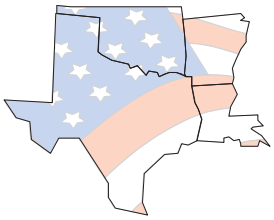
Senato della Repubblica

Camera dei Deputati

UNDER THE AUSPICES OF THE
Presidenza della Repubblica
Senato della Repubblica
Camera dei Deputati
Ministero degli Affari Esteri
Presidenza del Consiglio dei Ministri
Ministero della Gioventu`
Ministero della Salute
Istituto Superiore della Sanita`

COM.IT.ES

Comitato degli Italiani all'Estero
Committee for Italians Abroad



In cooperation with

CONSULATE GENERAL OF ITALY IN HOUSTON
AND
ISSNAF SOUTHWEST CHAPTER

Present:

The 7th Conference of Italian Researchers in the World

DECEMBER 3RD, 2011
ITALIAN CONSULATE
AUDITORIUM
1330 POST OAK BLVD
HOUSTON, TEXAS 77056

Messaggio del Presidente

Cari Connazionali, Care Amiche ed Amici, desidero salutare e dare il benvenuto a tutti i partecipanti e agli ospiti arrivati dall’Italia in Rapresentanza dell’Universita’ di Palermo ,dell’ERSU e della CSNA.

Siamo arrivati alla settima edizione della Conferenza dedicata non solo alla Ricerca ma soprattutto al ruolo fondamentale che in una societa’ sempre piu’ globale hanno avuto e continuano ad avere i Ricercatori ed i Professionisti Italiani nel Mondo.

L’organizzazione della manifestazione di quest’anno sara’ di transizione, desidero cosi fare un resoconto generale .

Si parte dal 2004 quando ancora vi era il Ministero per gli italiani nel Mondo e l’allora Ministro Mirko Tremaglia con i suoi stretti collaboratori avevano avuto la lungimiranza di organizzare annualmente un premio dedicato agli Italiani nel Mondo, nonche’ diversi incontri istituzionali in Italia con i Missionari , gli Imprenditori, i Ristoratori , i Ricercatori sparsi nel globo .

All’estero ed in particolare negli Stati Uniti mancava un evento che potesse mettere assieme connazionali affermati nei diversi campi di professione,per dare a loro un riconoscimento ed un tributo meritatissimo e di evidenziare nelle collettivita` di riferimento le eccellenze. Cosi ebbi l’idea di proporre al Comitato degli italiani all’estero della circoscrizione consolare di Houston, che comprende gli Stati dell’Arkansas, Louisiana , Oklahoma e Texas , di organizzare per la prima volta la conferenza dei ricercatori Italiani nel Mondo. Non facile da attuare visto il territorio cosi vasto, ma spinto da una convinzione ed una forte volonta`, sostenuto dal Comites e dal Consolato generale d’Italia,partimmo con la prima edizione a Dallas,con la partecipazione di 8 speakers ed un pubblico di circa 120 persone. Subito capimmo delle potenzialita’ che una manifestazione di tale prestigio e spessore potesse avere nella comunita’ in generale . Cosi il secondo anno si sposto’ l`evento a Houston, cuore dell’Industria petrolifera, della medicina , dell’aerospazio, dell’energia e tecnologica a livello mondiale.

Si creo’ un comitato, diretto in maniera eccellente dal mio collaboratore nonche’ cons.del Comites il Medico Dr.Andrea Duchini. La manifestazione con gli anni cresce in termini di partecipazione degli speakers e del pubblico , ricevendo i patrocini dalle piu’ alte cariche dello Stato Italiano, da diversi Ministeri , dall’ Ambasciata d’Italia a Washington , con le presentazioni da parte di personalita` eccellenti che oggi rappresentano i vertici di importantissime Aziende e di Laboratori di Ricerca , o gli Astronuati Italiani Nespoli e Vittori , cosi’ come nel mondo della letteratura e della cultura , e di alcuni Rappresentanti del Parlamento e del Senato Italiano, e dello Stato del Texas, inclusa la proclamazione da parte del Governatore Rick Perry e di personalita’ Diplomatiche ed Accademiche.

Quest’anno in maniera logica e pensando alla continuita’ ed al futuro di questa straordinaria manifestazione che coincide con le celebrazioni per il 150 mo anniversario dell’unita’ d’Italia, ricevendo l`Alto Patronato da parte del Presidente della Repubblica , e dai Presidenti del Senato e della Camera dei Deputati, si e’ voluto coinvolgere piu’ direttamente come co-organizzatori l’ISSNAF, Fondazione composta da molti ricercatori che risiedono in Nord America, con la speranza ed il forte auspicio che possano potenziare quest’evento e nel poter promuovere e rafforzare la cooperazione scientifica e tecnologica tra l`Italia e gli Stati Uniti e nel mettere in evidenza le eccellenze italiane che danno lustro alla nostra Madre Patria.

Nel corso degli anni si e’ incrementato il networking , si e’ creato un anagrafe dei ricercatori nella nostra circoscrizione e quindi successivamente a livello nazionale , sono nate collaborazioni tra esperti dello stesso settore , ed in alcuni casi proposte di lavoro si e’ venuta a creare una certa realta’ sempre in crescita e con enormi opportunita`,molti ricercatori hanno partecipato agli incontri organizzati dal Ministero della Salute a Cernobbio e al Parlamento Italiano sono state presentate 2 proposte di Legge su segnalazioni provenienti dai lavori delle conferenze precedenti.

Sono stati siglati 2 protocolli d’intesa tra l’Universita’ di Palermo e quella del Texas , nel campo della medicina ,e della letteratura e cultura con l`Universita` Rice di Houston , grazie al coordinamento da parte della CSNA .

Sono nate collaborazioni inerenti alle conferenze con Prometeonetwork ,con Sbarro Institute di Philadelphia, con i professionisti Italiani di Boston e l’Issnaf, dove il 5 Novembre si e’ costituita proprio a Houston il “capitolo del Sudovest” e Young Issnaf.

In sette anni si e’ fatto il possibile , tenuto conto della scarsezza di mezzi e risorse a disposizione.Tuttavia posso dire che gli obiettivi sono stati possibili raggiungerli grazie ad un lavoro di squadra composta da persone eccezionali, dai volontari dei Comitati organizzatori , dagli addetti del Consolato Generale a Houston e dell’ Ambasciata Italiana a Washington e soprattutto dalla costante partecipazione di persone straordinarie come Voi.

Grazie a nome di tutti

Com.Te. Vincenzo Arcobelli
Presidente Comitato per gli Italiani all’estero

Director's Message

Dear All,

I am honored to introduce the 7th edition of the Conference of Italian Researchers in the World. The program includes five scientific sessions dedicated to energy, bioscience, technology, humanities and aerospace followed by a round-table on collaborations between Italy and USA. We are honored to have a visiting delegation from University of Palermo and ERSU that will mark the start of significant research collaborations between Italy and several Texan Institutions. This year we'll feature new and exciting topics such as tissue engineering, cell transplant and advanced fluid mechanics. We'll update on the ongoing work of Italian scientists on the International Space Station with astronaut Nespoli returning from his prolonged stay in space. We'll hear about how the Italian language it's alive and well around the world honoring students of Italian literature.

The prior six editions of the conference have highlighted how Italian research excels around the world and how Italian researchers are able to contribute to the advancement of science sharing with the entire scientific community. Founded by Vincenzo Arcobelli and strongly supported by the Italian Consulate of Houston, in the last six years the conference has hosted over 250 researchers from over 100 Institutions from the US and Italy. The conference touched multiple fields of research and continued to expand to new and exciting topics. We created network and attracted attention from Italy and US to the work that thousands of Italian and Italian-Americans perform every day all around the world. We could not have done it without your help, the help of all those researchers that day after day dedicate their life to the advancement of science for the benefit of mankind. We are thankful to all the Institutions that supported this effort and are proud to welcome ISSNAF Southwest Chapter as essential part of this effort and future engine for its continued success. A special thanks to Paolo Papi, Marco Marcelli, Francesca D'Alessandro Behr, Orazio Chiarenza and Daniel Minisini who coordinated specific sessions of today's program, to the entire scientific committee and to Consul Fabrizio Nava for his support.

I wish the best to all the participants to the conference and hope to see you again next year.

Sincerely,

Comites Member
Andrea Duchini, MD, FACP
Houston, TX, 11/25/2011

STATE OF TEXAS
OFFICE OF THE GOVERNOR

Greetings:

As Governor of Texas, it is my pleasure to welcome everyone to the seventh conference of Italian Researchers in the World, hosted by the Committee for Italians Abroad.

Texas boasts a population of dedicated, innovative and highly skilled people from all walks of life, each of whom contributes to Texas' economic success. Italians and Italian Americans have played an important role in the prosperity and diversity of our state. I commend everyone working to promote valuable cultural exchange, research opportunities and commerce between Texas and Italy.

I have every expectation that this conference will be an overwhelming success. This forum provides you with opportunities to network and share the expertise necessary to meet the demands of the future. Communities across Texas, in Italy and around the world will benefit from your work.

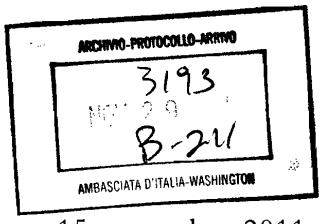
First Lady Anita Perry joins me in sending best wishes for an enjoyable and informative event.

Sincerely,

Rick Perry

Rick Perry
Governor

Il Consigliere Diplomatico
del Presidente della Repubblica



Roma, 15 novembre 2011

Caro Giulio

sono lieto di comunicarTi che il Signor Presidente della Repubblica ha concesso il Suo Alto Patronato alla "VII Conferenza dei ricercatori italiani nel mondo", che si svolgerà nella sede del Consolato d'Italia a Houston il 3 dicembre 2012.

Mi è gradita l'occasione per farTi pervenire i miei cordiali saluti.

Tuo Stefano

S.E. l'Ambasciatore
GiulioMaria Terzi di Sant'Agata
Ambasciata d'Italia
WASHINGTON

Ambasciata d'Italia
Washington
#6131
18. 11. 2011

Il Ministro

Gentile Presidente,

desidero personalmente segnalarLe che il Signor Presidente della Repubblica ha deciso di concedere il proprio Alto Patronato alla Settima Conferenza dei Ricercatori Italiani nel Mondo, che si terrà a Houston il prossimo 3 dicembre.

Si tratta di uno straordinario riconoscimento dell'opera svolta personalmente da Lei e da codesto Comites per promuovere ed ampliare la cooperazione scientifica e tecnologica fra Italia e Stati Uniti ed un segno di profondo apprezzamento per le eccellenze italiane che danno lustro al nostro paese in Texas e negli Stati Uniti.

Nel farLe giungere le mie più vive congratulazioni, colgo l'occasione per rinnovarLe i miei migliori saluti.

[illegible signature]

Comandante
Vincenzo ARCOBELLI
Presidente del Comites
Houston

Il Presidente
del Senato della Repubblica

GENTILE PRESIDENTE, LA RINGRAZIO PER IL CORTESE INVITO A PARTECIPARE ALLA SETTIMA EDIZIONEDELLA CONFERENZA “RICERCATORI ITALIANI NEL MONDO”, CHE SI TERRÀ IL 3 DICEMBRE PROSSIMO AHOUSTON IN TEXAS E PER LA QUALE, ANCHE QUEST’ANNO, È STATO CONCESSO IL PATROCINIO DELSENATO. NON POTRÒ ESSERE TRA VOI, MA SONO LIETO DI RINNOVARE IL MIO SINCERO APPREZZAMENTOAL VOSTRO COMITES PER AVER ORGANIZZATO LA SETTIMA EDIZIONE DELLA CONFERENZA CHE VEDEPROTAGONISTI I NOSTRI RICERCATORI. LA RICERCA INVESTE ASPETTI FONDAMENTALI NELLE VITA DI UN
PAESE: VALORE NEL CONTESTO DEL PROGREDIRE DEL PENSIERO RAZIONALE E INFORMATORE, FORZAMOTRICE DELL’UMANA SOCIETÀ; ANCORA, SIGNIFICATO ECONOMICO E SOCIALE CON LE TECNICHE CHEDA ESSA SCATURIRANNO, DALLE QUALI DERIVANO ENORMI SVILUPPI IN TEMA DI INDUSTRIA,BIOMEDICINA, SALUTE, AGRICOLTURA, INFORMATICA E COMUNICAZIONI, AMBIENTE. LA RICERCASCIENTIFICA, NEL MONDO CONTEMPORANEO, È DIVENTATA UN TALE TESORO CHE RENDEIMPRESCINDIBILE AMMINISTRARE QUESTO “CAPITALE IMMATERIALE”;
È UNA RICCHEZZARAPPRESENTATA DA PENSIERO, CULTURA E POTERE CREATIVO. COLTIVARE QUESTO PATRIMONIOCULTURALE SIGNIFICA CONTRIBUIRE ALLO SVILUPPO IMMEDIATO E FUTURO DI OGNI PAESE.SONO CERTO CHE L’INIZIATIVA COSTITUIRÀ UN PREZIOSO MOMENTO D’INCONTRO PER LA COMUNITÀITALIANA RESIDENTE ALL’ESTERO IMPEGNATA NEI PIÙ DIVERSI CAMPI DI RICERCA. LA REALTÀ DEINUMEROSI E QUALIFICATI RICERCATORI IMPEGNATI IN IMPORTANTI UNIVERSITÀ E CENTRI DI RICERCA INVARI PAESI DEL MONDO, E IN PARTICOLARE NEGLI STATI UNITI, MERITA LA MASSIMAATTENZIONE ESOSTEGNO ED È IMPORTANTE CHE ESSI SIANO INCORAGGIATI A MANTENERE VIVI I RAPPORTI DICOLLABORAZIONE TRA DI LORO E CON L’ITALIA. RINGRAZIANDO PROFONDAMENTE TUTTI I NOSTRICONNAZIONALI, CHE CON IL LORO LAVORO PORTANO ALTO IL NOME DELL’ITALIA NEL MONDO, AUGUROOGNI SUCCESSO ALLA MANIFESTAZIONE E INVIO A LEI E A TUTTI I PARTECIPANTI I MIEI PIÙ CORDIALISALUTI.

RENATO SCHIFANI

IL PRESIDENTE DELLA CAMERA DEI DEPUTATI

Dr. Vincenzo ARCOBELLI
Presidente del Com.It.Es
Circoscrizione consolare di Houston

MESSAGGIO

Desidero far giungere il mio più cordiale saluto a Lei, gentile Presidente, ed a tutti i partecipanti alla VII Conferenza "*Ricercatori italiani nel mondo*", promossa dal Com.It.Es della Circoscrizione consolare di Houston con il patrocinio del Consolato Generale d'Italia, che si svolgerà a Houston il 3 dicembre 2011.

Al riguardo, esprimo il mio apprezzamento per questa iniziativa, che quest'anno assume significato particolare in concomitanza della ricorrenza del 150° anniversario dell'Unità d'Italia e che ha il merito di evidenziare il ruolo e le attività dei ricercatori italiani all'estero.

Nel contesto che stiamo vivendo, in cui la crisi economica e finanziaria ha coinvolto i principali Paesi dell'Occidente, occorre intensificare gli sforzi affinché possano essere incrementati gli investimenti nella tecnologia e nel sapere dando peso, valore ed autonomia alla ricerca, condizione essenziale per crescere e per garantire un futuro migliore a tutti i cittadini.

Nell'esprimere la mia soddisfazione per l'impegno e la professionalità con cui i nostri studiosi conducono la propria attività di ricerca all'estero tenendo alto il nome dell'Italia nel mondo, desidero inviare a Lei ed a tutti coloro che animeranno la Conferenza un sentito augurio di buon lavoro.

Gianfranco Fini

322079

Il Ministro degli Affari Esteri

Roma, 23 NOV. 2011

Caro Comandante,

rispondo con grande piacere alla calorosa lettera aperta che mi ha inviato a seguito dell'assunzione del mio nuovo incarico.

Intendo affrontare questa sfida con l'entusiasmo e lo spirito di servitore dello Stato che da sempre ispirano il mio percorso. In particolare, in continuità con il lavoro svolto anche insieme a voi, mi propongo di rivolgere una particolare attenzione alle comunità degli italiani all'estero, che costituiscono parte integrante della ricchezza umana e dell'identità del nostro Paese.

Sono quindi particolarmente lieto di poter contare sulla vostra amicizia e sul vostro sostegno, e tengo a rivolgervi il mio più vivo augurio per il pieno successo della conferenza dei ricercatori italiani che state organizzando a Houston per il 3 dicembre prossimo.

Con i miei più cordiali saluti,

Vi accludo con cenno

Giulio Terzi

Dott. Vincenzo Arcobelli
Presidente
COM.IT.ES.
HOUSTON

Il Ministro della Salute

2418/com/FF/11

Roma, 4/11/11

Caro Presidente,

La ringrazio per il cortese invito a partecipare alla "Settima Conferenza dei Ricercatori Italiani nel Mondo", che si terrà a Houston il 3 dicembre. Purtroppo, concomitanti impegni istituzionali non mi consentono di intervenire.

Formulo i miei migliori auguri per il successo dell'iniziativa e La saluto cordialmente.

Ferruccio Fazio

Dr. Vincenzo Arcobelli
Presidente COM.IT.ES.
3513 Hidden Forest Drive
Flower Mound
Texas
75028 U.S.A.

Presidenza del Consiglio dei Ministri
Il Ministro della Gioventù

Presidenza del Consiglio dei Ministri
MGIOV 0006480 P-1.5.3
del 01/07/2011
5897335

Roma, 1 luglio 2011

Caro presidente Arcobelli,

innanzitutto mi scuso per il ritardo con cui Le rispondo, ma quelli trascorsi sono stati mesi densi di lavoro.

Desidero ringraziarLa per avermi inviato il volume "Atti della Sesta Conferenza dei Ricercatori Italiani nel Mondo". È importante che l'intera Nazione venga a conoscenza delle storie e del lavoro dei ricercatori italiani all'estero. Essi rappresentano, infatti, una delle parti più vive e di successo della nostra società.

Nel rinnovare il mio ringraziamento per l'omaggio ricevuto, porgo cordiali saluti.

Giorgia Meloni

Vincenzo ARCOBELLI
Presidente Comitato Italiani
All'Estero
Circoscrizione Consolare di Houston

Istituto Superiore di Sanità

IL PRESIDENTE

PRE 796/11

COR F

24 NOV 2011

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VIALE REGINA ELENA, 299

Comm. Vincenzo ARCOBELLI
Presidente Comitato
Italiani Estero-Houston
3513 Hidden Forest Drive
Flower Mound, Texas 75028
U.S.A.

Gentile Presidente,

desidero ringraziarLa per il cortese invito alla Settima Conferenza dei Ricercatori Italiani nel Mondo, che si svolgerà a Houston il prossimo 3 dicembre. Debbo però comunicarLe che non potrò essere presente alla manifestazione per impegni programmati già da tempo proprio negli stessi giorni.

Sono comunque lieto di assicurare il patrocinio dell'Istituto Superiore di Sanità a questo prestigioso evento che pone in primo piano i risultati degli studi condotti dai nostri ricercatori residenti all'estero nell'ambito dei maggiori settori di interesse, da quelli umanistici a quelli scientifici.

Ritengo infatti che il contributo portato dall'Italia alla cultura e alla ricerca a livello internazionale conferisca lustro e prestigio al nostro Paese e che la condivisione delle informazioni tra ricercatori impegnati in campi diversi ne possa favorire la coesione soprattutto in territorio straniero.

Nel rinnovarLe il mio più vivo apprezzamento per le importanti attività svolte dal Comitato e certo che non mancheranno altre occasioni per poter approfondire i temi trattati dalla manifestazione, colgo l'occasione per augurare all'evento il meritato successo e al Comitato da Lei presieduto, una serena e proficua prosecuzione di lavoro.

Con molti cordiali saluti.

Enrico Garaci

L'Ambasciatore

Ambasciata d'Italia
Washington

9 novembre 2011

Prot. 5950

Caro Presidente,

desidero rivolgere, per il Suo gentile tramite, un caloroso saluto agli studiosi italiani presenti alla Settima Conferenza dei Ricercatori Italiani nel Mondo organizzata dal COMITES in collaborazione con il Chapter South West dell'ISSNAF. Nel rappresentare una proficua occasione di incontro tra ricercatori, istituzioni ed aziende, l'incontro di Houston pone in rilievo l'elevato livello scientifico ed accademico della presenza italiana negli Stati Uniti.

In quest'epoca di profondi cambiamenti, l'investimento nella ricerca rimane uno degli elementi centrali della nostra eredità per le prossime generazioni. Il partenariato tra pubblico e privato e la collaborazione internazionale divengono, nel nuovo contesto, strumenti indispensabili per sostenere la ricerca e, insieme ad essa, la crescita economica e sociale. La Conferenza di Houston rappresenta, in questa ottica, una formidabile opportunità per promuovere ed ampliare i partenariati e la cooperazione scientifica e tecnologica tra l'Italia e gli Stati Uniti, soprattutto nei campi medico, aerospaziale e della fisica, nei quali recenti accordi bilaterali hanno consentito di dare forte impulso a nuove collaborazioni e sistematizzare quelle esistenti.

La recente firma, in tale quadro, di un protocollo multidisciplinare di intesa fra l'Università di Palermo e la University of Texas, costituisce un ulteriore ed importante esempio della vivacità delle relazioni scientifiche e tecnologiche fra l'Italia e gli Stati Uniti e della feconda cooperazione

Comandante Vincenzo ARCOBELLI
Presidente del Comites
Houston

interuniversitaria, che annovera, ad oggi, oltre 699 Accordi in vigore.

Come testimoniato dalla prevista presenza all'incontro di Houston di ricercatori italiani che hanno partecipato alla Seconda Conferenza Nazionale sulla Ricerca Sanitaria svoltasi il 7-8 novembre scorsi a Cernobbio, l'apporto della comunità scientifica italiana negli Stati Uniti è fondamentale per approfondire i rapporti in ambito scientifico e tecnologico tra i due Paesi, che le istituzioni sono chiamate a sostenere.

Proprio in tale ottica ho promosso, lo scorso 28 ottobre, un incontro in Ambasciata con le organizzazioni e associazioni dei ricercatori e dei professionisti italiani negli Stati Uniti che sono sorte spontaneamente in questi anni, alla presenza di tutti i nostri Consoli negli Stati Uniti. Abbiamo dato vita in quell'occasione ad un Osservatorio che si riunirà periodicamente per esaminare iniziative comuni e moltiplicare le opportunità di interazione tra ricerca e industria.

Anche quest'anno, come per la precedente edizione, la Conferenza si inserisce nel contesto delle celebrazioni per il 150° anniversario dell'Unità d'Italia. Il Signor Presidente della Repubblica ha voluto concedere quest'anno il suo Alto Patronato, a conferma della particolare rilevanza dell'evento nel promuovere la grande tradizione scientifica e tecnologica del nostro Paese che ha origine nell'Umanesimo rinascimentale e che ha segnato proprio negli Stati Uniti alcuni dei suoi momenti più alti.

Mi dispiace non poter essere presente ai lavori, a causa di concomitanti impegni. Nondimeno, desidero ringraziare vivamente Lei, Presidente Arcobelli, ed i Consiglieri del Comites di Houston per l'invito rivoltomi e per l'assiduo ed efficace impegno profuso nell'organizzazione di questo evento.

Con i miei saluti più cordiali e Buon lavoro.

Giulio Terzi

CONSOLATO GENERALE D'ITALIA
HOUSTON

28 novembre 2011

E' con vero piacere che presento il mio saluto ai partecipanti alla settima Conferenza dei Ricercatori nel Mondo.

Nel corso degli anni questa conferenza e' cresciuta sino a diventare il principale appuntamento della ricerca italiana negli Stati del Texas, della Louisiana, dell'Oklahoma e dell'Arkansas. Una regione, questa, con una forte vocazione alla ricerca, che ospita nelle sue Universita' e nei numerosi Istituti e Laboratori alcuni dei principali centri di eccellenza mondiali per la medicina, l'energia, l'aerospazio ed altro ancora, nei quali lavorano numerosi nostri validissimi connazionali che onorano quotidianamente l'Italia con la loro professionalita' e competenza.

La settima Conferenza dei Ricercatori e' anche la prima che viene organizzata dopo la costituzione a Houston di un Chapter dell'ISSNAF, la Italian Scientists and Scholars in North America Foundation, e poche settimane dopo che la stessa ISSNAF ha scelto Houston per il lancio della sua associazione riservata ai membri con meno di quarant'anni, Young ISSNAF, a testimonianza della crescente importanza che questa realta' riveste anche per la ricerca italiana.

La conferenza di questo anno ha inoltre una rilevanza tutta particolare che viene dalla coincidenza con il centocinquantesimo anniversario dell'Unita' d'Italia, una data di particolare importanza per il nostro Paese che lo Stato del Texas ha onorato con l'istituzione, per la prima volta nella sua storia, dell'Italian Heritage Day da celebrare il 2 giugno di ogni anno. Questa ricorrenza intende celebrare i solidi legami che uniscono il nostro Paese al Texas, nel novero dei quali la ricerca costituisce uno degli elementi maggiormente qualificanti.

Le ragioni che ribadiscono l'importanza di questa giornata sono numerose, e tutte motivo di orgoglio e soddisfazione per il nostro Paese. Mi e' gradita l'occasione per presentare a tutti voi i miei migliori saluti ed auguri di buon lavoro.

Fabrizio Nava
Console Generale

ANNISE D. PARKER
MAYOR

OFFICE OF THE MAYOR
CITY OF HOUSTON
TEXAS

December 1, 2011

Dear Friends:

On behalf of the people of Houston, I extend a warm welcome to you upon your arrival for the 7th Conference of Italian Researchers in the World.

Houstonians take great pride in the diversity of our city and in our international ties. Our city is home to a thriving Italian scientific community and shares an enduring friendship with Italy. We are honored that you have chosen Houston as the location of your conference.

Our community also congratulates you on the 150th anniversary of the unification of Italy. Our people join you in celebrating this milestone, and acknowledge the rich cultural heritage of Italy and the many contributions of its citizens to the economic development and cultural fabric of our city.

Please accept my best wishes for a successful and productive conference.

Sincerely,

Annise Parker

Annise D. Parker
Mayor

POST OFFICE BOX 1562 • HOUSTON, TEXAS 77251

REPUBBLICA ITALIANA

REGIONE SICILIANA
ASSESSORATO DELLA SALUTE
L'ASSESSORE

Palermo, 27/11/2011
Prot. n. 95665/2011

Comm. Vincenzo Arcobelli
Presidente Comitato Italiani Estero
Houston
3513 Hidden Forest Drive
Flower Mound
Texas 75028
U.S.A.

Egregio Presidente,

mi spiace non potere partecipare alla prestigiosa conferenza "Ricercatori Italiani nel mondo", per potere esprimere personalmente il più sincero apprezzamento e il sostegno della Regione Siciliana.

Avrei peraltro avuto il piacere di essere presente all'incontro per contribuire ad offrire una visione complessiva dei cambiamenti che stanno modificando l'organizzazione, le attività e gli assetti della sanità a livello nazionale e regionale e per un confronto con le realtà estere in cui operano numerosi e qualificati ricercatori italiani.

Vi ringrazio per la Vostra capacità di aggregare le idee, e gli uomini e le donne che sanno portarle avanti e trasformarle in realtà per portare i valori italiani nel mondo, mantenendo vivi i rapporti con la nostra nazione.

Augurandovi buon lavoro, porgo a Lei e a tutti i partecipanti un cordiale saluto.

dott. Massimo Russo
Assessore Regionale per la Salute

Deborah Mansfield is the Director, Life Sciences Acceleration, Houston Technology Center, Houston, Texas, a non-profit business accelerator assisting the commercialization of emerging technology companies from the Texas Gulf Coast Region. Deborah has an extensive background in business development, management, non-equity funding, entrepreneurship, compliance, and research in the Life Sciences sector. She has provided operations support to the Governor's Council on Science and Biotechnology Development and currently acts as Associate Director, Gulf Coast Regional Center of Innovation and Commercialization, supporting commercialization award programs out of the Texas Emerging Technology Fund. Prior to joining HTC in 2004, Deborah served in a number of management and research roles at the University of Texas M.D. Anderson Cancer Center and Thomas Jefferson University, as well as, started her own business development firm. She is an avid participant in a variety of entrepreneurship enabling groups such as MIT Enterprise Forum of Texas, TeXchange Houston, and Bio/Medical Technology Club of Houston. She functions in an advisory capacity to ACCION Texas-Louisiana, Laser Tissue Welding, Inc., Fairway Medical Technologies, Inc., and The Rice Alliance for Technology and Entrepreneurship, Rice University. Deborah holds a MBA in management, MS in physiology, and BS in biology; work life balance includes performing with choral groups in Texas, New York City and abroad, as well as, being the biggest fan of daughter, Christine – a recent UC Berkeley grad.

UNIVERSITÀ
DEGLI STUDI
DI PALERMO

Desidero manifestare, a nome della comunità accademica della Università di Palermo, il nostro compiacimento per l'ammirevole impegno da Lei profuso per la diffusione delle attività della comunità Italiana nel mondo, attraverso la organizzazione della "conferenza dei Ricercatori Italiani nel Mondo" che questo anno arriva alla sua settima edizione.

Lo scambio culturale, la realizzazione di reti e la comunicazioni di esperienze scientifiche è uno strumento indispensabile per la comprensione reciproca delle culture, e per l'avanzamento delle conoscenze ed è tra i compiti primari della comunità universitaria, e la conferenza da Lei presieduta va incontro a questi propositi.

Mi congratulo per il suo lavoro e invio a Lei e a tutti i partecipanti alla conferenza un augurio di buon e proficuo lavoro

Palermo 25 novembre 2011

Il Rettore

Prof. Roberto Lagalla

Regione Siciliana
ERSU Palermo dell’Università degli Studi di Palermo
Ente Regionale per il Diritto allo Studio Universitario
Viale delle Scienze, Edificio 1, 90128 Palermo

Gentili partecipanti,

desidero rivolgere un sincero saluto a tutti i partecipanti convenuti alla Settima Conferenza dei Ricercatori Italiani nel mondo organizzata dal Comites di Houston in collaborazione con il Chapter South West dell’ISSNAF e patrocinata dal Consolato Generale d’Italia.

In questa difficile fase per le economie di tutti i paesi occidentali e non solo, l’attenzione per la ricerca diventa ancora più importante in quanto strategica per il rilancio e per un nuovo sviluppo. L’incontro tra i ricercatori italiani organizzato nel Texas rappresenta, a maggior ragione, un appuntamento più carico di valore e occasione di scambio e di crescita per tutti i convenuti.

Lo scenario della Conferenza di Houston è, quindi, un evento da non perdere per rilanciare tutti i partenariati scientifici già in atto e la giusta causa per avviare nuove occasioni d’incontro nell’ambito di tutti i settori della ricerca.

Come presidente dell’Ersu di Palermo, l’Ente che si occupa del Diritto allo Studio Universitario nella Sicilia occidentale, grazie alla sinergia con la CSNA (Confederazione siciliani Nord America) abbiamo da qualche mese avviato un accordo multidisciplinare tra l’Università di Palermo e l’University of Texas ed un altro accordo per la parte letteraria e culturale con l’Universita` Rice di Houston. Perseguiamo l’obbiettivo di avvicinare il maggiore numero possibile di università del Nord America all’Università di Palermo, partendo proprio da un’affinità e amicizia che trae spunto dal codice genetico dei siciliani emigrati in America e che può offrire l’opportunità in più di ritornare alle origini, con la contemporanea apertura degli orizzonti dell’università siciliana verso l’America.

In questo breve saluto non posso esimermi dal ringraziare pubblicamente il presidente del COMITES, Vincenzo Arcobelli ed il comitato organizzatore, che in modo puntuale ed efficiente, hanno con grande cura lavorato per la riuscita di questo evento internazionale.

Antonino Bono
Presidente Ersu Palermo

UNDER THE AUSPICES OF THE PRESIDENT OF THE REPUBLIC OF ITALY

ON MARCH 17, 1861, ITALY BECOMES ONE NATION AFTER ALMOST HALF CENTURY STRUGGLE, *IL RISORGIMENTO*.

ITALY@150 CELEBRATES ITALY'S 150TH ANNIVERSARY IN WASHINGTON, DC, AND THROUGHOUT THE UNITED STATES, WITH A SERIES OF ACTIVITIES THAT WILL TURN 2011 INTO AN "ITALIAN YEAR."

Il Comites della circoscrizione consolare di Houston in rappresentanza della collettivita' Italiana per gli Stati dell'Arkansas, Louisiana, Oklahoma e Texas si unisce alle celebrazioni per la commemorazione del 150 Anniversario dell` Unita d`Italia

Programma
9:00AM National Anthem

Introduction
Andrea Duchini

Opening Remarks
Vincenzo Arcobelli
Comites President

Welcome
Consul General of Italy
Fabrizio Nava

Alberto Devoto
Scientific Attache' Embassy of Italy

Deborah Mansfield
Governor Office State of Texas Representative
Houston Technology Center
Funding Initiatives in the State of Texas:
Driving Life Science Innovation from the Bench to the Bedside

Marco Marcelli
Representative Issnaf Southwest Chapter

9:30-10:45AM
Energy
Chairman; Raffaella Montelli, Sonia Scarselli
Alessandro Cantelli, Shell
Fluid flows: from the understanding and the application in the oil industry to the benefit to society
Mauro Laner, ExxonMobil

Algae and fluid flows: learning from biology and medicine

Marcello Minzoni, Shell

The quest for Hydrocarbons in Fossil Reefs

Giuseppe De Prisco, Ingrain Inc.

Digital rock physics for special core analysis

10:45AM-12:10PM

Bioscience

Chairman; Davide Cattano, Saverio La Francesca

Albino Bacolla, UT Austin

Mechanisms of mutation in cancer and human inherited disease

Gianpietro Dotti, BCM

CAR-based immunotherapy in patients with solid tumors and hematological malignancies.

Daria Zorzi, UTMB

Islet Size Affects Engraftment in Pancreatic Islet Transplantation

Fabio Stossi, BCM

Macrophages as Therapeutic Targets in Breast Cancer

Eleonora Dondossola, MD Anderson

Modulation of endothelial barrier function as a key regulator of tumor cell trafficking

12:00-12:45PM

Physics and Computer Science

Chairman; Paolo Papi, Rodolfo Ambrosetti

Demetrio Labate, UH

Harmonic analysis and its applications to signal and image processing

Marina Barbui, Texas A&M

Yield of D-D and D-3He fusion reactions produced by the interaction of intense ultrafast laser pulses with molecular clusters

Rosario Pizzone, Texas A&M

Trojan Horse Method and its application to explosive nucleosynthesis

12:45PM

Special presentation

Francesco Cappello. University of Palermo

Tissue engineering, regeneration and anti-stress mechanisms research at the University of Palermo, Italy

1-2PM lunch and poster session

2-3:15PM

Humanities

Chairman; Ryan Calabretta, Francesca Behr

Dominic Aquila, U St. Thomas

Verdi's Otello and the Persistence of Evil

Christopher Perri Monarch School

Clinical Social Work Practice and Child Development Expert

Edward Anderson, Rice

Staging Authority and the Birth of Opera

Fabiana Cecchini Texas A&M

Staging the Self into History in Il Prigioniero by Anna Laura Braghetti and Paola Tavella: a 'Collaborative Life Narrative'

3:15-3:45PM

Premiazione concorso letterario

Chairman; Fabrizio Nava, Valter Della Nebbia, Alex Di Bagno, Marina Mocci

3:45-5:00PM

Aerospace

Chairman; Francesco Fusco, Gustavo Priotto

George Abbey

International Cooperation in Manned Space Programs

Paolo Nespoli, Italian Astronaut

The Scientific, Technological and Educational Activities of Expeditions 26 and 27 to the International Space Station.

Trent Martin, NASA

The Alpha Magnetic Spectrometer: A search for anti-matter and dark matter on the International Space Station

Gianmarco Vizzeri, UTMB

Evaluation of Visual Function and Ocular Structures in a Head-Down Bed Rest Analog for Mimicking the Effects of Microgravity

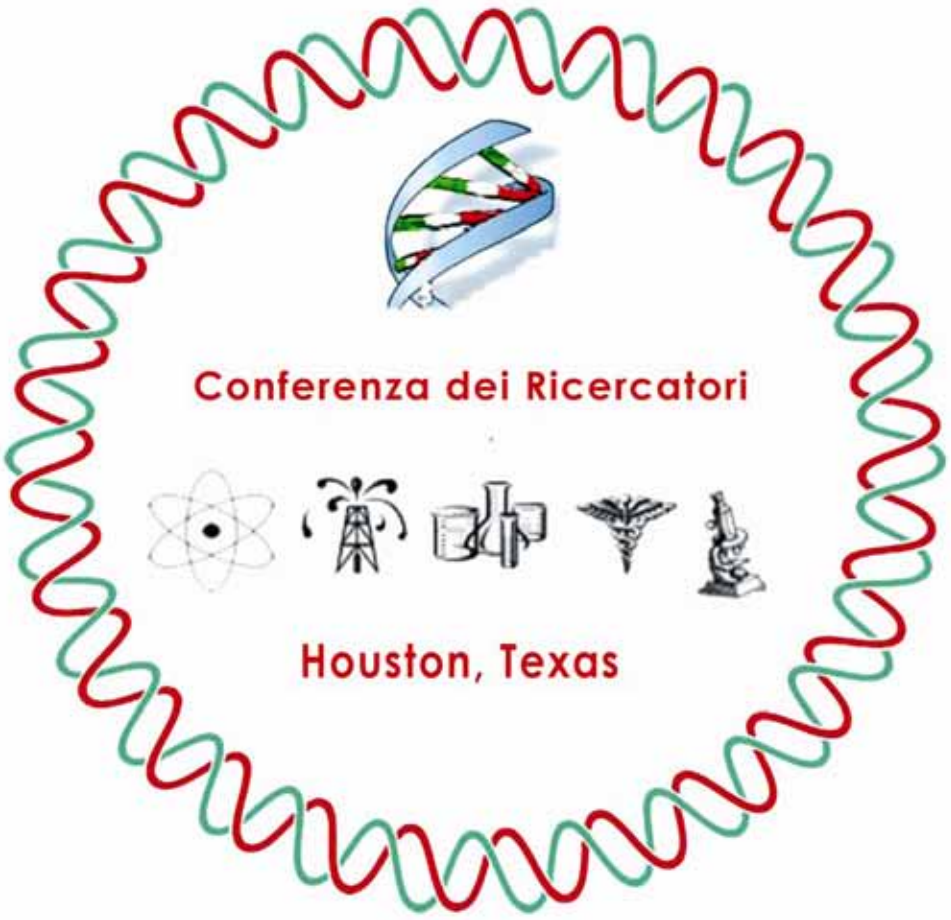
5-6PM

Round Table

"Research Collaborations Italy-USA"

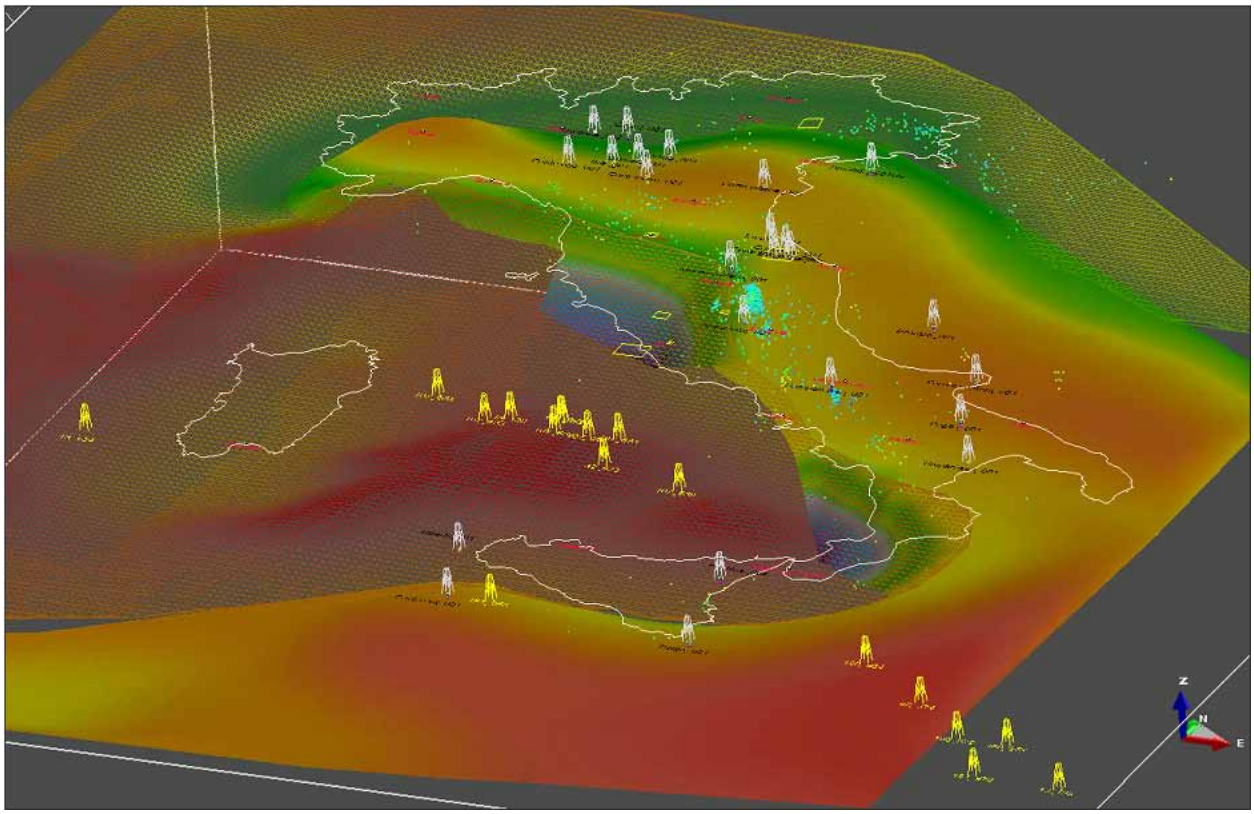
Chairman; Cristiana Rastellini

Discussants; Vincenzo Arcobelli, Andrea Duchini, Saverio Gentile, Giovanni Abbadessa, Alberto Devoto, Fabrizio Nava, Antonino Bono Ersu, Francesco Cappello University of Palermo, Marco Marcelli



Abstracts

SESSION: OIL INDUSTRY TECHNOLOGY USED FOR HUMANITY



Fluid flows: from the understanding and the application in the oil industry to the benefit to society

Alessandro Cantelli

Shell International Exploration and Production, Houston, TX, USA

The Oil industry has developed advanced technologies to achieve the challenge to produce hydrocarbons in extremely adverse environments (ultra-deepwater, high-pressure, high-temperature, ice/permafrost areas...). Technology has been developed in several fields, in particular, a significant leap forward has been made in our understanding of the subsurface and the behavior of hydrocarbon reservoirs under production. The negative impact of the oil business on the environment makes often these technologies hidden to the public. Nevertheless, these technologies developed by the oil industry, often find useful applications for the humanity. Examples of their application include river restorations, flood controls and costal protection. Furthermore, the new technology injecting fluids into the terrain to better produce hydrocarbons, could be extremely helpful in the future to save some of the most important historical sites on the planet. Think of Venice (Italy) and New Orleans (USA).

Biosketch:

Alessandro Cantelli obtained his PhD in fluid mechanics at the University of Genoa, he became research associate at the University of Minnesota and at the University of Illinois. In 2006, he joined the research technology team at Shell Exploration and Production in Houston where is currently part of the Geology team. In 2009 he became adjunct professor at the Civil Engineer at the University of South Carolina. He currently published 30 papers in international journals and proceedings in different disciplines across geology, hydrology and fluid mechanics.

Algae and fluid flows: learning from biology and medicine

Mauro Laner and Pietro Valsecchi

The main energy world challenge today is to supply the energy required for economic development and to improve standards of living around the globe while mitigating greenhouse gas emissions. This challenging and interesting issue can be solved. The answer lies in an integrated set of solutions, among them: 1) the development of all commercially viable energy sources, and 2) the highest efficiency in recovering the resources.

Solution 1 includes the role of algae which hold a significant potential as fuel source and effectively curb emissions. We will describe the key challenges in working on large scale production and commercialization of biofuels from algae. We will choose a fortunate case history to depict how to apply solution 2. In specific, it is about an interdisciplinary project which transfers knowledge from the medical field to the oil & gas field. The flows of fluids around and through the configuration of a productive well, such as a gravel pack system, are extremely difficult to visualize. Because of the complex interplay of porous medium flow with channel flow at different scales, the gravel pack system is considered a very challenging fluid dynamic phenomenon to be reproduced through Computational Fluid Dynamics. For the same reason, conventional visualizations cannot be carried out even in a laboratory setting without fundamentally disrupting the flow. Nevertheless, advanced visualization techniques and methodologies borrowed from the medical research field are applied to the oil & gas industry opening an unprecedented window on the understanding of the behavior of flows in complex completions of productive wells. Today, these flows could be tracked and visualized in laboratory setting by a novel application of Magneto Resonance Imaging techniques. Once the flow can be visualized down to the smallest scales, the effect of each component of the completion can be fully characterized. Under such novel point of view, a redesign of the completion hardware targeting the flow optimization can be envisioned in order to improve the efficiency in recovering the resources

Biosketch (Mauro Laner)

Education:

1998: Mechanical Engineer - La Sapienza University Rome IT - grade 110/110

1998: Final Work for University degree (Tesi sperimentale): research and development of a robotic arm and visual system for IPA - Stuttgart - Germany (project presented to the Hannover Messe 1998)

Post University main courses attended: International Petroleum Fiscal System; Enterprise leadership program; Influencing and Negotiating with government; Post master education program: Gas Business Fundamental - Thunderbird University Phoenix – Arizona; Negotiation Strategy - Skill enhancement - Customer selection and Management; Profitability Analysis - Credit and Risk Analysis; World Refining and Supply Logistics and Planning

Job Experiences:

1998: Work at the Institut für Produktionstechnik und Automatisierung - IPA in Stuttgart,
1999: Procter & Gamble
1999: Colgate
6/1999 – present: ExxonMobil

Current Job: Global Market Developer - Reporting to VP Global Market LNG Development Inc. (Markets specialized: Europe – Middle East – Asia)

Coral Reefs, tropical atolls, and white beaches: from tourism to energy production

Marcello Minzoni

Shell International Exploration and Production, Houston, TX, USA

Although carbonate rocks (limestones) form a small percentage of the Earth's crust, they store an estimated 70% of global oil and gas reserves. Thus, understanding the control on their distribution and reservoir quality in the subsurface is important for energy industries because they are striving to meet the demands of an ever-growing population and economy.

Carbonates are complex organic, chemical, and sedimentary systems, which are sensitive to a multitude of controls, including sea water chemistry and temperature, ocean circulation, biologic evolution and competition, sea-level changes, subsidence rates, and nature of the substratum. To laymen, the most familiar carbonates are the modern coral reefs, their beaches, and the atolls in tropical environments. Most of these carbonates are formed by the skeletal remains of marine organisms. Less familiar and less abundant carbonates occur in deeper waters and at high latitudes.

The evolution of the ocean water chemistry and water mass circulation and the resulting adaptation of carbonate-secreting organisms through geologic time complicate our ability to correctly and precisely characterize ancient carbonate accumulations and predict the nature and distribution of carbonate reservoirs in the subsurface. As a consequence, carbonate reservoirs are generally perceived as challenging to predict; the greater majority of the hydrocarbon accumulations, including super-giant fields, were discovered by accident or serendipity.

My research aims to better understand carbonate systems by implementing a holistic approach—through comparative analysis of modern analogues, fossil outcrops, and buried reefs via analysis of seismic images, outcrop geometries, and computer modeling. This research provides tools to better understand and isolate the controls that are most important in carbonate sediment production and accumulation, and ultimately facilitates prediction, identification, and evaluation of potential hydrocarbon reservoirs and carbonate systems world-wide. This research also has several implications for understanding Earth's climate, oceans' health and their evolution through time. The better we understand the past carbonate response to climate and sea level change, the better we will predict the future response of marine biological communities to current climatic changes.

Biosketch:

I was born in Locri (RC) and raised in Ferrara, where I was introduced to the world of geology. I earned my degree from the University of Ferrara in 1999, after spending two years studying the geologic history of limestones in the central Dolomites (Southern Alps) under the direction of Dr. Alfonso Bosellini. Following ten months of military service in Florence and Bologna, I left Italy to study abroad. I conducted my PhD research on the Permo-Triassic carbonate platforms in Guizhou, China at the University of Kansas with my advisor Dr.Paul Enos and other American and Chinese colleagues. I was also involved in several other carbonate research projects within the University of Kansas and the Kansas Geological Survey. In 2007, I joined Shell International Exploration and Production research lab in Houston, TX, where I am currently working as a research geologist.

Transforming a real rock into a digital rock for special core analyses

Giuseppe De Prisco

Ingrain Inc., Digital Rock Physics Lab – Houston, TX, USA.

Digital rock physics is referred to as the combination of advanced 3D imaging techniques such as X-ray computed tomography scanning or focused ion beam scanning electron microscopy (FIB-SEM), segmentation algorithms to create a digital representation of the rock and advanced numerical methods like the Finite Element Method and the Lattice Boltzmann Method for fluid flow properties of the rocks. The contribution shows a multi-scale approach to compute absolute and relative permeability and capillary pressure saturation relationship for real rocks.

Images of the rock samples' structure are obtained utilizing X-ray computed tomography or FIB-SEM in resolutions ranging from 600 micro-meters to 3 nano-meters. The sample is analyzed using a descending scale of image resolution along with physical sub-sampling. The descending size of scanning leads to an increased resolution of the three-dimensional digital core. The low-resolution/large field-of-view images guide decisions about the location and size of higher resolution/smaller-field-of-view scans and physical sub-samples. The images are processed to identify locations in the rock occupied by various minerals and pores. The result of this process is a digital rock.

Lattice Boltzmann Method is used to simulate the flow of multiple fluids through the digital rock where the 3-D pore structure forms the grid system to compute fluid transport properties. The capillary pressure simulations also provide fluid distributions throughout the digital rock. Fluid distributions are used to assign conductivities to the pore cells in the course of estimating the resistivity. The experiments use parameters related to oil and gas, nevertheless pore systems and parameters related to biological fluids can be used to simulate flow fields in organic tissues. All the computations are performed on GPU clusters.

Biosketch:

Giuseppe graduated in electronic engineer at University of Napoli Federico II (summa cum lode, 2001). After graduation he worked at the CEMFEC project (Combined effects of electromagnetic fields with environmental carcinogens) sponsored by the European Union. He gained full sponsorship (Centro Ricerche Fiat, CRS4, Ferrari et al) for the master degree in Fluid Dynamics (at CRS4, Cagliari, ranked Number 1 in the class, 2003), and after that he was hired at Fiat Research Center in Torino as researcher/engineer. In 2004 he moved to the USA, and in 2007 he graduated with a PhD in Mechanical Engineering at University of Maryland, specializing in the field of computational fluid dynamics and turbulence flows (Advisor U. Piomelli). After graduation, he was hired by Exa Corporation (Boston, MA) as Physicist in the Advance Physics algorithm group, where he worked with Xiaowen Shan, one of the world leaders of Lattice Boltzmann technique. His work focused in developing Lattice Boltzmann computation applied to complex multiphase flow problems. In 2010 Giuseppe moved to Houston, where he is currently working as senior Physicist for modeling and product development at Ingrain Inc. Currently Giuseppe has several peer reviewed articles (Electromagnetic Field, CFD Turbulent flows, Diffusion-reaction mechanism) and one US patent filed (about relative permeability in porous media)

SESSION: BIOSCIENCE

Mechanisms of mutation in cancer and human inherited disease

Bacolla A [1,2], Cer RZ [2], Donohue DE [2], Wang G [1], Jain A [1], Temiz NA [2], Ball EV [3], Mudunuri U [2], Yi M [2], Volfovsky N [2], Ivanic J [2], Luke BT [2], Stephens RM [2], Cooper DN [3], Collins JR [2], Vasquez KM [1]

[1]The Dell Pediatric Research Institute, Division of Pharmacology and Toxicology, The University of Texas at Austin, Austin TX 78723, USA;

[2]Advanced Biomedical Computing Center, Information Systems Program, SAIC-Frederick, Inc., National Cancer Institute-Frederick, Frederick MD 21702, USA;

[3]Institute of Medical Genetics, School of Medicine, Cardiff University, Cardiff, UK

Mutations in DNA are the main cause of cancer and inherited disease in humans. We conduct basic biomedical research aimed at understanding how mutations arise in the cell and the mechanisms in place to repair or prevent them. Towards the first goal, we apply bioinformatics and computational approaches to analyze large sets of mutation data from human cancer and inherited disease studies. These data are then used to develop theoretical models that attempt to correlate the occurrence and frequencies of mutations in particular disorders. Towards the second goal, we perform experiments in human cells in culture to address the role of specific genes in the process of mutagenesis. Bioinformatic analyses on ~500,000 single base substitutions in human cancers and inherited diseases indicate that in most cancers, mutations display a preference for specific sequence combinations. Theoretical calculations suggest that this behavior is related at least in part to differences in the intrinsic propensity of DNA bases to share their electrons with neighboring bases. The process of transcription also appears to contribute to mutagenesis, particularly in human inherited disease. A high incidence of mutations is evident at the CpG dinucleotide sequence in both cancer and inherited disease, supporting a role for methylation-mediated deamination in mutagenesis. In cell culture studies, we have targeted the *WRN* gene, whose mutations are known to cause Werner syndrome, a progeroid disease characterized by premature aging and a high incidence of cancer. Reducing the level of *WRN* in human osteosarcoma cells results in higher mutation frequencies, suggesting that Werner helicase, the product of the *WRN* gene, may prevent the accumulation of mutations by reducing the overall oxidative stress within the cell.

This work was supported by NIH/NCI grants HHSN261200800001E and CA093729

Biosketch (Albino Bacolla)

Albino Bacolla holds a Doctorate degree in Biology from the University of Torino and has worked at the Ospedale Mauriziano (Torino, Italia), at the Free University of Brussels (Brussels, Belgium), at the State University of New York (Stony Brook, NY), at Boehringer Ingelheim Pharmaceuticals, Inc. (Ridgefield, CT) and at Texas A&M University (Houston, TX). He is currently in the laboratory of Prof. Karen Vasquez at the University of Texas (Austin, TX) and is an NIH contractor for the Advanced Biomedical Computing Center (NCI-Frederick, MD).

Bringing genetically modified T cell therapies into mainstream medicine

Gianpietro Dotti

Baylor College of Medicine, Center for Cell and Gene Therapy

Adoptive transfer of T lymphocytes represents an innovative approach to treat human malignancies. This promising approach has been significantly implemented by the use of gene modification approaches. Expression of transgenic chimeric antigen receptors (CARs) in human T lymphocytes combines the specificity of an antibody with the homing and target-cell destruction capabilities of T cells. CAR-based immunotherapy is now extensively investigated in clinical trials in patients with solid tumors and hematological malignancies. Preliminary results indicate that the costimulation provided through CAR molecules is essential to sustain the in vivo survival and expansion of CAR-modified T cells. Additional steps including the optimization of T cell migration to the tumor site and the optimal T cell subset to be redirected with CARs will also be discussed to outline the future direction progress we need to make if this approach is truly to improve cancer immunotherapy.

Biosketch:

Dr. Gianpietro Dotti, Associate Professor, joined Baylor College of Medicine in 2001. He received his M.D. degree at University of Milan in Milan, Italy, in 1989 with subsequent clinical training and board certification in Hematology at University of Parma in Parma, Italy in 1995. From 1996 to 1999, Dr. Dotti received postdoctoral research training in Molecular biology at Ospedali Riuniti di Bergamo, Bergamo, Italy where he developed technologies to detect minimal residual disease in hematological malignancies and studied molecular mechanisms of post-transplant lymphomas. In 2000, Dr. Dotti was appointed Assistant professor at Department of Hematology, Ospedali Riuniti di Bergamo. In 2002 he joined Dr. Brenner's group at Baylor College of Medicine, Center for Cell and Gene Therapy. He was promoted to Assistant professor in 2005 and then to Associate professor in 2007. At Baylor Dr. Dotti developed immunotherapy strategies to treat patients with hematologic malignancies including chronic lymphocytic leukemia. Dr. Dotti's awards include three NIH grants in which he is acting as a principal investigator, project leader or co-investigator. He also received funding from Doris Duke Charitable Foundation/Clinical Scientist development award, Leukemia & Lymphoma Society Translational research grant and from the Department of Defense.

Islet Size Affects Engraftment in Pancreatic Islet Transplantation

Daria Zorzi, Tammy Phan, Yong Lin, Luca Cicalese, Cristiana Rastellini.

Deaprtment of Surgery, Cell Transplant Research, UTMB, Galveston, TX

Background: Better results have been recently reported in clinical pancreatic islet transplantation (ITX) due mostly to improved isolation techniques and immunosuppression. However, optimization and standardization of protocols are still needed to improve success. Many areas have been investigated including morphologic characterization of the graft to determine best islet size for optimal engraftment and functionality.

Material and Methods: Pancreatic islets were isolated from 9-12 weeks old C57/BL10 male mice using standard and overdigestion techniques. Islets were separated by size in three different groups using stainless steel mesh filtrations (150µm and 300 µm)). Islet size was then confirmed through observation at light microscopy and islets were counted and divided for ITX in 3 groups: small (<150 µm), medium (150-300 µm), and large (>300 µm). Streptozotocin induced diabetic syngeneic recipients received 600, 400, and 200 Islet Equivalent under the kidney capsule for each size. Controls received ITX for each isolation without dividing the islet per size. Animals were monitored for blood glucose level, and body weight. Time of diabetes reversal was reported as early, late (10 and 20 days post-TX) and no reversal. In reversed animals, islet functionality was assessed by multiple intra-peritoneal glucose tolerance tests (IPGTT).

Results: Small islets reversed diabetes in 100% of the animals regardless of the mass (most of them within 7 days post-ITX) and performed significantly better than medium and large islets (table). No significant difference was observed in IPGTT results from all animals that reversed diabetes (early or late).

Conclusion: This data suggest that small islets are superior in engraftment even when organs are slightly over digested. When islets are engrafted, functionality doesn't seem to be affected by size. This suggests that clinical isolations should be standardized on obtaining smaller islets.

Islet Mass (IEQ)	Reversal							
	Small (n=13)		Medium (n=25)		Large (n=18)		Control (n=10) (all sizes)	
	tot%	late%*	tot%	late%*	tot%	late%*	tot%	late%*
600	**100**	**0**	**77**	**14**	**71**	**20**	**100**	**0**
400	**100**	**20**	**62**	**40**	**86**	**50**	**66**	**50**
200	**100**	**0**	**62**	**20**	**20**	**100**	**66**	**50**

*tot %: % of animals reversing diabetes; late %: percentage of animals reversing diabetes late among the total

Biosketch (Daria Zorzi)

Daria Zorzi earned her medical degree with summa cum laude and distinction from the University of Torino, completed her General Surgery Residency at the University of Torino and obtained her Surgical Oncology and Hepatobiliary surgery training at IRCCs (Istituto Ricerca e Cura del Cancro) of Candiolo (Torino) where she worked for a year. Prior to join UTMB where she currently works under the NIH T32 grant, Dr. Zorzi spent 3 years at MDACC as a clinical research scientist studying primary and secondary liver cancer. Her clinical and research interests focus on liver cancer (hepatocellular carcinoma) and pancreatic islet transplantation. She has published more than 25 peer-review articles for scientific journals, contributed to 8 book chapters, and she is author of more than 20 oral presentations in International and National Meetings. Dr. Zorzi is a member of the International Hepato-pacreato-biliary Association and of the American Society of Transplantation, and has received many honors and awards including the 2011 Singleton Surgical Society first place Basic Science Research Award. (for the attached abstract).

Macrophages as Therapeutic Targets in Breast Cancer

Fabio Stossi

Department of Molecular and Cellular Biology, Baylor College of Medicine, Houston, TX

My main interest is in breast cancer and in particular in studying how the various components of the tumor affect each other in order to identify novel therapeutic targets and avenues. The tumor is generally a very heterogeneous environment comprising not only the tumor cell but many other cell types including some that are part of the immune system. My main focus has been to understand the role of macrophages, which are capable of either sustaining or reducing the tumor growth, and see how they impinge on the tumor cell and on current therapeutic treatments. For this I generated an *in vitro* system to study the molecular cross-talk between tumor cells and macrophages and identified pathways that directly affect therapeutic output. The effort now is to focus on the central molecules and pathways that cause reduction of efficacy of current therapeutic strategies and lead to more aggressive tumors. This is very important because it will lead us toward designing better therapies that will improve the outcome for patients with more aggressive tumors and/or will prolong the effects of current treatments.

Biosketch

I was born in Milano on March 27th 1975 and grew up in Monza with short living experiences in Sardegna and Mumbai, India. I obtained the Laurea degree in Pharmaceutical Chemistry and Technology from the Universita' degli Studi di Milano in 2001. After one year as a Telethon foundation fellow, I moved as a postdoctoral research scientist to the laboratory of Benita S. Katzenellenbogen at the University of Illinois at Urbana-Champaign where I started my studies on the role of estrogen receptors in breast cancer. Thanks to a collaborative effort between the University of Illinois and Universita' Statale di Milano, I completed my Ph.D. studies in Endocrinology and Metabolism in 2008. After becoming a Research Scientist in March 2011, I was recruited to Baylor College of Medicine where I am currently Assistant Professor in the Department of Molecular and Cellular Biology working in collaboration with Dr. Michael A. Mancini, Dr. Nancy L. Weigel and Dr. Marco Marcelli.

Modulation of endothelial barrier function as a key regulator of tumor cell trafficking

Eleonora Dondossola[1] and Angelo Corti[2]

[1]David H. Koch Center, University of Texas MD Anderson Cancer Center, 1515 Holcombe Blvd, Houston, Texas, USA;

[2] Division of Molecular Oncology, San Raffaele Scientific Institute, Milan, Italy

A common feature of most life-threatening tumors is their propensity to seed tumor cells in circulation and to spawn metastasis in distant organs. Recent studies have shown that circulating neoplastic cells can also re-infiltrate the tumor of origin. This process, called "tumor-self seeding", can select more aggressive cells that may contribute to cancer progression. Using mouse mammary adenocarcinoma models we observed that both tumor self-seeding and organ colonization are inhibited by chromogranin A (CgA), a protein present in variable amounts in the blood of cancer patients. Studies of the mechanism of action showed that CgA can inhibit the shedding of cancer cells in circulation from primary tumors, as well as the re-infiltration of tumors and the colonization of lungs by circulating tumor cells. Furthermore, we obtained evidence to suggest that CgA can inhibit the transendothelial migration of cancer cells, by preserving the endothelial barrier function. These findings point to a role of circulating CgA as a regulator of tumor cell trafficking from tumor-to-blood and from blood-to-tumor/normal tissues. Inhibition of the multidirectional trafficking of cancer cells in normal and neoplastic tissues may represent a novel strategy to reduce cancer progression.

Biosketch (Eleonora Dondossola)

Education and Degree

2004 BSc, Medical and Pharmaceutical Biotechnology, Univ. Vita-Salute San Raffaele, Milan,

2006 MSc, Molecular and Cellular Biotechnology, Univ. Vita-Salute San Raffaele, Milan, Italy

2010 PhD, Cell and Molecular Biology, Univ. Vita-Salute San Raffaele, Milan, Italy and The British Open University, UK

Position and Employment

2007	Visiting Scientist at the Cell Communication Biology Unit, INSERM U338, Strasbourg, France.
2008- present	Contract Professor in Biochemistry, Univ. Vita-Salute San Raffaele, Milan, Italy
2010-2011	Postdoctoral Fellow at the Division of Molecular Oncology, San Raffaele Scientific Institute, Milan, Italy
2011- present	Postdoctoral Fellow at the Univ. of Texas MD Anderson Cancer Center, Houston, Texas, USA

Publications

1. Veschini L, Crippa L, Dondossola E, et al. The vasostatin-1 fragment of chromogranin A preserves a quiescent phenotype in hypoxia-driven endothelial cells and regulates tumor neovascularization. Faseb Journal, 2011 Nov; 25(11):3906-14.

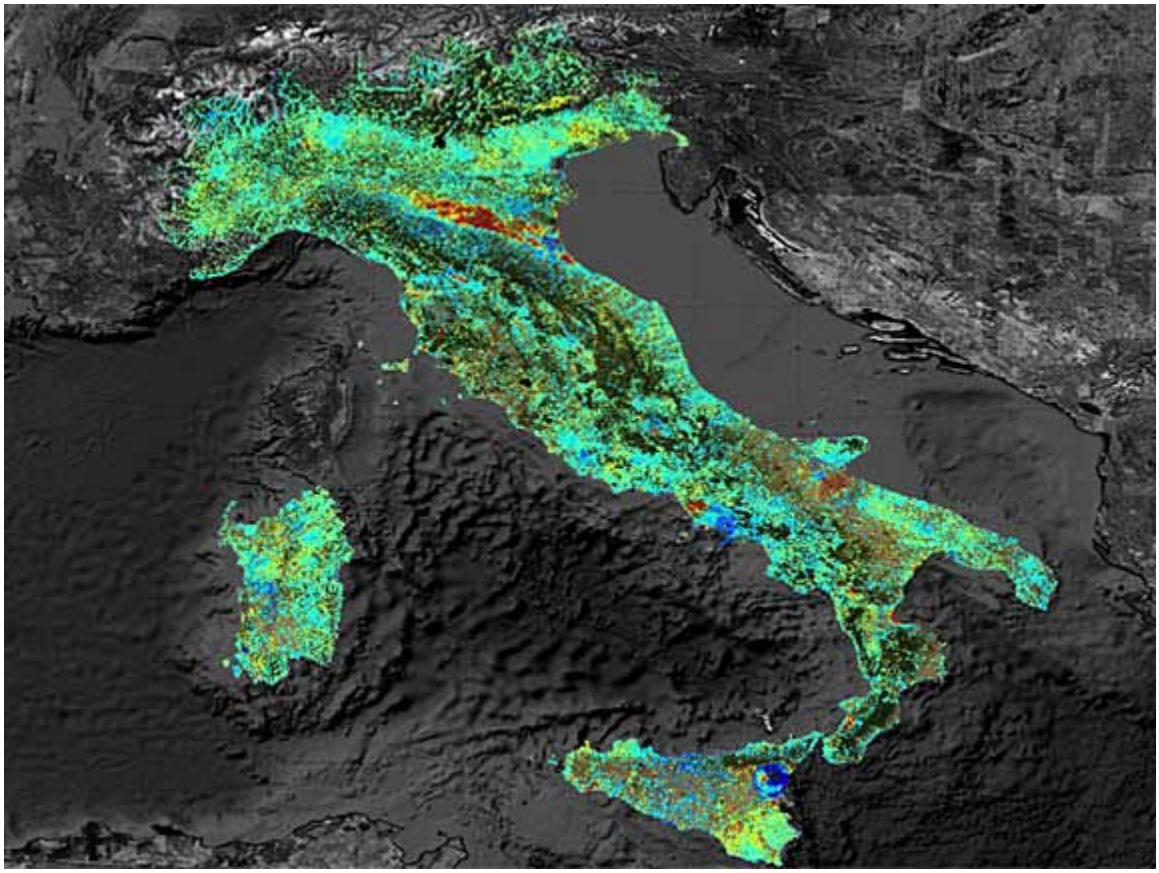
2. Dondossola E, et al. Chromogranin A restricts drug penetration and limits the ability of NGR-TNF to enhance chemotherapeutic efficacy. Cancer Research, 2011 Sep 1; 71(17):5881-90.

3. Roatta S, Passatore M, Novello M, Colombo B, Dondossola E, et al. The chromogranin A-derived N-terminal peptide vasostatin-I: In vivo effects on cardiovascular variables in the rabbit. Regul Pept. 2011 Jun 7;168(1-3):10-20.

4. Dondossola E, et al. Role of vasostatin-1 C-terminal region in fibroblast cell adhesion. Cell and Molecular Life Sciences, 2010 Jun;67(12):2107-18.

5. Curnis F, Longhi R, Crippa L, Cattaneo A, Dondossola E, et al. Spontaneous formation of L-*iso*Aspartate and gain-of-function in fibronectin. Journal of Biological Chemistry, 2006 Nov 24; 281(47):36466-76.

SESSION: PHYSICS AND COMPUTER SCIENCE



Harmonic analysis and its applications to signal and image processing

Demetrio Labate

Department of Mathematics, University of Houston, Houston, TX 77204-3008, USA

Demetrio Labate's research focuses on harmonic analysis and its applications to signal and image processing. One major objective of his research is the development of mathematical and computations methods for the efficient representation of multidimensional data. This area of investigation has gained increasing relevance in recent years due to the need to efficiently process the ever larger amount of data generated from applications ranging from electronic surveillance and seismic imaging to medical diagnostic.

Some of the applications of Prof. Labate's research include algorithms for video and image processing, for the reliable classification of features in biomedical images, and for the reconstruction of 3D tomographic data. Prof. Labate's collaborations include people from both the academia and the industry. His research has been funded by the National Science Foundation, the Army Research Office and the Normann Norman Hackerman Advanced Research Program. Demetrio Labate was the recipient of the prestigious NSF Young Investigator Career Award in Applied Mathematics in 2008.

Biosketch:

Demetrio Labate received the Ph.D. in electrical engineering from the Politecnico di Torino, Italy, in 1995, and the Ph.D. degree in Mathematics from the Georgia Institute of Technology, Atlanta, in 2000. Between 2000 -2003, he was a Chauvenet lecturer at Washington Univ. in St.Louis and between 2003- 2008 he was an Assistant Professor at North Carolina State

University. Since 2008, he is an Associate Professor at the Department of Mathematics of the University of Houston. Demetrio Labate has published more than 50 papers and his research was funded by the National Science Foundation, the Norman Hackerman Advanced Research Program and the Army Research Office. He received the Young Investigator National Science Foundation CAREER Award in 2008.

Yield of D-D and D-^{3}He fusion reactions produced by the interaction of intense ultrafast laser pulses with molecular clusters

M. Barbui[1], K. Hagel[1], J.B. Natowitz[1], K. Schmidt[1], M. Barbarino[1], A. Bonasera[1,2], S. Kimura[2], M. Mazzocco[2], J. Sura[2], W. Bang[3], G. Dyer[3], H. Quevedo[3], E. Gaul[3], T. Borger[3], A. Bernstein[3], M. Martinez[3], M. Donovan[3], T. Ditmire[3], F. Consoli[4], R. De Angelis[4], P. Andreoli[4].

[1]Texas A&M, [2]INFN, Italy, [3]University of Texas, [4]ENEA Italy

The interaction of intense ultrafast laser pulses with molecular clusters produces the explosion of the clusters with enough kinetic energy to drive nuclear reactions. These reactions are not only of inherent interest in themselves, but they provide an important diagnostic tool for probing the dynamics and thermodynamics in the plasma and in understanding the important mechanisms of laser ion acceleration and neutron production. Both of these phenomena offer great potential in a variety of fundamental and applied research areas. In particular, the measurement of fusion probabilities in hot and dense plasmas would contribute significantly to our understanding of stellar composition and evolution and will provide important information for development of fusion energy production.

If we assume the equilibration of the plasma, the ratio of the yields from two different nuclear reactions occurring simultaneously will allow the determination of the effective ion temperature for fusion at the time when the reaction occurred. We performed two experiments: one using pure deuterium cluster targets to probe the D(D,p)T and D(D,n)^{3}He reactions and another employing a D_2 and ^{3}He mixture in the gas jet target to allow us to simultaneously measure yields from the ^{3}He (D,p) ^{4}He and D-D reactions. We detected both the 2.45 MeV neutrons and 3.02 MeV protons from the D-D reactions and the 14.7 MeV protons from the ^{3}He(D,p)^{4}He reaction. Preliminary results will be shown.

Biosketch (Barbui Marina)

Born in Venezia, Italy 1975; Degree in Physics, Università degli Studi di Padova, Italy, 2000; Ph.D. Università degli Studi di Padova, Italy 2006; Research Assistant Università di Trento, Italy, 2000-2001; Research fellowship, INFN Laboratori Nazionali di Legnaro, Italy, 2001-2006; Lecturer of Laboratory of Informatics, Università degli Studi di Padova (Faculty of Science), Italy, 2006-2008. Research contract INFN Laboratori Nazionali di Legnaro, Italy, 2006-2009. Currently research staff member Cyclotron Institute, Texas A&M University: Post-Doctoral Research Associate 2009- 2010, Assistant Research Scientist 2010-present

Research experience in nuclear reaction mechanisms: Two body collisions between heavy projectiles and targets around the Coulomb barrier to produce very heavy and superheavy elements. Multifragmentation reactions and low density matter at higher energies. Recently involved in the study of low energy nuclear fusion reactions produced during the interaction of high power laser pulses with molecular clusters. This last research is performed at Texas Center of High Intensity Laser Science at UT.

Trojan Horse Method and its application to explosive Nucleosynthesis

Rosario Gianluca Pizzone1;2

1Laboratori Nazionali del Sud-INFN, Catania, Italy

2Cyclotron Institute, Texas A&M University, College Station, TX, USA

In many astrophysical scenarios a key role is played by radioactive-ion-induced reaction. After recent discoveries on the field of gamma ray astronomy it was realized that many pieces of informations on massive stars nucleosynthesis can be achieved after studying the ^{26}Al abundance and the related gamma emission in the Galactic plane. For its understanding a detailed investigation of the nuclear processes producing or destroying this isotope is necessary. Direct measurements of nuclear reaction rates are usually hard to perform since the involved cross sections are very small and especially in the case of radioactive ion beams for which intensities can be significantly lower than stable beams. Thus the role of indirect methods become crucial as they can give information on nuclear reaction cross sections in energy ranges as low as the ones required for astrophysical studies. Among them the Trojan Horse Method gives the possibility to study all particle-induced reactions (both charged or neutrons) in the astrophysical energy ranges under ppropriate hypotheses. The method will be presented in the present work as well as some of its main results. Moreover future studies by means of THM of reactions involving the ^{26}Al beam produced at Cyclotron Institute of Texas A&M University will be discussed.

Biosketch

Date of birth: April 7th , 1975
Nationality: Italian
Institution: Laboratori Nazionali del Sud INFN, Catania ITALY
email: rgpizzone@lns.infn.it
Cyclotron Institute, Texas A& M University, College Station, USA (Visiting)

Education and degrees:
1998 graduation in Physics; Ph.D.: 1998-2001 (Physics)

Positions covered:
2001 - 2005 Post Doctoral position in different Institutions;
2005- present Research Scientist, INFN - LNS, Catania, Italy

Research Interests:
Experimental Nuclear Astrophysics, Lithium problem, electron screening, Stellar Physics

Publications:
110 papers on International journals (2000 2011, ISI Database)

SESSION: HUMANITIES

Verdi's Otello and the Persistence of Evil

Dominic A. Aquila, D. Litt et Phil.

In 1887, Giuseppe Verdi returned to the Italian opera scene from his early retirement with *Otello*. Originally entitled, *Iago*, *Otello* probes the way in which the great prince, Otello, is brought down through the nefarious machinations and psychological manipulations of his trusted aide, Iago. Iago incites Otello to jealousy that leads Otello to murder his wife, Desdemona. Otello then takes his own life when he discovers Iago's treachery and Desdemona's innocence.

Although jealousy is an important theme in *Otello*, Verdi's characterization of Iago plunges us into the heart of evil, wherein jealousy is just one of its many features. Verdi distills Iago's malevolence most famously and vividly in Iago's aria, "Credo in un Dio crudel." Some have criticized "Iago's creed" as crassly and grotesquely melodramatic. Yet in the context of late 19th-century liberalism's assurances that the rational ordering of social and political relations would eradicate evil, Iago's creed could be heard as a desperate reminder of the tenacity and persistence of evil in human affairs. In the words of the writer Flannery O'Connor, "to the hard of hearing you have to shout."

The vast critical canon on Shakespeare's *Othello* offers a range of motives for Iago's malice, but in the end it remains inexplicable. Iago therefore offered Verdi and his librettist, Arrigo Boito, the perfect character through which to explore dramatically the mystery of evil during an age confident in its ability to abolish it. An intensely private man, Verdi was nevertheless, a preeminent symbol of Italian nationalism, and thus well-positioned to explore in *Otello* how indomitable evil threatens the social order. This paper highlights the salient elements in Verdi's explorations into the heart of darkness through an analysis of the interplay and interconnectedness of word and music in *Otello*.

Biosketch

Dr. Dominic A. Aquila is currently Vice President for Academic Affairs at the University of St. Thomas. He has nearly thirty years of experience in public and private higher education. Dr. Aquila received his Bachelors Degree in Music from The Juilliard School, his MBA from New York University, and his Doctorate in History from the University of Rochester and the University of South Africa. Before his career in higher education, Dr. Aquila performed as a successful timpanist and percussionist. He and his wife, Diane, are parents of eleven children.

Clinical Social Work Practice and Child Development

Christopher S. Perri

Monarch School, Houston

How do individuals with a wide range of neurological differences (such as Autism Spectrum Disorders, and Mood and Anxiety Disorders) make increasing progress with the development of their Relationships, Self Regulation and Awareness, Executive Functions, and Academic and Professional Competence? Based on the research and evidence of theoretical frameworks that include learner-centered education, and the application of pivotal cognitive, motivational and affective factors, faculty at The Monarch Institute's Monarch School are showing emergent best-practice applications of research-driven ways of providing innovative therapeutic education for individuals with neurological differences on a day to day basis. This research basis includes the theories of Piaget, Vygotsky, Montessori, Levine, Greenspan, Guttstein, Winner and many others. Assessments, Treatment Plans and Interventions are individualized using a developmental level system that targets and measures strengths and challenges based on pivotal objectives and corresponding skills. The collection of this data set is nested in the program itself across levels, domains and disciplines. This talk will briefly highlight this setting with a glimpse into the daily interventions of a Licensed Clinical Social Worker and Child Development Expert who practices the application of this complex set of social studies with a population of thirty-four students with neurological differences ranging in age from three to sixteen. Researchers and scholars with interest in this area are essential to developing the full potential of this emerging evidence-based practice area. There are immediate opportunities for direct collaboration and partnership through an initiative to replicate this intervention model in Italy.

Biosketch:

Christopher Perri, M.S./LCSW graduated from Temple University in his hometown of Philadelphia with a B.A. in Psychology in 1997. He worked several years as Therapeutic Support Staff for children with special needs. Under the supervision of a clinical psychologist, he was introduced to the DIR®/Floortime™ model, which he has now been practicing for over 10 years in a variety of school, home and clinic settings. He has begun the DIR certification process and brings his experience with this dynamic model of intervention to Monarch.

After several years of life and work experience, Christopher returned to school to earn two Masters degrees from 2005 through 2008 in Chicago. He was the recipient of a Harris Leadership Fellow and graduated with a Master's in Child Development from Erikson Institute in 2007. Christopher also earned a Master's degree in Social Work from Loyola University Chicago in 2008. During his studies, Christopher completed clinical internships with foster children living in a residential facility, and abroad in Rome, Italy, where he worked with children with special needs.

This hybrid mental health professional brings a wealth of child development knowledge and a passion for play to the Monarch community. He is inspired by the unique atmosphere of Monarch and honored to work in such a wholesome environment. Christopher is also a musician, world-traveller and nature enthusiast who enjoys spending time with his wife. One quote he likes to share is Plato's recognition that "You can discover more about a person in an hour of play than in a year of conversation."

Staging Authority and the Birth of Opera

Edward Anderson

School of Humanities, Rice University, Houston

Important genres in the musical environment in which opera was born ca. 1600 were the prologue and the intermezzo. At this time, musical poets felt called upon to defend their original work in forceful ways. One innovative form of apologetic musical poetics was to bring a revered (and deceased) Italian literary authority on stage as dramatis persona. The appearance of Francesco Petrarca, Ludvico Ariosto, and Torquato Tasso in this capacity in two early seventeenth-century staged vocal works illustrates how by reviving the author of a canonical vernacular and strictly literary poetic work, two musical poets were able to secure cover for their potentially risky musico-literary endeavors. In this brief talk, I will examine the musical, literary, and cultural contexts of these staged poets.

Biosketch:

Dr. Edward M. Anderson, Assistant Professor of Humanities, Rice University, holds a PhD (2009) from the University of Cambridge (St John's College) with a dissertation concerning Italian literature and music in the seventeenth century. His scholarship is focused on Italian lyric poetry, Renaissance humanism, Baroque and Classical vocal music, especially opera. At Rice University, he teaches in the humanities core, freshman seminar, classical studies and music curricula. He offers an advanced course in Italian literature to graduates and undergraduates. He has worked professionally in classical music in the representation of singers, conductors, and stage directors for firms in New York and Paris, and has directed the program in Art Song and Vocal Chamber Performance of the Aspen Music Festival and School.

Staging the Self into History in *Il Prigioniero* by Anna Laura Braghetti and Paola Tavella: a 'Collaborative Life Narrative'

Fabiana Cecchini

There have been numerous biographies or autobiographies published since the end of the 1980s featuring former members of the Red Brigades, and more generally, all those who took part in the armed struggle between the end of the 1960s and the mid-1980s. These texts, which are often co-written with the help of journalists, attempt to recreate the cultural, political and ideological climate of the so-called "years of lead." The goal of these kinds of texts is twofold: the first is to try and fill in the gaps using first-hand witness accounts of "the people who were there," which standard historical and scientific research cannot discover; and the second is for the former Red Brigade member to give a new image of him or herself to the world, an image created after termination of the armed struggle and that has emerged in the light of reflection on their youthful experiences, a stage that they have moved beyond and in some cases, even refuse to acknowledge. *Il Prigioniero* by Anna Laura Braghetti written in collaboration with the journalist Paola Tavella (1998) takes the form of a "collaborative life narrative" (Smith & Julia Watson 2001, 191). Tavella's and Braghetti's work aims at offering an alternative reading of one of the most tragic political assassinations in Italian history (that of the prime minister Aldo Moro), while forging a new social and public identity for the ex-Red Brigade member. For Braghetti, then, the practice of autobiographical writing is a tool to heal her damaged self (following Demetrio's conception of life-writing, Demetrio 1996) through relocating her past and present experience in the effort to reinstate her new image in the world through the publication of her life story and through the reader as the "sympathetic listener" who helps her in this endeavor.

Braghetti, Anna Laura and Paola Tavella. 1998. *Il prigioniero*. Milano: Mondadori.

Demetrio, Duccio. 1996. *Raccontarsi. L'autobiografia come cura del sé*. Milan: Cottima.

Smith, Sidonie and Julia Watson, eds. 2001. *Reading Autobiography. A Guide for Interpreting Life Narratives*. Minneapolis: University of Minnesota Press.

Biosketch:

Fabiana Cecchini is currently an Instructional Assistant Professor at Texas A&M University. She holds a Laurea in Lingue e Letterature Straniere from the Università degli studi di Urbino and a Ph.D. in Italian Studies from the University of Pennsylvania. Her main scholarly interests include women's studies, Italian cinema, the relationship between film and literature. She published on the novelist and poet Sibilla Aleramo and recently, in collaboration with her colleague Ioana Raluca Larco (University of Kentucky), she edited a collection of essays focused on Italian women writers' autobiographical narratives entitled "Italian Women and Autobiography: Ideology, Discourse, Identity in Female Life Narratives from Fascism to the Present" (New Castle-upon-Tyne, UK: Cambridge Scholar Publishing, 2011).

SESSION: AEROSPACE

George W.S. Abbey

Baker Botts Senior Fellow in Space Policy at the Baker Institute of Rice University, Houston

Biosketch:

George Abbey graduated from the U.S. Naval Academy in 1954 and received a master's degree in electrical engineering from the U.S. Air Force Institute of Technology in 1959. Prior to being assigned as an Air Force captain to NASA's Apollo Program at the Manned Spacecraft Center in 1964, he served in the Air Force Research and Development Command and was involved in the early Air Force manned space activities, including the Dyna-Soar Program. In 1976, he was named director of flight operations, where he was responsible for operational planning and management of flight crew and flight control activities for all manned spaceflight missions. In 1983, he became director of NASA Flight Crew Operations Directorate. In 1990, Abbey was selected as deputy for operations and senior NASA representative to the Synthesis Group and was charged with defining strategies for returning to the moon and landing on Mars. In 1991, Abbey was appointed senior director for civil space policy for the National Space Council in the Executive Office of the President. From 1996 to 2001, he served as the director of NASA Johnson Space Center. Abbey has received numerous awards, including the NASA Exceptional Service Medal, the NASA Outstanding Leadership Medal and three NASA Distinguished Service Medals. He was a member of the operations team presented with the Medal of Freedom, the nation's highest civilian award, in 1970 by President Richard Nixon for its role in support of the Apollo 13 Mission.

Paolo Nespoli

The Scientific, Technological and Educational Activities of Expeditions 26 and 27 to the International Space Station.

Paolo Nespoli, Astronaut of the European Space Agency, Houston, Texas

Expedition 26 and 27 to the International Space Station took place from Dec 15 to May 24 2011. Paolo Nespoli, an Italian astronaut of the European Space Agency, was one of the Board Engineers of the mission, and spent 159 days in space with other 5 crewmembers. As for other expeditions, the mission revolved around a full complement of scientific, technological and educational activities. Some crew time was also used to complete all necessary maintenance tasks, and in supporting the arrival of several resupply ships, including Russian, European and Japanese cargo vessels. Furthermore, the crew of expedition 26 and 27 received the visit of 2 Space Shuttles and actively contributed to the success of their missions. Finally, social media were effectively used to increase general public awareness of the mission. Mr. Nespoli will give a quick summary of all these activities.

Biosketch:

Paolo Nespoli was born in Milan, Italy, and grew up in Verano Brianza, near Milan. He is married and has a daughter.

Nespoli was drafted by the Italian Army in 1977 and worked as a parachute instructor at the Scuola Militare di Paracadutismo of Pisa. In 1980, he joined the 9th Battalion "Col. Moschin" at Livorno, where he became a Special Forces operator. From 1982 to 1984, he was assigned to the Italian contingent of the Multinational Peacekeeping Force in Beirut, Lebanon.

He resumed studies in 1985, and received a BS in Aerospace Engineering in 1988 and a MS in Aeronautics and Astronautics in 1989 from the Polytechnic University of New York. In 1990, he was awarded the Laurea in Ingegneria Meccanica by the Università of Firenze, Italy.

In 1991, Nespoli joined ESA's European Astronaut Center in Cologne, Germany, as an engineer for astronaut training, responsible for the preparation of the European astronauts' Basic Training, the management of astronaut proficiency maintenance and the creation of an Astronaut Training Database. In 1995, he was detached to the EUROMIR project at ESA's ESTEC establishment in the Netherlands, where he led the team that prepared, integrated and supported the Payload and Crew Support Computer used on the Russian space station MIR. The following year he was detached to NASA's Johnson Space Center in Houston, Texas, to work in the Spaceflight Training Division on the preparation of training for the crews of the International Space Station.

In July 1998, he was selected as an astronaut by the Italian Space Agency (ASI) and joined the ESA's astronaut corps at the European Astronaut Center in Cologne, Germany. One month later he was relocated to NASA's Johnson Space Center in Houston, Texas, to join the 17th NASA Astronaut class. In 2000, he achieved the qualifications for being assigned to Space Shuttle and Space Station missions. From 2001 to 2003 he also completed the courses of Shuttle robotic arm operator and Extra Vehicular Activities (EVA) advanced skills.

After a short assignment to the Gagarin Cosmonaut Training Center in Star City, Moscow, in 2004, for the Soyuz spacecraft initial training, Nespoli returned to NASA's Astronaut Office in Houston, where he performed proficiency training for maintaining his qualifications, and attended advanced courses. In addition, he carried out technical duties for NASA, ESA and ASI.

In June 2006, Nespoli was assigned to the crew of Shuttle mission STS-120, an assembly and logistic flight to the International Space Station. The mission took place from October 23 to November 7, 2007, and included the delivery to the ISS of the Italian-built Node 2 "Harmony", and the reconfiguration of part of the Station's Solar Array System. Paolo Nespoli, who was the Mission Specialist 4 on that flight, performed important on-board duties, such as the activation of the "Harmony" module and the coordination of the Extra-Vehicular Activities' operations.

In December 2008, Nespoli was assigned to the crew of Expedition 26/27, a long-duration ISS mission, which launched from Baikonur Space Center in Kazakhstan on December 16, 2010 in the Russian Soyuz TMA-20 spacecraft, for which Nespoli was Flight Engineer 1. Nespoli and his two fellow Soyuz crewmembers joined three other crewmembers onboard the ISS, and during their almost 6-month-long tour of duty in space, they continued the assembly and maintenance of the ISS, and carried out several scientific and technological experiments, as well as educational activities. After 159 days in orbit, the Expedition 26/27 crew returned to Earth on May 24, 2011.

Paolo Nespoli's Special Honors and Awards include the NASA Spaceflight Medal in 2007 and 2011, and the titles of Commendatore al Merito della Repubblica Italiana and Cavaliere dell'Ordine della Stella della Solidarieta' Italiana in 2009.

The Alpha Magnetic Spectrometer: A search for anti-matter and dark matter on the International Space Station

Trent Martin

NASA, Johnson Space Center, Houston, TX, USA

This presentation will focus on an overview of the engineering and science of the Alpha Magnetic Spectrometer (AMS) payload, which was launch on Space Shuttle Endeavour (STS-134) to the International Space Station (ISS) in May, 2011. This multi-nation project includes significant contributions from Italy including numerous physics research institutes, industry partners, and the Italian Space Agency. Conceived in 1994, the AMS payload has flown twice to space and currently is collecting data from its perch on the topside of the ISS, where it will remain until the ISS is decommissioned. The AMS has been called the crown jewel of the ISS (Scientific American, April 25, 2011).

Biosketch:

Mr. Trent Martin is the NASA Project Manager for the AMS from the Johnson Space Center. Mr. Martin has a Bachelor's Degree in Aerospace Engineering from the University of Texas and a Master's Degree in Business Administration from the University of Houston Clear Lake. He has

worked for both Lockheed Martin and National Aeronautics and Space Administration (NASA) during his tenure at JSC. He is currently the Engineering Directorate Branch Chief for the Systems Architecture and Integration Office Project Management Branch and the Project Manager for the AMS. He has previously served as the JSC James Webb Space Telescope Project Manager, the NASA JSC Fabrication and Manufacturing Manager, a structural design lead engineer, and a structural loads and dynamics analysis expert.

As project manager for the AMS, he is responsible for day-to-day operations of a $100 million multi-year project. The NASA budget is only a small percentage of the nearly $2 billion total payload cost. The effort is spread over 15 years, involves 60 institutes from 16 different nations. Each institute provides its own project resources. The NASA role is to integrate all of the institutes into one cohesive team to develop, launch and operate a completely new and unique space based particle physics detector. Led by a Nobel Laureate from the Massachusetts Institute of Technology, the AMS Collaboration is made up of over 600 physicists, engineers and technicians. Keeping all of them headed in the same direction is a challenge in and of itself.

Evaluation of Visual Function and Ocular Structures in a Head-Down Bed Rest Analog for Mimicking the Effects of Microgravity

Gianmarco Vizzeri, MD,[1] Giovanni Taibbi, MD,[1] Susana B. Zanello, PhD,[2] Patrice O. Yarbough, PhD,[2] and Ronita L. Cromwell, PhD,[2]

[1] The University of Texas Medical Branch, Galveston, Texas

[2] Universities Space Research Association, Houston, Texas

Recent reports have shown that several astronauts examined upon returning to Earth after long duration spaceflights presented with severe visual impairment and abnormal ocular findings, such as signs of globe flattening with refractive changes (hyperopic shifts), choroidal folds, optic disc edema, and cotton wool spots. The reasons for these findings are unclear. It is hypothesized that they may occur, in predisposed individuals, as a result of spaceflight-induced cephalad shift of body fluids, possibly leading to elevated intracranial pressure.

The effects of microgravity on visual function and ocular structures have not been systematically evaluated. Head-down tilt (HDT) bed rest analog has long been utilized to simulate the effects of microgravity on the human body and to identify possible countermeasures. Because HDT induces fluid shifts similar to those experienced during spaceflight, ocular exams on NASA bed rest subjects have been implemented. Standardized conditions followed for all NASA bed rest studies include a standardized diet, a strict sleep-wake cycle, 24 hour monitoring and remaining in a 6° HDT position during each day of bed rest.

The primary objective of this study is to monitor visual changes as well as changes in intraocular pressure and other ocular structural parameters that may occur as a result of prolonged HDT bed rest. We are using novel and sophisticated imaging techniques, such as Spectral-Domain Optical Coherence Tomography, that have recently been introduced to allow for the detection of subtle changes over time at the level of the retina and the optic nerve head. We hypothesize that HDT bed rest can serve as a model for studying the underlying mechanisms and developing countermeasures for ocular disturbances related to spaceflight. Furthermore, the ability to study ocular responses in the controlled environment of the bed rest platform may provide new insights into the physiology of the eye.

Biosketch (Gianmarco Vizzeri)

Gianmarco Vizzeri, MD is Assistant Professor and Glaucoma Specialist at the Department of Ophthalmology and Visual Sciences, The University of Texas Medical Branch. He is also Medical Director of the Ophthalmology Clinical Research Center and serves as Associate Residency Program Director.

A graduate cum laude from the University of Turin, Italy, Dr Vizzeri is internationally renowned for his expertise in ocular imaging. He has pioneered the use of new imaging devices, such as Spectral Domain Optical Coherence Tomography, in the diagnosis and monitoring of glaucoma. He continues research on the development of novel techniques for early detection and monitoring of the disease.

Dr Vizzeri is the recipient of a major grant from NASA to study the effects of microgravity on ocular structures and visual function in head-down bed rest subjects.

General Session 2011

In the past it was called "Artificial Intelligence"…

Rodolfo Ambrosetti

IBM, Austin

Up until now computer capabilities have been challenged by the nuances of human language, being human language implicit, highly contextual, ambiguous and often imprecise. A completely new approach has been taken, allowing not only to process and understand human language, but to manage massive amount of structured and, even more important, unstructured data and to provide answers to questions with a defined confidence in the answer itself. A system based on this approach was able to win Jeopardy!. This contribution provides details on this innovative approach and example of different fields where the resulting system can be successfully applied, starting from healthcare .

Biosketch

Rodolfo Ambrosetti was born in Rome, Italy. After having received a degree in Mathematics in 1973 he became Assistant professor at the Mathematical Institute of "la Sapienza" University in Rome for four years. He joined IBM in 1997 where he started his career in software development, covering technical positions (mathematical optimization, graphic user interfaces and application development tools) and taking, from 1986, managerial responsibilities (network and system management products). He worked in Milan, Paris, Rome and Cagliari (Italy) before moving to Austin in 1996, where he did have products development responsibilities it the area of Systems Management products. After having been involved in establishing the IBM Software Group Development laboratory in Krakow, Poland, he acted as its functional manager before moving to Cairo, Egypt, where he was appointed Director of the IBM Cairo Technology Development Center and responsible for the WebSphere Consulting Services business for Central and Eastern Europe and Middle East - Africa. Back in Austin he is currently responsible for the WebSphere Consulting Services business in Latin America and, at the same time, running the operations for the Websphere Consulting Services for the Growth Market Countries.

Cav. Antonio Capone Jr., MD

Dr. Capone is an internationally recognized clinician, surgeon and educator. His special interests include pediatric vitreoretinal diseases, complicated retinal detachment, ocular oncology and macular disease. He has authored or co-authored over 200 publications in peer-reviewed medical journals, book chapters, and publications from national clinical trials.

He has devoted much of his 20 year career to the surgical management of pediatric retinal disease in general, and retinopathy of prematurity in particular. He and his colleageus have been innovators of therapeutic advances for these conditions. Over the last 10 years, in conjunction with Cav. Teresa P. Nascimbeni (President) and other devoted members of

A.N.F.E. Of Michigan (Associazione Nazionale Famiglie Emigrati - www.anfeofmichigan.org) he and his colleagues have provided surgical care to over 160 infants and children from Italy with a range of pediatric vitreoretinal disorders. In addition, he and his colleagues have trained several young Italian physicians in the diagnosis and management of pediatric retinal disorders. Much of thi swork is made possible through the generosity of the Carlo, Sabrina and Melissa Pesce "Light of Life Memorial Fund".

Dr. Capone joined the faculty at Emory University in Atlanta, Georgia USA at the conclusion of his fellowship training in Vitreoretinal Surgery and Disease. While at Emory he was a tenured Associate Professor of Ophthalmology and Director of the Vitreoretinal Fellowship Training Program. Dr. Capone joined Associated Retinal Consultants (ARC) in Royal Oak, Michigan in 2000. He is a Clinical Professor of Biomedical Sciences at Oakland University- William Beaumont Hospital School of Medicine, Professor at the European School for Advanced Studies in Ophthalmology, Lugano, SwitzerlandCo-Director of the ARC Vitreoretinal Fellowship Training Program, Director of the Vision Research Foundation.

His research interests encompass both pediatric and adult retinal disorders, including participation in industry-sponsored and National Eye Institute-sponsored trials. He has been actively involved in resident and fellowship education for 20 years, has served on the Ophthalmology Knowledge and Assessment Program Committee for the American Academy of Ophthalmology, and as an examiner for the American Board of Ophthalmology.

Dr. Capone has been named to America's Who's Who in Medicine, The Best Doctors in America, and The Best Doctors in the Southeast. He is a member of many professional organizations (including the American Academy of Ophthalmology, American College of Surgeons, Macula Society, Club Jules Gonin, Association for Research in Vision in Ophthalmology, and International Society for Eye Research) and serves on the Executive Committee of both the American Society of Retina Specialists and the Retina Society.

Thrombelastograph Platelet Mapping™ and Preoperative Platelet Inhibition

Davide Cattano, MD, PhD,

Alfonso Altamirano, MD, Carin A. Hagberg, MD, Evan G. Pivalizza, MD

Platelet inhibition is an integral part of treatment for patients with coronary artery disease (CAD). Drug eluting stents have become the most common intervention performed for patients with CAD and dual antiplatelet therapy is effective in reducing the risk of any major cardiac event in these patients. Thrombelastograph platelet mapping (TEG-PM™)(Haemoscope Corp., Niles, IL) is an assay using whole blood that measures clot strength, and detects platelet inhibition (%) of arachidonic acid (AA)-induced aggregation and/or inhibition of ADP-induced aggregation.

Days off of Plavix	N	Age (yrs)	Baseline MaxAmp	ADP % Preop Inhibition	Days off of Aspirin	N	Age (yrs)	Baseline MA	AA % Preop Inhibition
0 ≤ 3 days	26	66 ± 13	68.1 ± 5.4	54.72 ± 20.10	0 ≤ 3 days	39	65 ± 12	68.4 ± 4.9	57.85 ± 29.21
3 ≤ 7 days	15	66 ± 11	69.5 ± 4.9	38.29 ± 25.52	3 ≤ 7 days	9	66 ± 10	70.3 ± 5.8	48.18 ± 31.69
> 7 days	13	64 ± 6	69.4 ± 4.9	25.31 ± 13.38	> 7 days	6	67 ± 8	68.9 ± 5.7	29.22 ± 18.10
Total Patients	54				Total Patients	54			

Table 1- Preoperative Percent % Inhibition

Sixty adult patients who were receiving or had recently suspended aspirin and clopidogrel therapy were enrolled. Six patients were excluded from the data analysis.

Fifty four patients (mean age 65.6 ± 11.2) were divided into 3 groups depending on the duration off antiplatelet therapy (0≤ 3; 3 ≤ 7; >7 days). Patient demographics and base-line platelet function were similar between the groups. Comparison of the 3 groups are shown in Table 1.

Resistance to antiplatelet therapy may be a clinically relevant problem. If the surprisingly lower platelet inhibition found in our patients with short-term interruption of therapy is duplicated in large, randomized trials, careful reevaluation of the generally accepted 5-7 day interruption may be warranted to avoid undue risk of coronary stent thrombosis.

Biosketch (David Cattano)

Davide Cattano, M.D., Ph.D. was born in Rome, Italy in 1974. He graduated from Universita Campus Bio Medico of Rome, in 1999 Magna Cum Laude. From 1999 – 2003, he was in the Anesthesiology Intensive Care-Critical Care Residency Program at the Medical School University of Pisa, Pisa, Italy, graduating Magna Cum Laude. Dr. Davide Cattano obtained his Ph.D. in Morphology and Physiology and Pathophysiology of Cells and Tissues in the Department of Human Morphology and Applied Biology, Medical School of Medicine, University of Pisa, Pisa, Italy. Dr. Cattano has been faculty in the Department of Anesthesiology at The University of Texas Medical School at Houston, since July, 2008. He is Associate Professor of Anesthesiology, Medical Director of the Preoperative Anesthesia Clinic Memorial Hermnn Hospital and service Chief for ENT/OMF, plastic and eye surgery. He is performing research on patient safety, airway management, neuroprotection and platelet function.

Most recent publications:

Cattano, D., Valleggi, S., Cavazzana, A.O., Patel, C.B., Ma, D., Maze, M., and Giunta, F.: Xenon exposure in neonatal rat brain: involvement of genes regulating apoptosis. Minerva Anestesiol. 77(6):571-8, 2011.

Cattano, D. and Pivalizza, E.G.: Thromboelastography-platelet mapping expanding in non-cardiac surgery. Eur J Cardiothorac Surg. 2011 Jun;39(6):1085.

Rational Design of Multifunctional Nanoconstructs

for Biomedical Imaging and Cancer Therapy

Paolo Decuzzi, Ph.D.

Dept. of Translational Imaging, The Methodist Hospital Research Institute, Houston (TX - USA)

Nanoconstructs are multifunctional particle-based devices for the 'smart' delivery of therapeutic and imaging agents. The objective of this lecture is twofold: i) describe an integrated approach to rationally design nanoconstructs with high level of accumulation within the diseased tissue and minimal sequestration by the organs of the reticulo-endothelial system (liver, spleen, lungs); ii) present a new class of multifunctional nanoconstructs offering superior contrast enhancement for MR imaging and thermal ablation capabilities under non invasive electromagnetic fields.

The integrated approach for the rational design of nanoconstructs combines together the *in-silico* mathematical modeling for the vascular transport and adhesion of blood-borne nanoparticles, *in-vitro* microfluidic-based assays and *in-vivo* intravital microscopy analysis in small animals. The multifunctional nanoconstructs are based on nanoporous silicon and hydrogel-based particles exhibiting a variety of size and shape combinations, loaded with Gd-based contrast agents (Magnevist®; Gd-nanotubes and Gd-fullerenes) for T1-based MRI and SuperParamagnetic iron oxide (SPIOs) for T2-based MRI. In the presence of non-invasive electromagnetic fields, these nanoconstructs can also generate significant thermal toxicity inducing tissue ablation.

Biosketch

Paolo Decuzzi is a Senior Scientist/Professor of Biomedical and Mechanical Engineering at The Methodist Hospital Research Institute. Dr. Decuzzi earned his M.S. degree in Mechanical Engineering from the Politecnico of Bari (IT) in 1997 and his Ph.D. degree in Mechanical Engineering from the University of Naples – Federico II (IT) in 2000. He has been visiting fellow and faculty in several Academic and Research Institutions including The University of Michigan – Ann Arbor (MI); the Princeton Material Institute – Princeton (NJ); the Heart and Lung Institute at the Ohio State University (OH). Dr. Decuzzi has published more than 100 papers in international peer-reviewed journals, international conferences and book chapters; and holds 5 US Patent Office applications in the field of nanoparticle-based biotechnology. He chairs the NEMB (NanoEngineering for Medicine and Biology) committee of the American Society for Mechanical Engineers (ASME), serves on multiple NIH and NSF study sections, and his research activity is primarily supported through NIH and DoD in USA, and ESF in EU.

G Protein Estrogen Receptor (GPER) Regulates Kv11.1 Ion Channel Activity in ERneg Breast Cancer Cells

Saverio Gentile, Ph.D.

Department of Molecular Pharmacology & Therapeutics, Loyola University Chicago

Breast cancer is a major cause of death among women worldwide, and novel strategies need to be developed to lessen its morbidity. Although, the mechanism of breast cancer proliferation is poorly understood, it has been established that in cancer cells displaying an E2 receptor positive (ERpos) or E2 receptor negative (ERneg) phenotype, proliferation can be mediated by an E2-dependent mechanism. Interestingly, recent studies have demonstrated that E2 effects on proliferation of ERneg breast cancer cells can be mediated by the G protein-coupled receptor, GPER. However, very little is known about the biochemical signaling cascade activated by E2 via GPER.

Clinical heterogeneity of breast cancers indicates new subsets of gene expression that can create novel molecular pathways mediating estrogen's (E2) effects on proliferation. The human ether-a-go-go related gene (hERG) encodes the voltage-gated potassium channel Kv11.1, which is primarily expressed in electrically excitable cells.

Interestingly, recent translational research in cancer biology has revealed that Kv11.1 is robustly expressed in cancers of varying histogeneses, including breast cancer. Although, it is well established that Kv11.1 plays a major role in regulating membrane potential nothing is known about its role in breast cancer and its contribution in proliferation.

Our experiments show that changes of Kv11.1 activity determine variation of proliferation rate in ERneg breast cancer cells. Electrophysiological, biochemical analyses show that Kv11.1 ion channel activity is stimulated by an E2-activated signaling cascade via GPER in ERneg breast cancer cells. In addition, stimulation of Kv11.1 activity led to increase of intracellular calcium. Understanding the role of hormonal regulation of Kv11.1 ion channel will lead to discovery of a myriad of new potential drug target for cancer treatment.

Biosketch

I received a Laurea Degree in Biological Science from Seconda Universita' Di Napoli, Caserta and later I received a Ph.D. in Neurobiology from Universita' della Calabria. My studies as Ph.D. student focused on understanding the phylogeny and biophysics of glutamate receptors in invertebrates. I conducted most of my experiments in the laboratories of Neuroscience at the Stazione Zoologica "A. Dohrn", Napoli, Italy and at the University of Konstanz, Germany. As postdoctoral fellow at the National Institute of Environmental Health Sciences (NIEHS/NIH) and later in the Cardiology Department at Duke University I carried out multi-approach investigation on the role of hormones in modulating voltage-gated potassium and calcium channels activity in epithelial derivative cells including glad cells and in neurons. That served me to lay the groundwork for my current research as Assistant Professor at Loyola University Chicago consisting in dissecting hormonal-dependent biochemical pathways leading to reversible phosphorylation of ion channel in patho-physiological contexts.

Deficient cannabinoid transmission is implicated in the negative symptoms of schizophrenia

Andrea Giuffrida and Alexandre Seillier

Department of Pharmacology, UT Health Science Center at San Antonio

In rodents, withdrawal from repeated phencyclidine (PCP, also known as "angel dust") administration reduces social interaction, a behavior commonly used to model the negative symptoms of schizophrenia (e.g., anhedonia and social withdrawal). Experimental evidence indicates that the brain endocannabinoid system may be involved in the pathophysiology of schizophrenia and in the expression of negative symptoms. Indeed, previous studies have shown that PCP-treated rats have decreased endocannabinoid levels in brain areas relevant to schizophrenia and that this deficit is correlated with poor performance in social interaction tests. Similarly, low levels of the endocannabinoid anandamide (AEA) in drug-naïve schizophrenics have been associated with higher symptoms severity.

To assess whether enhancement of endocannabinoid tone improved social interaction, we studied the effects of systemic administration of URB597 (a drug that elevates AEA by blocking its degradation) on social withdrawal in PCP-treated rats. URB597 reversed the PCP-induced social withdrawal, but significantly reduced social interaction in normal rats. These opposite actions were mediated through two distinct pharmacological mechanisms involving the activation of cannabinoid CB_1 receptors and TRPV1-like receptors, respectively.

In PCP-treated rats, social withdrawal was also accompanied by a significant decrease of AEA levels in the amygdala and prefrontal cortex, two brain areas involved in social behaviors. URB597 normalized this deficit, whereas it increased AEA above physiological levels in normal rats.

These findings indicate that the social impairment exhibited in PCP-treated rats results from reduced AEA activity at CB_1 receptors and is reversed by normalization of AEA tone. However, the abnormal AEA elevation induced by URB597 in normal rats has deleterious behavioral effects due to the recruitment of TRPV1-like receptors. Extrapolated to humans, these data suggest that stimulation of CB_1 receptors may relieve negative symptoms in schizophrenic patients, whereas administration of a cannabinoid agent in normal individuals may precipitate psychosis.
Supported by NIH (RO1MH91130-01 to A.G.).

Biosketch (Andrea Giuffrida)

Dr. Andrea Giuffrida received his PhD in Biology from the University of Catania, Italy. In 2001, he was appointed Assistant Adjunct Professor at the University of California Irvine, and in 2003 he accepted a faculty position in the Department of Pharmacology at the University of Texas Health Science Center San Antonio, where he works as a tenured Associate Professor. In 2011, he received a AAAS Science & Technology Policy Fellowship to work in the Office of the NIH Director on regulatory science and bioethics in clinical trials. Dr. Giuffrida is also President of the San Antonio Chapter of the Society for Neuroscience, which promotes neuroscience-related outreach activities in the San Antonio area.

Dr. Giuffrida's laboratory is interested in the role played by the endocannabinoid system in regulating psychomotor functions. The endocannabinoids are a family of naturally occurring lipids that mimic the effects of marijuana by stimulating specific receptors in the brain (cannabinoid receptors).

Saverio La Francesca

The Methodist Hospital, DeBakey Heart and Vascular Center, Houston, TX

I am interested in translational research in the fields of solid organ transplant and organ regeneration. As a clinician, my long-term exposure to end-stage heart and lung failure and the use of mechanical support devices gives me the necessary background to explore novel ways to improve current treatment methods as well as work on alternative, more advanced treatment options. My research interests also extend into the fields of applied nanotechnology and therapeutic use of stem cells. I am one of the few surgeons in the United States that is trained and certified for the use of the two currently available ex vivo lung perfusion/ventilation systems. These devices are designed to improve the functional characteristics of lungs that have been deemed less than optimal before they are transplanted into a recipient, allowing the utilization of a larger pool of donated organs. My strong belief is that treating or engineering the organs ex vivo before transplantation occurs is the way of the future and my research efforts are focused accordingly.

My current projects are based on a confluence of all my interests:

I am using the ex vivo lung perfusion system to selectively deliver nanoparticles containing agents that can modulate the negative inflammatory response responsible for the ischemia/reperfusion injury (IRI) that develops soon after the transplant (DOD/TATRC, awarded 2011).

I am also working with a biopharmaceutical company on a funded project that will employ, for the first time in a transplant setting, the administration of mesenchymal stem cells in the bronchial tree in order to modulate the acute inflammatory and immunological reactions associated with the various stages of the organ transplantation process (cold organ storage for transport, ischemia, and the subsequent reperfusion after transplantation).

Other projects in development involve the utilization of the ex vivo lung perfusion system for the delivery of a variety of nanovectors to mitigate the IRI response and use of a mitochondrial enzyme (NDi1) to boost performance of the damaged electron transport chain enzyme complex I in transplanted organs.

I am also involved in the ongoing clinical trials at The Methodist Hospital in which stem cells are directly intramyocardially delivered during coronary surgical revascularization procedures.

In the field of regenerative medicine, I am heading a collaborative effort with the University of Texas Medical Branch at Galveston (UTMB) and the Universities Space Research Association (USRA) dedicated to the regeneration of lungs. In this project, lungs are decellularized and subsequently recellularized with newly-seeded stem cells. The ultimate goal of this research is to provide the patient with an engineered organ that maintains its original biological scaffold while being populated with cells derived from a patient's own cellular lineage in order to avoid the major drawbacks associated with the anti-rejection therapy required for an allotransplant. My role consists of procuring the organs, delivering the nanovectors engineered to enable specific time-controlled release of growth factors and transplanting the newly constructed organs. If successful, this approach will radically improve organ availability by eliminating the current need for HLA profile matching and will also allow the use of the great majority of the donated organs

In conclusion, I endeavor to bring new technologies and collaborative research approaches to bear on existing challenges in transplantation science/medicine in a way that will ultimately improve both donated organ utilization and the quality of life for transplant recipients.

BIOGRAPHICAL SKETCH

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	MM/YY	FIELD OF STUDY
University of Palermo, Italy	MD	1978-1985	Medicine
University of Rome, Italy	Residency	1985-1991	Cardiothoracic Surgery

A. Positions and Honors.

Positions and Employment

Academic Appointments

2010–Current Attending Surgeon, Dept. of Cardiovascular and Transplant Surgery, The Methodist Hospital, DeBakey Heart and Vascular Center, Houston, TX

2008- 2010 Associate Professor of Surgery, Department of Surgery, Division of Immunology and Organ Transplantation. University of Texas Medical School at Houston. Houston, Texas

2000-Current Associate Professor of Cardiovascular Surgery, University of Rome "La Sapienza," Rome, Italy

1990-2000 Assistant Professor of Cardiovascular Surgery, University of Rome "La Sapienza," Rome, Italy

Hospital Appointments

2009- Present	Staff. Attending Surgeon, DeBakey Heart & Vascular Center. Director of Thoracic Organ Procurement, Perfusion and Preservation.
	The Methodist Hospital, Houston, Texas
2008-2010	Staff. Attending Surgeon, Department of Cardiopulmonary Transplantation.
	Texas Heart Institute at St. Luke's Episcopal Hospital, Houston, Texas
2005-2008	Visiting Surgeon, Cardiovascular Surgery, Texas Heart Institute at St. Luke's Episcopal Hospital, Houston, Texas
2002-2005	Director, Mechanical Support Program.
	Ospedale Sant'Andrea, Dept. Of Cardiovascular Surgery, University of Rome "La Sapienza," Via di Grottarossa, 00198 Rome, Italy
2001- Current	Staff, Ospedale Sant'Andrea, Dept. of Cardiovascular Surgery. Director: Prof. B. Marino. University of Rome "La Sapienza," Via di Grottarossa, 00198 Rome, Italy
1991- 2001	Staff, Policlinico Umberto I, Dept. Of Cardiovascular Surgery, Director: Prof. B. Marino. University of Rome "La Sapienza," Viale del Policlinico 155, 00161 Rome, Italy

"Funding Initiatives in the State of Texas: Driving Life Science Innovation from the Bench to the Bedside"

Deborah Mansfield

Deborah Mansfield is the Director, Life Sciences Acceleration, Houston Technology Center, Houston, Texas, a non-profit business accelerator assisting the commercialization of emerging technology companies from the Texas Gulf Coast Region. Deborah has an extensive background in business development, management, non-equity funding, entrepreneurship, compliance, and research in the Life Sciences sector. She has provided operations support to the Governor's Council on Science and Biotechnology Development and currently acts as Associate Director, Gulf Coast Regional Center of Innovation and Commercialization, supporting commercialization award programs out of the Texas Emerging Technology Fund. Prior to joining HTC in 2004, Deborah served in a number of management and research roles at the University of Texas M.D. Anderson Cancer Center and Thomas Jefferson University, as well as, started her own business development firm. She is an avid participant in a variety of entrepreneurship enabling groups such as MIT Enterprise Forum of Texas, TeXchange Houston, and Bio/Medical Technology Club of Houston. She functions in an advisory capacity to ACCION Texas-Louisiana, Laser Tissue Welding, Inc., Fairway Medical Technologies, Inc., and The Rice Alliance for Technology and Entrepreneurship, Rice University. Deborah holds a MBA in management, MS in physiology, and BS in biology; work life balance includes performing with choral groups in Texas, New York City and abroad, as well as, being the biggest fan of daughter, Christine – a recent UC Berkeley grad.
Subsets and signatures of breast cancer brain-homing circulating tumor cells.

Subsets and signatures of breast cancer brain-homing circulating tumor cells.

Dario Marchetti

Lixin Zhang[1], Lon Ridgway[1], Jerry C. Goodman[1], Michael Wetzel[1], Ruth L. Katz[3], Tanweer Zaidi[3], Wendy Schoeber[4], Morris D. Groves[5], and Dario Marchetti[1,2,6].

[1]Departments of Pathology & Immunology, and [2]Molecular & Cellular Biology, Baylor College of Medicine, Houston, TX; [3]Departments of Pathology and Laboratory Medicine, [4]Leukemia, and [5]Neuro-Oncology, UT MD Anderson Cancer Center, Houston, TX. [6]Corresponding Author.

The identification and characterization of circulating tumor cells (CTCs) causing fatal metastases remain elusive. Metastatic disease is incurable, thus new approaches to predict and prevent the development of metastases are needed. Drug combinations are infrequently tested for their effectiveness in preventing metastatic colonization. Thus, the inhibition of organ-specific metastasis using targeted therapies could be better investigated if coupled with CTC - associated characteristics, predicting metastasis to the organ of interest. For example, the incidence of breast cancer brain metastasis (BCBM) appears to be increasing. BCBM is particularly common in patients whose tumors are negative for estrogen/progesterone receptors and possess an over-expression of epidermal growth factor receptor1 or 2 (EGFR or HER2). However, investigations using therapies targeting HER2/EGFR showed only limited success in the clinical management of BCBM.

We hypothesized that profiling CTCs from patients with BCBM would result in the identification of brain-colonizing CTC signatures with clinical utility. To this end, we used fluorescence-activated cell sorting (FACS), RT-PCR employing novel oligo sequences, CellSearch™, and a technology analyzing antigenic markers by immunofluorescence, coupled with detecting gene amplification by fluorescence *in situ* hybridization on the same cells; and quantification of the signal via automated scanning (FICTION; BioView Duet-3™ system). We established the feasibility of our approaches by performing CTC analyses on peripheral blood mononuclear cells isolated from BCBM patients or patients not possessing overt brain metastatic disease.

From these patient samples, we: 1) detected a differential gene amplification for EGFR and HER2; 2) found that the number of CTCs visualized by the BioView™ platform was at least three orders of magnitude higher than the number obtained from CellSearch™ from the same specimen; 3) identified a significant correlation between the presence of BCBM and CTCs not

detectable by CellSearch™ (CellSearch™ only identifies EpCAM - positive CTCs). Conversely, these CTCs contained high levels of pro-metastatic heparanase, in conjunction with the expression of aldehyde dehydrogenase-1 (ALDH-1), a known cancer stem-cell marker, and with high correlation between heparanase, ALDH-1, and EGFR gene amplification. Further, by using combinatorial flow cytometric/FACS analyses, we demonstrateted the presence of CTC subsets negative for EpCAM and CD45 (a hematolymphoid marker), however enriched for heparanase/ALDH-1 expression; established procedures for retrieving viable FACS - derived CTC subsets amenable to growth in vitro; and discovered a specific association in CTC subset profiling of HER-2, EGFR, $CD44^{high}$/$CD24^{low}$, Notch1, and Heparanase gene expression, consistent with: i) EpCAM negativity; ii) superior Notch1 expression over ALDH-1 as marker of the stem cell pool; iii) a correlation with the onset of BCBM in patients and in highly immunodeficient mice (xenotransplantation studies).

The characterization of CTC subtypes in patients with BCBM suggest the discovery of BCBM founder CTCs. Work is in progress to assess precise properties of CTC subtypes in their abilities for metastatic competency and organ homing specificity, notably to brain. This work was supported by grants from the US National Cancer Institute, US Department of Defense, and from the Avon Foundation for Breast Cancer Research to Dr. Dario Marchetti (PI).

Biosketch (Dario Marchetti)

Dario Marchetti, tumor and molecular biologist, graduated from the University of Pavia, Italy in 1979. He worked as postdoctoral fellow at the University of Illinois, Chicago (1980-1982), University of Texas Medical Branch – Galveston (Texas) (1984-1986). He then became a research scientist at the University of Texas Health Science Center – Houston (1986-1991), Research Associate and later Instructor at UT MD Anderson Cancer Center – Houston (1992-1999), Assistant Professor at UT-Houston (1999-2001), and Associate Professor and later Professor (with tenure) at LSU-Baton Rouge, Louisiana (2002-2007). He now works at Baylor College of Medicine in Houston as Professor in the Department of Pathology & Immunology with a joint faculty appointment in the Department of Molecular & Cellular Biology. He is also directs the Circulating Tumor Cell (CTC) Core facility at Baylor College of Medicine. Dr. Marchetti's bibliography include 145 publications of which 85 are in peer-reviewed journals in the neurosciences and oncology fields. He has received numerous awards and possesses an un-interrupted record of grant funding since 1991 from federal, state and private Agencies. He is a Reviewer of the most relevant journals in cancer research and the neurosciences, and sits on the Editorial Boards of "Cancer Microenvironment, "Tumor Viruses", "Vascular Cell", "Neoplasia", "Cancer Letters", and "Journal of Cellular Biochemistry", among others. He also serves on grant reviewing panels of the National Institutes of Health of USA and Italy, the Department of Defense of the United States, and acts as selected grant Reviewer for several other national and international Agencies devoted to oncology research.

Agile Software Development

Paolo Papi

IBM Software Group, Austin, TX

Do you know the term *agile software development* ? Software development teams across the industry are constantly being challenged to achieve higher quality more quickly and, at the same time, stay flexible to respond to changing client requirements.

Today's business climate requires that software companies not only innovate but innovate faster, more often, and with fewer resources. Traditional methods are no longer applicable in all situations. Software development teams need to find ways to more effectively manage change, to continually improve capacity and efficiency without exhausting our skilled resources. Agile development practices can help achieving these goals.

Agile development principles:

- Exploit the inevitability of change and generate new occasions for learning throughout the project.
- Provide leadership to create an atmosphere in which the team determines its capacity and commits to shared goals.
- Use frequent interaction to move the whole product team toward its goals.
- Engage with customers and stakeholders throughout the project to generate continuous feedback.
- Measure success in terms of delivering a flow of functional, proven stakeholder-valued capabilities.
- Employ test-driven development and do not tolerate defects.
- Strive for relentless improvement of the product and the process.

Agile development must:

- Address complex architectural requirements
- Provide effective governance
- Strengthen solution quality
- Be disciplined
- Be effective for all types of development, components, solutions and suite releases
- Provide integration processes for small and large teams across multiple sites and time zones

This paper explores in details the principles of agile methods and the benefits you, your team, and your clients will have by implementing agile development practices and making them a part of your project workflow.

Biosketch

Paolo Papi was born in Rome, Italy. After obtaining the degree in Electronic Engineering at "La Sapienza" Rome University and completing the military service as Officer in the Italian Navy, he joined IBM in 1991. He started his career as software developer, to evolve in a few years into technical architectural leadership roles. In 1998 moved from Rome to Austin, TX, assuming managerial responsibilities in different organizations in the IBM Software Group. He is currently managing a project management team involved in many software development projects across the globe, and is the program director for the performance leadership team, with the mission to improve product performances across many IBM Software Group products. Paolo lives in Austin, TX, is married with Patrizia and has a 5 years old son, Piefrancesco.

INTERNATIONAL SPACE STATION PROGRAM

ASI - ITALIAN SPACE AGENCY'S 2010-2011 ACTIVITIES
SYSTEM & SCIENCE
POSTER SESSION

Silvana Rabbia - Italian Space Agency
Presented by:
Gustavo Priotto (ALTEC SpA) – Italian Space Agency Liaison Office - NASA JSC

ABSTRACT

A synthetic summary of the activities performed and events supported by ASI in the frame of the Human Spaceflight Programs during the last year is provided.
The points treated deal with:

- **The last Multi-Purpose Logistics Module (MPLM) mission**
- **The Permanent Multipurpose Module (PMM) mission**
- **The DAMA ('DArk MAtter') mission**
- **The Alpha Magnetic Spectrometer (AMS)-02**

On July 8, 2011, the last MPLM (Raffaello) flight was launched on-board the Space Shuttle Atlantis for the last mission (STS-135) of the Shuttle Program.

On February 24, 2011, the Italian built Permanent Multipurpose Module (PMM), based on the MPLM – Leonardo, was launched to the International Space Station on-board the Shuttle Discovery in its last flight. The PMM offers additional pressurized volume for storage and for scientific use and is the last pressurized element added to the U.S. operating segment (USOS) of the Station.

In the frame of DAMA mission to the ISS, aboard the Space Shuttle STS-134, the Italian Astronaut Roberto Vittori performed several on orbit experiments, most of them dealing with applied science, about which some details are provided in the poster.

These experiments witness ASI interest in supporting a broad range of research areas that can profit of microgravity and space environment, including Space Biomedicine and Biotechnologies. The high value that ASI recognizes to this field is confirmed by the fact that a new call addressing research in Space Biomedicine and Biotechnology will shortly be published by ASI.

The Alpha Magnetic Spectrometer (AMS-02) large experiment was launched on board STS-134 on April 29, 2011, and was installed on the Space Station. ASI and the the Italian Istituto Nazionale di Fisica Nucleare are members of the AMS 02 international collaboration.

ALTEC

AN ITALIAN COMPANY TO BRIDGE SPACE TECHNOLOGY, INFRASTRUCTURES AND SCIENCE WITH EARTH APPLICATION

POSTER SESSION

Cristoforo Romanelli – General Manager ALTEC SpA

Presented by:

Gustavo Priotto (ALTEC SpA) – ***ALTEC/ASI Liaison Office @ NASA JSC***

The presented poster provides an overview of the ALTEC portfolio of engineering support services and capacities, in terms of infrastructure and skills, that can be made available to Research Centers, Scientists, and Industries looking for support to the elaboration of initiatives and proposals relevant to the utilization of the International Space Station as well as spin-in projects or development of new market opportunities based on space technologies or processes.

The ISS, an enormous orbiting laboratory hosting experiments in various fields, is open to the international science community. ALTEC having a long experience in terms of supporting the development of space experiments, their integration and processing on board the ISS is able to support the development and "spatialization" of experiments.

While the process of transferring technologies developed within that, the space programs "down" to earth usage is well supported and codified by the Space Agencies, the inverse process of proposing innovative solutions, elaborated by non-space companies or laboratories, for space projects represents a much more difficult exercise. ALTEC, being a PPP participated by a key industrial player in the space business (Thales Alenia Space) and by the Italian Space Agency, is able to act as mediator or "facilitator" for a dialogue among scientists and non-space industries with Space Agencies.

Concerning the development of new markets for which space based technologies and processes can provide key elements of success, Europe is going to become more ready than in the past to support innovative proposals. ALTEC, again, may support USA based innovators to enter the Italian and European market exploiting institutional initiatives aimed to nurture new support service industries.

The poster provides also a synthetic summary of the major projects in which ALTEC is presently covering a major role; including: Human Spaceflight & ISS Utilisation, Space Medicine and Bio-Technology, Planetary Exploration and Data Processing & Management.

ATRIAL FIBRILLATION: CLINICAL PERSPECTIVE AND THERAPEUTIC OPTIONS

Pasquale Santangeli

During Atrial Fibrillation the electrical impulse originated in the atria breaks up, generating hundreds of impulses per minute. As a consequence, the atria's activation is chaotic and their contraction is disorganized. This irregular contraction of the atria doesn't allow the heart to work properly: in other words, the blood is not pumped efficiently and it staunches in the upper cardiac chambers, with the risk of blood clots (thrombi) and thrombo-embolic events (especially strokes). Besides, of all the impulses originating in the atria, some go down to the ventricles at variable intervals, causing an increase of the heart rate and an irregular ventricular rhythm. It's that sensation called palpitations. But this is not the only symptom. Among others, we have to mention dyspnea, that is the shortness of breath during physical efforts; fatigue, that is physical tiredness; dizziness, that is light-headedness; syncope, or fainting; and angina, a retrosternal chest pain and discomfort. All these symptoms may significantly worsen the quality of life. Atrial Fibrillation is a typical arrhythmia of elderly people. According to epidemiological researches, the prevalence of this arrhythmia progressively increases with age. It ranges between 0.5% in the 50-59 years decade and 8.8% in the 80-89 years decade. It follows that the average age of people suffering from atrial fibrillation is high: about 75 years. Moreover, men are more likely to suffer from this arrhythmia. Atrial Fibrillation is usually linked to old age, but there are also other causes that facilitate its occurrence. Among these we have structural heart diseases, like valvular, hypertensive and ischemic ones, cardiomiopathies and heart failure. The main complication of Atrial Fibrillation is stroke. When the heart is fibrillating, the atria do not contract efficiently, and blood tends to staunch in the upper cardiac chambers, leading to the formation of thrombi, that can easily come off. While travelling through the blood, these thrombi may reach the brain and occlude an arterial vessel, causing a brain damage, stroke. The risk of stroke is 5 times higher in people with Atrial Fibrillation, compared to those without. People older than 65 – and especially older than 75 -, women, subjects with hypertension and diabetes, have to be particularly careful, as well as all those with prior strokes and coronary artery disease and vessel disease. Other relevant complications linked to Atrial Fibrillation are heart failure (three times more), dementia, and higher mortality rate (two times more). Clinical practice has identified different types of Atrial Fibrillation. In relation to its duration, Atrial Fibrillation can be Paroxysmal: it ends spontaneously in a couple of days; Persistent: it lasts until a cardioversion is performed, with restoration of normal sinus rhythm; and Permanent: the arrhythmia persists or repeatedly recurs despite cardioversion, and its presence is accepted both by the patient and the physician. According to its

symptoms, Atrial Fibrillation can be Symptomatic or Asymptomatic. Silent Atrial Fibrillation is a very risky condition, because the patient is not aware of the presence of the arrhythmia. Indeed, suffering from it without being aware of its presence severely increases the risk of stroke.

INCIDENCE AND ECONOMIC IMPACT OF ATRIAL FIBRILLATION

In the USA, there are about 3 million people affected by Atrial Fibrillation and between 300,000 and 600,000 new cases every year. If also the cases of silent Atrial Fibrillation are taken into account, these numbers would nearly double. This large-scale phenomenon has not only social but also economic consequences. The average cost for every single patient per year reaches 20,700 dollars, with a total national expenditure of about 6 billion dollars per year. Therefore, fighting Atrial Fibrillation is not only a commitment for the individual, but also a mission for the national health care system.

THERAPEUTICAL OPTIONS FOR RESTORING AND MAINTAINING SINUS RHYTHM

Restoration and long-term maintenance of sinus rhythm is the goal of atrial fibrillation treatment. Restoration of sinus rhythm can be achieved through cardioversion, which can be either electrical or pharmacological. The prevention of arrhythmia recurrences can be carried out through pharmacological treatments, namely anti-arrhythmic drugs, or through a non-pharmacological therapy, that is by transcatheter or surgical ablation. Anti-arrhythmic drugs modify the heart's electrical properties, preventing recurrences of the arrhythmia. More specifically, they act at the cell membrane level, obstructing sodium and/or potassium ion channels. This reduces the electrical impulse, and the cells aren't excitable for a longer time. Many drugs are used for this purpose: the most common ones are propaphenone, flecainide, sotalol and amiodarone. However, their effectiveness is limited: fibrillation usually recurs in 50 per cent of cases within a year. Moreover, these drugs may have significant side effects such as pro-arrhythmia, which limits their benefit for the rhythm-control of atrial fibrillation. An alternative to anti-arrhythmic drugs is ablation: a procedure that destroys the areas in the heart where arrhythmia is born and thrives. Ablation can be transcatheter or surgical. Surgical ablation has the disadvantage of being an "open-chest" procedure with a non negligible risk of periprocedural complications. On the other hand, transcatheter ablation is less invasive, with minimal risk of complications. With this approach, different catheters, inserted from the femoral access, are directed through the vessels to the heart. Catheters get to the right atrium and, after having pricked the septum dividing the two upper chambers of the heart, two of them are pushed into the left atrium, next to the pulmonary veins. At this point, the first catheter maps the electrical impulse from the veins to the atrium, and the second one destroys the area around the veins' opening. In this way, the left atrium

is electrically isolated from the pulmonary veins, which is of the main causes of the electric impulses initiation fibrillation. Sometimes – as in long and persistent fibrillation - lesions must be created also in other areas of the atria, in order to prevent the arrhythmia. Multiple clinical trials have consistently demonstrated the superiority of catheter ablation over antiarrhythmic drugs for the long-term maintenance of sinus rhythm. There is also evidence supporting catheter ablation as a first line therapy in patients with symptomatic paroxysmal atrial fibrillation.

CONCLUSIONS

Atrial Fibrillation is a widespread problem, often underrated. Its Annoying symptoms significantly worsen the quality of life. It can cause stroke, heart failure and reduce life expectancy. Catheter ablation is the most effective therapy for atrial fibrillation, and has been demonstrated to improve symptoms, quality of life, and to reduce the rate of hospitalizations. Ongoing trials are evaluating whether the benefits of catheter ablation extend towards a reduction of mortality and stroke.

Pasquale Santangeli was born in Rome, Italy. After obtaining the degree in Medicine and Surgery at the Catholic University of the Sacred Heart and completing the Cardiology Residency in Rome, he joined the Texas Cardiac Arrhythmia Institute at the St. David's Medical Center as a research fellow under the guidance of Dr. Andrea Natale. The main focus of his research is the early diagnosis, risk stratification and treatment of patients with structural heart diseases leading to sudden cardiac death. Among these, a particular focus is on arrhythmogenic right ventricular cardiomyopathy, which is the one of the leading causes of sudden cardiac death in the young and in trained athletes. He is currently involved in a multicenter risk stratification project focused on patients with dilated cardiomyopathy undergoing prophylactic defibrillator implantation. The results of this study will help understanding why only some patients currently judged at risk will eventually die suddenly, and will help to tailor highly effective therapies to the right patients.

It is not all about cigarettes:

blunted brain responses to pleasant stimuli predict long-term smoking abstinence

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Identifying smokers at high risk of relapse may provide the opportunity to implement individualized interventions and increase cessation success rates. We tested whether brain responses to emotional and cigarette-related images were predictive of smoking abstinence in a clinical trial. Before any smoking-cessation treatment, we recorded event-related potentials (ERPs, a direct measure of brain activity) to emotional (pleasant and unpleasant), neutral, and cigarette-related images from 180 smokers interested in quitting. We used cluster analysis to assign smokers to two groups based on the amplitude of the late positive potential (LPP, the ERP signature of emotional processing) to the experimental stimuli. The cluster analysis assigned 99 participants to cluster 1 and 81 participants to cluster 2. While neutral and unpleasant images prompted similar brain responses in the two groups, pleasant images prompted a significantly smaller LPP in cluster 2 than in cluster 1 ($p < 0.0001$). Cigarette-related images had the opposite effect, evoking a somewhat larger LPP in cluster 2 than in cluster 1 ($p < 0.10$). The smokers showing blunted brain responses to intrinsically pleasant stimuli (i.e., those in cluster 2) were significantly less likely to be abstinent at 10, 12, and 24 weeks after their quit date. This response offers a new biomarker for identifying smokers at higher risk of relapse and for testing the efficacy of new interventions aimed at normalizing brain reward systems' responses to intrinsically pleasant stimuli.

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Biosketch (Francesco Versace)

Francesco Versace, PhD, is an experimental psychologist that currently holds an Assistant Professor position in the Department of Behavioral Science at The University of Texas MD Anderson Cancer Center.

Before joining MD Anderson, Dr. Versace was a post doctoral student at the NIMH Center for the Study of Emotion at Attention at the University of Florida. There, he refined his expertise in affective neuroscience by conducting experiments aimed at studying the interactions between emotional and cognitive processes using functional MRI (fMRI) and event-related potentials (ERPs).

His current line of research focuses on the psychophysiology and psychopharmacology of nicotine addiction. In particular, he uses dense sensor array ERPs and fMRI to study the relationships between emotional processes and the maintenance of smoking behavior, cessation, and relapse.

Dr. Versace earned his PhD at the University of Trieste (Italy) where his areas of interest were centered on cognitive psychophysiology, statistics, and research methods in psychology.

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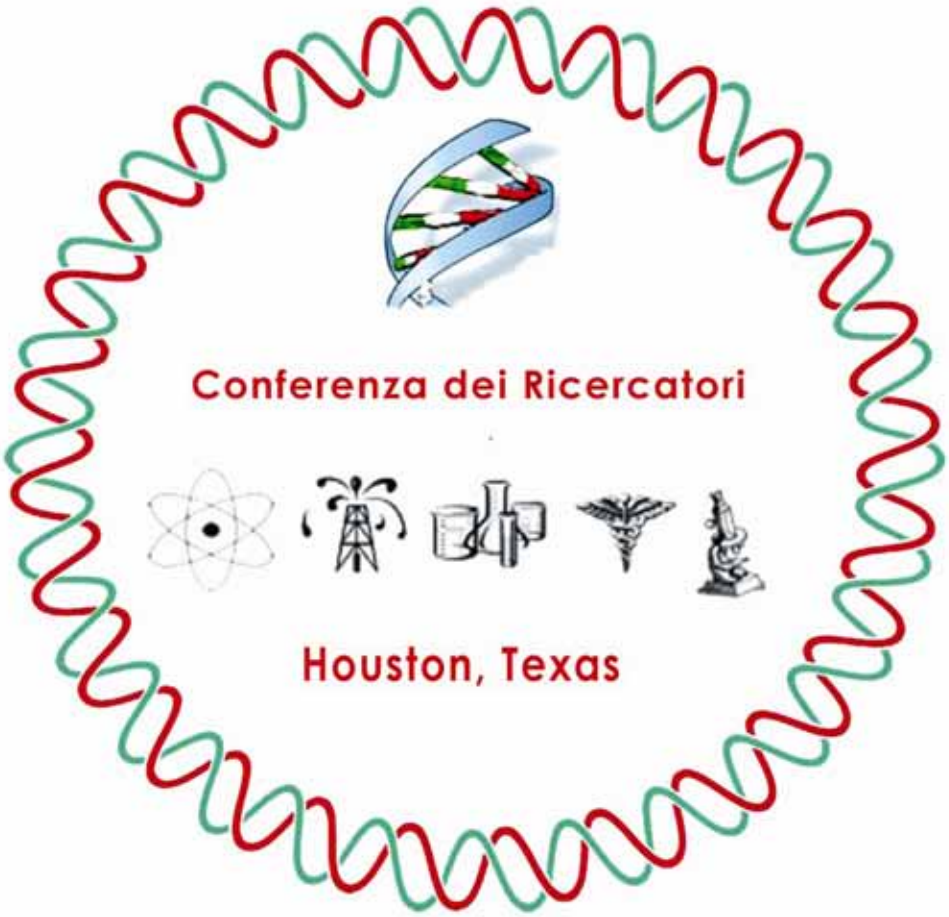

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