by numerous awards, including the NSF CAREER, Goradia Innovation Prize, Schlack Award for Man-Made Fibers, Rice Presidential Mentoring Award, and multiple NASA Tech Brief Awards. Matteo is an elected Fellow of the American Association for the Advancement of Science and of the American Physical Society.

TOWARDS THE COMPUTATIONAL DESIGN OF AMART NANO-CARRIERS

Annalisa Quaini

ABSTRACT

Membrane fusion is a potentially efficient strategy for the delivery of macromolecular therapeutics into the cell cytoplasm. However, existing nano-carriers formulated to induce membrane fusion suffer from a key limitation: the high concentrations of fusogenic lipids needed to cross cellular membrane barriers lead to toxicity in vivo. To overcome this limitation, we are developing complimentary in silico and in vitro models that will explore the use of membrane phase separation to achieve efficient membrane fusion with minimal concentrations of fusion-inducing lipids and therefore reduced toxicity. The in silico research will be based on a novel multiphysics model formulated in terms of partial differential equations posed on evolving surfaces.

BIOGRAPHY

Annalisa Quaini earned B.S./M.S. Degrees in Aerospace Engineering at Politecnico di Milano (Italy) in 2005. She received a Ph.D. in Applied Mathematics from the Ecole Polytechnique Federale de Lausanne (Switzerland) in 2008. Between 2009 and 2011, she worked as a post-doctoral fellow in the Department of Mathematics at the University of Houston, where she has been Assistant Professor between 2011 and 2017. Since 2017 she is Associate Professor in the Department of Mathematics at the University of Houston.

HYPOTHESIS ON THE ROLE OF POTASSIUM RADIOISOTOPE 40 IN MITHOCHONDRIAL RESPIRATORY CHAIN

Maurizio Tomasi
Doctor in Chemistry
Institute of Physical Chemistry
Università degli Studi di Roma "La Sapienza", Rome, Italy

ABSTRACT

The Natural ionizing radiations (NIR) have been essential for life development and evolution. They constitute the background radiations (BR). Among BR, Potassium isotope ^{40}K hold a special place, is only 0.012% of total Potassium (K) but the main radioactive source of living organisms. ^{40}K emits gamma, x and beta rays, with latter very heterogeneous: beta include Auger and Coster-Kronig electrons (ACKE) with despite low energy (0.029-2.7 KeV) are very toxic, since ACKE are able of ionizing molecules at nanometer distances. This prompted the hypothesis that 40K could have been "the primordial gene irradiator" (More and Sastry,1982). But a subsequent study made this hypothesis unlikely (Gevertz et al, 1985).

Here one possible mechanism for positive role of ^{40}K and BR is proposed:

If inside mitochondria the electrons from ^{40}K ACKE or generic electrons from BR, could be donated to Coenzyme Q10 (CoQ_{10}), which eventually would transfer them to oxygen through respiratory chain (RC), this would imply energy production because of ATP synthesis.

As remarkable consequences the respiratory chain would remain always slightly active like the small flame of an heater at rest. Second if K, with higher ^{40}K content, were administered to patients, who already take CoQ_{10}, as supplement, because of mitochondria impairment, the combination of the two should result beneficial.

The possible therapies that would derive from establishing the ^{40}K role in biology, are such that they deserve the utmost attention.

BIOGRAPHY

Dr. Maurizio Tomasi, Doctor in Chemistry 31/03/1971, Institute of Physical Chemistry Università degli Studi di Roma "La Sapienza", Rome, Italy.

Date and place of birth: 25th of May, 1946, Roma, Italy. Italian Nationality.

Career

1971 – 1972 Post-doc at the Department of Biological Chemistry, Università degli Studi di Ferrara, Ferrara.

1972 – 1977 Post-doc Fellow at the Department of Biological Chemistry, Istituto Superiore di Sanità (ISS), Roma

1977 – 1982 Researcher at the Department of Cell Biology and Immunology, ISS, Roma

1982 – 2008 Chief of the Biochemistry Unit of Cell Biology and Neuroscience Department, ISS, Roma

1991 – 2010	Chief Investigator, Scientific Management Career, ISS, Roma
2010	Retired from ISS
2010 – 2011	Postdoc at prof. Sherry D. Fleming laboratory, Kansas State University, Manhattan, KS, U.S.A..
2017 – 2019	Consultant at the laboratory of prof. Geoffrey B. Smith, Department of Biology, New Mexico State University, NM, U.S.A..

Publications: 61 articles and 6 book chapters.

(https://www.researchgate.net/profile/Maurizio_Tomasi2/publications)

TEXAS SCIENTIFIC ITALIAN COMMUNITY

MODERATOR

Alessandro Alabastri
Ph.D., Assistant Professor,
Electrical and Computer Engineering
Rice University - Houston, Texas

Alessandro Alabastri received his BSc (2007) and MSc (2009) in Engineering Physics from Politecnico di Milano specializing in Nano-Optics and Photonics. In 2009 he completed his Master's project at the Technical University of Denmark working on the optical characterization of metamaterials. In 2014 he obtained the PhD in Nanosciences from the Italian Institute of Technology and University of Genoa working on computational modeling of plasmonic structures.

In 2015 he was Visiting Researcher at Lawrence Berkeley National Laboratory at the Molecular Foundry. He joined Rice University in 2015 as Postdoctoral Fellow (2015-2016) and NEWT Postdoctoral Leadership Fellow (2016-2018) working on theoretical nanophotonics and solar distillation devices.

In 2020, Alabastri was promoted to a tenure-track Assistant Professor position in the Department of Electrical and Computer Engineering at Rice University, after serving as a Texas Instruments Research Assistant Professor from 2018-2020. Dr. Alabastri is an expert in nanophotonics and in computational modeling of photo-thermal interactions in complex nanostructures.

He worked on several aspects of light-to-heat conversion, exploring the mechanisms to maximize heat dissipation in nanoparticles based systems. He has realized predictive models of energy-conversion systems such as Photon Enhanced Thermionic Emission devices in collaboration with the European Space Agency and Nanophotonics Enabled Solar Membrane Distillation modules at Rice University.

TEXAS SCIENTIFIC ITALIAN COMMUNITY

MODERATOR

Alessandro Di Salvo, VP
Mobile Sales Strategy and Development, Americas
NOKIA, Dallas, Texas

Responsible for defining Mobile Networks Business Group strategy and lead new sales development in Americas region. Activities, without being exhaustive, include long range financial planning, strategic objectives definition and link to sales team incentives, building new solutions/products with Mobile Networks Business Group product management, engaging with Customers to deliver Nokia value proposition and originate new sales leads, driving key bids and offers for new technologies. Leading a team of 5 FTE to accomplish the listed tasks and also supporting strategic sales cases with multiple Customers, from mobile/fixed/cable Operators to OTTs and large enterprises, an about $3Bn yearly business.

Master's Degree in Electronics Engineering, Politecnico di Milano.

TEXAS SCIENTIFIC ITALIAN COMMUNITY

MODERATOR

Angela Lombardi, PhD

Coordinator of the Graduate Program in Historic Preservation, CACP, UTSA, San Antonio, Texas
and Associate Professor, Department of Architecture, UTSA, San Antonio, Texas

Dr. Lombardi researches in the field of historic preservation with a focus on management of historic built heritage and archaeology within contemporary urban landscapes in international context, urban regeneration and on materials' conservation. She has more than 10 years of experience in traditional construction techniques, stone conservation, and on earthen material conservation. Her expertise involves documentation standards applied to cultural heritage. Since 2009 she has been researching Latin American urban heritage and is one of the editors of the book LIMA: The Historic Center. Analysis and Restoration, Rome, 2012. Since 2013,she has been investigating cultural landscape conservation issues, with an advanced study of San Antonio Spanish Colonial cultural landscape within the broader cultural continuum of the Camino Real de los Tejas, applying advanced documentation technologies such as GIS and 3D reconstructions at the scale of the building, of the city, and of the territory. Since 2017, she is Co-principal Investigator for the implementation of two Historic Structure Reports for Mission San José Convento and Mission Conception Convento, for the National Park Service. After working in 2010 for the conservation master plan of the archaeological sites of Baalbek and Tyre in Lebanon, her research focused on management and conservation issues of some historic sites in the Middle Eastern region, such as the ones in the Antalya region, Turkey, and Akre citadel and hill town, Iraq. Dr. Lombardi is UTSA point of contact for various international exchange agreements with foreign Universities and published in 2019 the edited book: History meets science between Abruzzo and Texas. Architecture, Restoration and Environmental Control of Historical Buildings, published by Quasar. As an instructor, she provides undergraduate and graduate coursework and research about architecture history, historic preservation and architectural design. Dr. Lombardi's education took place predominantly in Italy—including long periods abroad—where she was trained by renowned scholars in the field of historic preservation such as Giovanni Carbonara and Giorgio Torraca, internationally known expert in materials' conservation. Dr. Lombardi, an Italian native speaker, speaks fluently and writes in English, French, and Spanish. She also studied for five years Latin and Ancient Greek.

HUMANITIES

THE ULTIMATE FERRANTE EXPERIENCE: CONVERGENCE CULTURE, LITERARY TOURISM AND THE QUEST FOR AUTHENTICITY

Arianna Avalle
University of Texas at Austin

ABSTRACT

The "Ferrante Fever", the epidemiological term coined by the press to describe the explosive popularity and the contagious wave of enthusiasm for the Neapolitan Quartet by Elena Ferrante, represents the economic drive which led to the creation of different commercial extensions, inspired to novels, such as a tv series, a theater show and a travel guide. The Ferrante phenomenon can be considered part of the "Convergence Culture", a cultural and technological shift which generates the flow of content across multiple media platforms and encourages customer participation (Jenkins). In my paper, I will analyze one type of commercial extension of the Neapolitan Quartet, the travel guide *Ferrante Fever: A Tour of Naples Inspired by Elena Ferrante's Neapolitan Novels* by Danielle Oteri. First, I will provide a brief introduction of the primary text on which the travel guide is based on (the first novel of the Neapolitan Quartet, *My Brilliant Friend)* and I will consider the core properties of this novel that makes this text apt for transmedia storytelling and worldbuilding, which are two main elements of the "Convergence Culture". I will also analyze the relationship between the travel guide and the novel, focusing, in particular on how the guide expands and enriches the narrative world. I will then look at the target audience of the product reflecting, in particular, on the emotional investment of the fans and the sense of community that Oteri creates with her travel guide. Secondly, I will reflect on the link between this travel guide and the Italian identity. For this matter, I will hypothesize a possible exploitation of the *Italianità* of Ferrante's novel to promote an "authentic Italian experience" as a selling point for the travel guide and as vital component of a more complex marketing strategy which aims to attract a global audience and build an international customer base. Finally, in analyzing the cultural activators of the travel guide, I will consider this transmedia product in relation to current studies on cultural and literary tourism, exploring it in the context of fiction induced tours and destination marketing. From my analysis, it appears that transmedia products, such as Oteri's guidebook, can benefit not only the producer with economic gains and the customer/reader with a memorable experience, but they can also stimulate tourism growth and create new business opportunities and cultural experiences for third parties such as single individuals, public entities and the private sector.

BIOGRAPHY

Arianna Avalle is a third year PhD student in Italian Studies pursuing a portfolio in Arts Management and Cultural Entrepreneurship at the University of Texas at Austin, USA. In May 2020, she received her Master of Arts in Italian Studies from the University of Texas at Austin and in May 2018 she received her Bachelor of Business Administration in Marketing with a minor in European Studies from Texas Tech University, Lubbock, Texas. Arianna wrote her undergraduate Honors thesis on the first novel of Elena Ferrante's Neapolitan Quartet, *My Brilliant Friend*, analyzing the literary, marketing and legal aspects of the novel. In June 2020, Arianna received the "Emerging Scholar Award" from the Common Ground Research Network at the Fifth International Conference on Tourism and Leisure Studies. Her research interests include media convergence, transmedia storytelling, cultural tourism, women and gender studies and destination marketing.

"*IL LIBRO DEI SOGNI*: FELLINI'S DREAMS AND NIGHTMARES"

Daniela Bini
University of Texas, Austin

ABSTRACT

Fellini's wife, Giulietta Masina, was clearly a woman very different from the voluptuous, erotic types that populates Fellii's fims. She became a maternal figure and his artistic muse. With her constantly at his side, I argue, Federico could continue to dream and pursue figuratively and literally the erotic *femmes fatales*. This appears clearly both in films where he directs her (*La strada*, *Le notti di Cabiria*, *Giulietta degli spriti* and *Ginger and Fred*), as well as in those without her. This essay examines parts of *Il libro dei sogni*, where Fellini's desires, fears, phobias, and weaknesses are revealed. He started writing down and illustrating his dreams after the encounter with Jungian psychoanalyst Ernst Berhnard. Jung, in fact, became a strong influence on Fellini's work. In Federico's dreams, Giulietta often appears as a suffering, saintly creature, always fully clothed, at times close to death, while the over endowed females he craved, always naked, offer themselves to him. The essays also touches briefly on Fellini's attitude toward homoeroticism, as homoerotic desires appeared in some dreams, and are compared with scenes in *Casanova* and *Satyricon* that reveal his fascination with the subject.

BIOGRAPHY

Daniela Bini is Professor of Italian and Comparative Literature at the University of Texas, Austin. Her books include: A *Fragrance from the Desert: Poetry and Philosophy in Giacomo Leopardi*; *Carlo Michelstaedter and the Failure of Language*; *Pirandello and His Muse: The Plays for Marta Abba*; and *Portrait of the Artist and His Mother in Twentieth Century Italian Culture.* She is the author of more than seventy essays on artists as different as Ippolito Nievo, Giacomo Leopardi, Giovanni, Verga, Italo Svevo, Pietro Mascagni, Giuseppe Verdi, Luigi Pirandello, Leonardo Sciascia, Giuseppe Tornatore, the Taviani brothers, Pier Paolo Pasolini, Franco Zeffirelli, Marco Bellocchio. She is also the co-author of two Italian textbooks. Daniela received several university fellowships, two National Endowment for the Humanities fellowships, and three teaching awards. She was the President of the American Association for Italian Studies and the Vice-president of the International Association of Italian Language and Literature Studies. In 2007 The President of the Italian Republic, Giorgio Napolitano bestowed on her the title of Cavaliere (Ordine della Stella della Solidarietà Italiana).

METHODOLOGIES AND BEST PEDAGOGICAL PRACTICES IN THE TIMES OF A PANDEMIC

Fabiana Cecchini
Texas A&M University

ABSTRACT

With the arrival of Covid 19, didactic practices and needs of University teachers have drastically shifted. In connection with my own experience and considering that of colleagues, I am currently trying to assess what are the methodologies and formats that work best in the virtual classroom (online) or in hybrid contexts, i.e. where some students are in the classroom but others are following in streaming at home.

BIOGRAPHY

Fabiana Cecchini holds a Ph.D. in Italian Studies from the University of Pennsylvania and currently she is Instructional Associate Professor of Italian in the Department of International Studies at Texas A&M University where she teaches courses in Italian language and culture, Italian and global cinema. Her interests includes teaching pedagogy, women's studies and autobiography, adaptation, and media studies. She published on Sibilla Aleramo, Veronica Franco, Isabella Morra, Marco Bellocchio and Marco Tullio Giordana, among the others. She co-authored two collections of essays: (with Ioana Raluca Larco) *Italian Women and Autobiography. Ideology, Discourse and Identity from Fascism to Present (2011)* and (with Silvia Giovanardi Byer) *Representations of Female Identity in Italy. From Neoclassicism to the 21st Century* (2017).

THE GREEK RENAISSANCE: CAUSES, ASPECTS, AND IMPACT

Federica Ciccolella
Texas A&M University

ABSTRACT

My current research examines the return of Greek studies to the West after the Middle Ages, which exerted huge influence on the Italian Renaissance and, in general, on early modern European culture. The presuppositions, features, and consequences of this phenomenon have never been the object of systematic study, even if plenty of primary sources are available in European and American libraries and Classicists are becoming more and more interested in all aspects of the reception of antiquity.

My analysis focuses on three main aspects: the people involved, i.e., the Byzantine scholars who taught Greek in Italy in the fifteenth century, and their Italian pupils, who contributed to spreading the knowledge of Greek beyond the Alps; the tools (grammars, lexica, etc.) used to learn Greek and the classical and post-classical Greek authors whose works were copied in manuscripts, printed, and read in Italian schools and academies; and the ways in which the reintroduction of Greek impacted Western culture, as well as the opinions and reactions of two generations of Byzantine émigrés, who strove to keep their Greek identity within a different culture.

BIOGRAPHY

Federica Ciccolella, Professor of Classics at Texas A&M University, holds a "Dottorato di Ricerca" in Classical Philology from the University of Turin and a Ph.D. in Classical Studies from Columbia University. Her research concentrates on two crucial stages in the development of Greek culture: the transition from paganism to Christianity in the fifth and sixth centuries C.E. and the meeting between Byzantium and the West during the Renaissance and beyond. She has published on Byzantine poetry (*Cinque poeti bizantini*, Alessandria: Edizioni dell'Orso, 2000), late antique epistolography (Italian translation and commentary of the letters of Procopius of Gaza, in Eugenio Amato, *Rose di Gaza*, Alessandria: Edizioni dell'Orso, 2010), and the Greek revival in the West (*Donati Graeci: Learning Greek in the Renaissance*, Leiden-Boston: Brill, 2008; *Teachers, Students, and Schools of Greek in the Renaissance*, co-edited with Luigi Silvano, Leiden: Brill, 2017). In addition to preparing a second co-edited volume on the dissemination of Greek beyond the Alps, she is working on the editions, with English translation and commentary, of a group of orations in defense of the study of Greek composed by Byzantine scholars in Italy, and of the poems of the 16th-century Greek scholar Maximos Margounios.

LUCREZIA MARINELLA'S TREATISE *AMOROUS TURNING OF MAN TOWARDS THE DIVINE BEAUTY* (1597)

Francesca D'Alessandro Behr

ABSTRACT

My latest research focuses on Lucrezia Marinella's engagement with ancient philosophy and religion in her treatise *Amorous Turning of Man towards the Divine Beauty* (*Rivolgimento amoroso dell'huomo verso la divina bellezza*, 1597). The work was published together with the *Life of the Seraphic and Glorious St. Frances* (*Vita del Serafico et Glorioso S. Francesco*) and dedicated to the Gran Duchess of Tuscany, Cristina of Lorena. In this text Marinella is in dialogue with Christian humanism and Counter Reformation concerns but she also demonstrates her profound knowledge and reuse of Classical sources (e.g. Plato and Aristotle), Christian writers (Augustine) and Renaissance thinkers (e.g. Marsilio Ficino, Giulio Camillo Delminio, Francesco Patrizi). Marinella's approach to religion, as it emerges from this treatise, is original and, despite her gender, she is not afraid to express her ideas about spiritual matters.

BIOGRAPHY

Francesca D'Alessandro Behr, a native of Italy, is a Professor of Italian and Classical Studies at the University of Houston in Texas where she teaches courses on Italian and Latin literature and language. Her research is similarly oriented on both fields and she also focuses on the Reception of the Classics. Her book on Lucan, *Feeling History: Lucan, Stoicism and the Aesthetics of Passion* appeared in 2007 and another book of hers titled *Arms and the Woman: Classical Tradition and Women Writers in the Venetian Renaissance* has come out in May 2018 through Ohio State University Press. Her interests cover Classical reception, ancient and renaissance epic poetry, love poetry, gender studies and translation studies. Her contribution titled "Sage, Soldier, Politician, and Benefactor: Cato in Seneca and Lucan" has just appeared in the volume *Lucan's Imperial World: The Bellum Civile in Its Contemporary Context*, eds. L. Zientek and M. Thorne, Bloomsbury Publishing, 2020. In 2014 the President of the Italian Republic, Giorgio Napolitano bestowed on her the title of Cavaliere dell' Ordine della Stella d'Italia for her committed service to promoting Italian culture and language abroad.

CAN WORDS USED AS STONES BE TURNED TO FEATHERS? AN ANALYSIS OF THE TRANSCRIPT AND SUBTITLES OF THE DOCUMENTARY *PROCESSO PER STUPRO/TRIAL FOR RAPE* (1979) AND ITS SUBSEQUENT THEATRE ADAPTATION IN 2018

Luciana D'Arcangeli – Flinders University
and Claire Kennedy – Griffith University

ABSTRACT

At the moment I am working with Dr Claire Kennedy (Griffith) on the 1979 documentary *Processo per stupro/Trial for Rape,* by Loredana Dordi, that was screened to an audience of over 14 million viewers, and the eponymous play that stemmed from it 40 years later by Renato Chiocca. This director felt that the words that had been spoken at the trial decades prior were just as important today, in Italy and beyond. In our research we recount the story behind both works, argue why both of these were and are important, analyse excerpts of the original documentary and of the theatrical adaptation, and also look at issues that we have met in providing subtitles in translation to the documentary available online.
It was surprising to learn how the documentary has disappeared from Italian screens in mysterious circumstances and is not available commercially and only in censored form via the RAI archives even though it was described by Milly Buonanno as "the most iconic television programme in the history of Italian television", one that went on to win the international prize Prix Italia for the best TV documentary, and to be screened at the MOMA in New York, where a copy is archived. We hope to rectify this in light of the importance of *Trial for Rape* in Italian/Legal/Screen and Women Studies not only with our research but by presenting a petition to RAI to make it publicly available again in its entirety, free from censorship, and possibly also have it redistributed.

BIOGRAPHIES

Luciana d'Arcangeli (BA Lon) MHRM (Lazio) PhD (Strath) FHEA FCIL MITI is Cassamarca Senior Lecturer at Flinders University, where she has been teaching and publishing in Italian Theatre, Italian Cinema, Translation, and Italian Language and Literature. Her latest output is co-guest editing with Dr Laura Lori (Melbourne) the e-journal FULGOR special issue titled Postcolonial Italy: 'Between Assimilation and Integration' (2020) - https://www.fulgor.online/current-issue-vol6-issue-2
Since 2018 Luciana has been coordinating the Visual and Performance Studies Research Group of the Australasian Centre for Italian Studies titled "*Indelible* (Eng)/I*ndelebile* (It): The Representation of (In)visible Violence Against Women and their Resistance".

Claire Kennedy (BSc Qld; PhD Griffith) is an adjunct staff member at Griffith University where she was previously Cassamarca Senior Lecturer, teaching Italian language, culture and contemporary history. Her recent publications stem from projects on the Italian presence in Australia, addressing the intergenerational impact of internment during the Second World War, with Catherine Dewhirst, and the significance of the Australian visit by aviator Francesco De Pinedo in 1925, with Christopher Lee. Her collaboration with Luciana d'Arcangeli in the ACIS Visual and Performance Studies Research Group involves research, editing, translation and performing.

"DEATH TO EROS IN ITALO CALVINO'S *LE COSMICOMICHE* AND *SE UNA NOTTE…*"

Dr. Moira Di Mauro-Jackson
World Languages and Literature
Texas State University

ABSTRACT

This study aims to connect Italo Calvino's ambivalent handling of his women characters with the distance that he manages to establish between himself and the fictional world of his creation. A comparative analysis of his treatment of four women in his novels *Le cosmicomiche* and *Se una notte d'inverno un viaggiatore*, underscores the impossibility of presenting women as unidimensional beings. Both novels represent two different kinds of realities. In *Le cosmicomiche*, Calvino represents a world in creation, a pre and post big bang. His characters are electrons, atoms, fish, dinosaurs, mollusks, all but the "standard" expectations for characters in a novel. Yet, these pre-human beings (because it seems that each episode leads closer and closer to a human reality) act, think and speak like humans in interaction. On the other hand, in *Se una notte d'inverno un viaggiatore*, one sees a world inhabited by "real" people: readers, authors, professors, spies and other very realistic characters, that are interweaved with each other through an interesting collage of stories each lacking an ending. One novel, thus, is clearly depicting an intangible reality (a science fiction take on human relations), the other depicts a more realistic reality. An interesting inverse process seems to be occuring in Calvino's work in relation to the absence or presence of reality in the novels. As the plot distances itself from a tangible reality, Calvino's women become complementary objects that are never quite able to join physically or spiritually with the male protagonist. Instead, when, as in *Se una notte d'inverno un viaggiatore*, the plot is more "realistic," the women become "victims," objects of pleasure that are used by the male protagonist, or are reduced to giant body parts—thus exposing not mere but extreme physicality in novels of such kind.

BIOGRAPHY

Dr. Moira Di Mauro received her PhD at the University of Texas at Austin in Comparative Literature. Her field of study revolves around French, Italian, and English Narrative and Drama of the late 19th and early 20th Centuries. Her field of interest is meta-textuality, that is the tension between art and life, art and artifice, and the use of masks and masquerade in modern works. Her major focus lies in the French decadent period, those works following D'Annunzio's time in Italian Literature as well as various Irish writers of the turn of the century such as Bernard Shaw, Oscar Wilde, and Yeats. Since 1987, Moira, a native Italian, has been teaching French at Texas State University in San Marcos, from where she received a Master of Arts. In 2005, Moira introduced the Italian Language Program at Texas State University and directs a Summer Abroad Program to Italy every summer.

PIRANDELLO IN AMERICA

Maria Cristina Giliberti
Rice University

ABSTRACT

My research features Luigi Pirandello's experience in America as a 'luxurious immigrant,' when he was invited to introduce his idea of theatrical innovation to a New York audience, and will proceed to embrace the translation of this experience into the transoceanic immigration motif of some of his works. The focal point of my discussion will be the universal character of the 'pirandellian' tales, which has to be examined not only from the historical and sociological perspective that allows one to grasp the effect of emigration on the Italian society at that time, but also the falling of the migratory phenomenon on the life of individual people. In fact, in Pirandello's 'novelle' it is mostly one single character who, in his paradoxical and bizarre situations, lives the drama of the exodus and the up-rooted that a life without one's homeland entails.

BIOGRAPHY

Maria Cristina Giliberti holds a Master's Degree in Foreign Language and Literature (Laurea in Lingue e Letterature Straniere) from the Universita' degli Studi di Bari, Italy, with her thesis on "Pirandello e lo Humour Inglese (Tra Rivalutazioni del Comico e Antinomie dell'Arte Umoristica)". She earned her Doctorate (Dottorato di Ricerca) in Italian Studies from the Universita' degli Studi di Bari, her dissertation being "Pirandello in America: Dati di Cronaca, Percorsi di Critica e Teoria". She was an Assistant Professor at the Universita' degli Studi di Bari from fall 1994 to spring 2000. She has taught the Italian language at a number of places around the world, including the University of Saint Thomas and Bellaire High School in Houston; St. Peter's Boys' High School, Staten Island, New York; Otsola Settlement Education Center, Pori, Finland; and Nicolet College, Rhinelander, Wisconsin. Currently she teaches Italian language and a survey on Italian literature at the University of Houston and Italian language at Rice University. She maintains a particular interest in 20th century Italian literature with a specific focus on the early novel and drama. Luigi Pirandello has been the main topic of her studies and publications.

BRONZINO'S PORTRAIT OF DANTE: EXILE AND LUST

Dr. Jason Houston
Professor of Italian and Dean of Gonzaga in Florence

ABSTRACT

In this paper the author gives a detailed iconographical analysis of Agnolo Bronzino's painting "Ritratto di Dante" (1532). Considering the specific clues, the artist includes in the painting that derive from Dante's *sacro poema* and the original intended context for the painting, this analysis provides a new more complete analysis of the allegorical meaning Bronzino's portrait.

Il Dante del Bronzino: L'esilio e la lussuria
In questo saggio l'autore presenta una dettagliata analisi iconografica del "Ritratto di Dante" dipinto da Agnolo Bronzino nel 1532. Seguendo specifici indizi che l'artista inserisce nel dipinto e che derivano dal *sacro poema* di Dante, e considerando il contesto originario previsto per il ritratto, questo contributo fornisce una nuova e più completa analisi del significato allegorico dell'opera del Bronzino.

BIOGRAPHY

Dr. Jason Houston is Professor of Italian and Dean of Gonzaga in Florence, where he teaches Dante and leads the Gonzaga in Florence campus. He completed his BA in Italian and Medieval Studies at the University of Oregon. He went on take his M.Phil in Medieval Studies and Ph.D in Italian Language and Literature at Yale University in 2003. From 2003 to 2016, he was Assistant Professor and then Associate Professor of Italian at the University of Oklahoma, where he created a new BA program in Italian, developed a new study center for OU in Arezzo Italy, and managed a public/private partnership between OU/ENEL Green Power/Capitoline Museums of Rome. His research and publications focus on Giovanni Boccaccio and his complicated relationships with other key Trecento Italian authors: Dante Alighieri, Francesco Petrarca, and Zanobi da Strada.

CLASSICAL MODELS IN THE 18TH CENTURY AMERICAS: THE ARCHITECTURE OF THE CHURCHES OF SAN ANTONIO MISSIONS, TEXAS

Angela Lombardi and Iacopo Benincampi
University of Texas at San Antonio

ABSTRACT

During the 18th century, in the current metropolitan area of San Antonio, Texas, five Franciscan missions were established along the local river. Each mission was an autonomous village inhabited by Cohahuiltecan tribes and featured the presence of a church with adjacent convent. *San Antonio de Valero* was the first settlement to be founded in 1718, serving as a way station in Texas between New Spain and Louisiana . Begun in 1720, *San José y San Miguel de Aguayo* became the largest of the missions' chain. Dedicated in 1755, *Nuestra Señora de la Purisima Concepción* is one of the last complexes to be established and its church stands today as missions' most intact structure. Franciscan friars, supported by Spanish or *criollos* master masons, built the churches using locally quarried stones brightly colored stucco and painted interior plaster. The comparative analysis of the architectural features of three of the San Antonio missions' churches with European models shows some recurring elements certifying a specific design attitude. The model was the Italian counter-reformist one. The churches' façades – rich of religious and symbolic elements – are flanked by two towers and provide access to a single nave interior. The churches' naves are covered by barrel vaults framed by transverse arches, supported by thick walls and massive buttresses. The *capocroce* is surmounted by a circular dome on a tall drum, acting as a landmark in the wild environment. Classical models adopted by Franciscans were spread in the New World thanks to some treatises, such as the Spanish *Compendio* written by Simon Garcia (1681). The author considers proportion and geometrical constructions as tools to reach harmony and perfection, and the missions' churches testify the treatise' principles. Adoption and adaptation of the European technologies of quarrying and dressing stones were carried out. The buildings' surveys and archival research reveal that stone for wall construction was quarried nearby, cut in broken ashlar stone blocks or rubble of various sizes and regularly laid in coursed masonry, often with use of *rajuelas* – chinking stones creating regular decorative pattern. The stone for construction was carefully selected; the ones for construction differing from those used for decoration, such as the frontispiece of *San Jose*. Vaulting required skilled master masons, not always available in the area. San Antonio Missions, a UNESCO World Heritage Site, are definitively authentic syncretic works, built by the Indians for their own use under the Franciscans' guidance, incorporating imported cultural models and construction know-how.

BIOGRAPHIES

Dr. Angela Lombardi (University of Texas at San Antonio) researches in the field of historic preservation with a focus on management of historic built heritage and archaeology within contemporary urban landscapes in international context, urban regeneration and on materials' conservation. She has 20 years of experience in traditional construction techniques, stone conservation, and on earthen material conservation. Her expertise involves documentation standards applied to cultural heritage. Since 2009 she has been researching Latin American urban heritage and is one of the editors of the book LIMA: *The Historic Center. Analysis and Restoration,* Rome, 2012. Since 2013, she has been investigating cultural landscape conservation issues, with an advanced study of San Antonio Spanish Colonial cultural landscape within the broader cultural *continuum* of the Camino Real de los Tejas, applying advanced documentation technologies such as GIS and 3D reconstructions at the scale of the building, of the city, and of the territory. She was Co-principal Investigator for the implementation of two Historic Structure Reports for Mission San José Convento and Mission Conception Convento, for the National Park Service. After working in 2010 for the conservation master plan of the archaeological sites of Baalbek and Tyre in Lebanon, her research focused on management and conservation issues of some historic sites in the Middle Eastern region, such as the ones in the Antalya region, Turkey, and Akre citadel and hill town, Iraq. Dr. Lombardi is UTSA point of contact for various international exchange agreements with foreign Universities among which the Sapienza university of Rome – her *alma mater*- and published in 2019 the edited book*: History meets science between Abruzzo and Texas. Architecture, Restoration and Environmental Control of Historical Buildings* (Quasar ed). As an instructor, she provides undergraduate and graduate coursework and research about architecture history, historic preservation and architectural design.

Iacopo Benincampi graduated in Architecture '*summa cum laude'* at Sapienza University of Rome (thesis: "Carlo Fontana and the Sanctuary of Loyola. Italian design and Spanish constructive practices", 2014; advisors: prof. A. Roca De Amicis, prof. J.C. Palacios Gonzalo), Iacopo Benincampi (°1989) completed his PhD program in history of architecture at the Department of History, Design and Restoration of Architecture of the same institution (thesis: "The legation of Romagna in the eighteenth century. The «Good Governance» of the architecture in Papal States' periphery", 2018; advisor: prof. A. Roca De Amicis).Visiting professor at the University of Texas at San Antonio (fall 2019) and research fellow at the Catholic University Center of Rome (spring 2020), in 2020 he receives his qualification as associate professor and is still currently serving as adjunct professor in "History and research method for cities" (Sapienza – University of Rome) and in "History of Architecture" (University of Roma Tre). Leitmotif of his interests is spread of Baroque language out of Rome. He publishes scientific papers in academic journals and joins national and international conferences including, recently, the "15th international congress on the enlightenment" (Edinburgh, July 2019). As an architect, Benincampi joined numerous workshops related to the recovery of degraded historical suburbs in Seoul (2012-13), Santiago of Chile (2013), Hanghzou (2013), Durban (2014) and Tehran (2015).

KANTIAN EXTERNALISM FROM RIEHL TO PUTNAM

Luca Oliva
University of Houston

ABSTRACT

In the first *Critique*, the object of cognition bears a double meaning, namely, appearance or something in itself. Kant limits our cognition to appearances only, leaving the thing in itself as something actual for itself but unknowable for us. (Bxx) I aim to understand these claims by analyzing Kant's references to the mind-independent reality, such as things-in-themselves, noumena, and transcendental objects, through Lehrer's definition of externalism. These references, I argue, have *(a)* a cognitive and/or *(b)* an ontological meaning, which the phenomenalist (e.g., Allison, Feder-Garve, Guyer, Van Cleve) and the non-phenomenalist (e.g., Strawson, Langton, Allais) readings, including Riehl's, fail to recognize. The *(a)*'s point of view implies one object and two aspects of it (e.g., phenomenon-noumenon), whose relation lies in the internal correspondence. The *(b)*'s point of view assumes two distinct objects (e.g., internal and external objects) and their causal relationship. Riehl corrects the assumption that the relations of sensations are not themselves sensed and thus argues (together with Kemp Smith) for an unrestricted version of Kantian externalism. He also proposes his version of realism, defending the existence and the knowability of things-in-themselves. Central to his proposal are the notions of *(a)* monad (Leibniz), which Riehl identifies with Kant's particulars, and *(b)* sensation, which allows for indirect knowledge of extramental things. Finally, I face the challenges of Putnam's internalism, which compares Kant's cognitive philosophy with the hypothesis of brains-in-a-vat. There, external correspondence or proper causation don't apply. Although the Kantian notion of truth departs from the classic correspondence and evolves into a coherentist account, Kant retains extramental input data (i.e., external references). Hence, I argue for indirect correspondence that could save a minimalist but irreducible version of Kantian externalism.

BIOGRAPHY

Luca Oliva (PhD). I am an associate professor (instructional) at the University of Houston, where I lead the program of Liberal Studies. I have been a lecturer for the graduate programs of the University of Vienna (2019), an academic visitor at the University of Oxford (2016, 2017), a lecturer of the Institute Vienna Circle (2015, 2017), and a visiting professor at the University of Bergamo in Italy (2015). The research areas of my specialization are epistemology and philosophy of mathematics and normativity. Much of my research pertains to Kantian issues and their developments in analytic philosophy. My recent papers have advanced my earlier studies on Kantian philosophy of mathematics and its epistemology. See: Wittgenstein and Kant. E.g. (**1**) "Wittgenstein's Quasi-Intuitionism," appeared in the collected volume *Philosophy of Logic and Mathematics*, edited by A.G.M. Mras, P. Weingartner, and B. Ritter for *The Austrian Ludwig Wittgenstein Society*, 2018: 174-77. (**2**) "On Kantian Intuitions and Mathematics," in V. Waibel, M. Ruffing, D. Wagner (eds), *Natur und Freiheit*. De Gruyter, 2018: 1395-403; (**3**) "On Kantian Intuitions" (*Rethinking Kant 5*, North American Kant Society Series 2018: 71-92). My first Italian books surveyed Rickert's arguments for the validity and objectivity of values (*La Validità come Funzione dell'Oggetto*, Franco Angeli 2006), and his semantic analysis of the logical structure of integer numbers (*Heinrich Rickert – L'Uno, L'Unità, e il Numero Uno*, CUSL 2008). In those years, I was also interested in the paradigm shift at the outset of the scientific revolution. My book on this subject has recently appeared (*L'Ontologia della Materia*, Storia e Letteratura 2018).

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Dr. Moira Di Mauro (Jackson) received her PhD at the University of Texas at Austin in Comparative Literature. Her field of study revolves around French, Italian, and English Narrative and Drama of the late 19th and early 20th Centuries. Her field of interest is meta-textuality, that is the tension between art and life, art and artifice, and the use of masks and masquerade in modern works. Her major focus lies in the French decadent period, those works following D'Annunzio's time in Italian Literature as well as various Irish writers of the turn of the century such as Bernard Shaw, Oscar Wilde, and Yeats.

Since 1987, Moira, a native Italian, has been teaching French at Texas State University in San Marcos, from where she received a Master of Arts. In 2005, Moira introduced the Italian Language Program at Texas State University and directs a Summer Abroad Program to Italy every summer.

Moira has traveled extensively throughout the world and currently divides her time between research and teaching in Central Texas and Florence, Italy. Her paper entitled "There Is No Place On Earth Like The World: Cultural and Sexual Politics in Behan's The Quare Fellow and The Hostage." has recently appeared in the volume on Prison Plays of the Rodopi Modern Literature Series. Moira is also the Vice President for the Central Texas Chapter of the American Association of Teachers of French (AATF) Executive Board (since Fall 2011) and the South Central Vice President of the French National Honor Society (Pi Delta Phi), covering Arizona, Arkansas, Kansas, Kentucky, Louisiana, Missouri, New Mexico, Oklahoma, Tennessee and Texas (since Fall 2010).

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