

**JOINT DECLARATION AFTER THE 11th U.S.-ITALY JOINT COMMISSION
MEETING ON SCIENCE AND TECHNOLOGY COOPERATION
Washington DC, December 13th, 2013**

Pursuant to the U.S.-Italy Science and Technology Agreement, signed in Rome on April 1, 1988, as amended and extended on October 4, 1993, and the Joint Declaration of the 10th U.S.-Italy Joint Commission Meeting on Science and Technology Cooperation, signed in Rome on December 13, 2010, the 11th Joint Commission Meeting was held in Washington, D.C. on December 13, 2013.

DELEGATIONS

The Italian delegation was headed by Luca Franchetti Pardo, Deputy Chief of Mission to the United States, Ministry of Foreign Affairs.

The U.S. delegation was headed by Jennifer Haskell, Office Director, Office of Science and Technology Cooperation, U.S. Department of State.

The composition of the two delegations is reported in Annex I.

AGENDA

The agenda of the joint review meeting was adopted as follows:

1. Overview of U.S. and Italian science and technology cooperation.
2. Summary and outcomes from December 12th working level discussions.
3. Announcement of projects funded by the Italian call for proposals.
4. Meeting of the next Joint Commission.

1. Overview of Cooperation

The delegations provided a brief overview of the U.S.-Italy scientific relationship, and expressed satisfaction with the current and ongoing scientific cooperation facilitated by the 10th Joint Commission Meeting on Science and Technology Cooperation, held in Rome on December 13, 2010.

2. Summary and Outcomes of Working Level Discussions

Working level discussions on six priority areas took place on December 12, 2013. The U.S. and Italian co-chairs of each group intend to provide a brief summary of the outcomes decided upon in an Action Plan, which should be appended to this Joint Declaration as Annex III.

The scientific subjects discussed include:

- Earth Science
- Life Science
- Physics
- Advanced Materials and Production of Energy
- Food Safety and Security
- Technologies for Restoration

The two delegations decided to complete an Action Plan consisting of the discussion outcomes by January 31, 2014 to further cooperation in the above-mentioned subject areas. Funding of scientific projects discussed during this meeting and the resulting scientific cooperation would be conducted without the exchange of funds. The ability of each country to undertake the scientific projects listed in the Action Plan is subject to the availability of funds and resources in each country.

The United States and Italy consider university collaboration an important tool for joint scientific research, and encourage U.S. and Italian universities to facilitate researcher exchanges and joint programs between our countries.

The participating institutions for each discussion include:

Earth Science – ASI, CNR, INGV, ENEA, Università di Milano Bicocca, Università di Roma Tor Vergata, Università di Padova, USGS, NOAA, USDA-ARS, State (SAT)

Life Science – CNR, Università di Milano Bicocca, Università di Padova, Università Campus Bio Medico, HHS, Smithsonian

Physics – INAF, INFN, DOE, NSF

Advanced Materials and Production of Energy – MISE, CNR, ENEA, Università di Roma Tor Vergata, Università di Padova, Università di Roma “La Sapienza”, Università Campus Bio Medico, NIST ONR-Global, U.S. Army, USDA-ARS, AFOSR, OSTP, NSF

Food Safety and Security – CRA, CNR, USDA, FDA

Technologies for Restoration – MIBACT, CNR, Sapienza Università di Roma, CBIT, Politecnico di Milano, Università di Roma Tor Vergata, NIST, NSF, Smithsonian

In all cases the universities are responsible for funding their scientific projects.

3. Announcement of Italian Funded Proposals

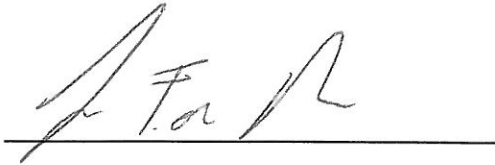
The Italian delegation announced that 15 projects were approved for funding from the Ministry of Foreign Affairs recent call for proposals (Annex II). The delegations decided that future calls may benefit from holding Joint Commission Meetings prior to call announcement in order to focus the topics on priorities identified by the joint commission.

4. Next Meeting of the Joint Commission

The next U.S.-Italy Joint Commission Meeting on Science and Technology Cooperation may take place in Rome in 2015. Prior to the next meeting the countries may explore new means to exchange information on national scientific priorities and areas of potential cooperation.

Signed in Washington DC on December 13th, 2013, in the English language.

**FOR THE GOVERNMENT OF THE REPUBLIC OF
ITALY:**

A handwritten signature in cursive script, appearing to read "A. For", written over a horizontal line.

**FOR THE GOVERNMENT OF THE UNITED
STATES OF AMERICA:**

A handwritten signature in cursive script, appearing to read "J. H. Hill", written over a horizontal line.

ANNEX I
DELEGATIONS

Italian Delegation

Food Safety and Security

Dr. Marcello Donatelli (CRA) Italian Discussion Lead

Dr. Paolo Annichiarico (CRA) in Videoconference

Scientific Attache` (TBD)

CNR in Videoconference (Dr Centritto, Dr Haworth, Dr Gioli +39 055 522 5528)

Physics

Prof. Antonio Masiero (INFN VicePresident) Italian Discussion Lead

Prof. Paolo Villoresi (University of Padua)

Dr. Stefano Lami (Scientific Attache`)

Dr Simone Dell'Agnello (INFN)

Advanced Material and Production of Energy

Dr. Antonella Tajani (CNR) Italian Discussion Lead

Dr. Salvatore Iannace (CNR)

Dr. Marco Degani (University of Bologna)

Prof. Massimo Maresca (Scientific Attache`)

Prof. Nicola Biagio Mercuri (Tor Vergata University of Rome)

ASI

University of Padua

Technology for Restoration

Dr. Donatella Cavezzali (MIBAC, ISCR) Italian Discussion Lead

Dr. Antonella Tajani (CNR)

Dr. Cinzia Del Zoppo (Scientific Attache')

(Prof. Claudia Cieri Via (La Sapienza University of Rome) (Written Contribution)

Tor Vergata University of Rome

Earth Science

Dr. Fabrizia Buongiorno (INGV) Italian Discussion Lead

Col. Roberto Vittori (ASI)

Dr. Enzo Letico (ASI)

Dr. Simone Dell'Agnello (INFN)

Dr. Salvatore Iannace (CNR)

Prof. Paolo Villoresi (University of Padua)

Prof. Alessandro Tibaldi (Bicocca University of Milan)

Dr. Giulio Busulini (Scientific Attache')

Dr. Giuseppe Girardi (ENEA) (teleconference)

Tor Vergata University of Rome

Life Sciences

Prof. Mario Strazzabosco (Bicocca University of Milan) Italian Discussion Lead

Dr. Antonella Tajani (CNR)

Prof. Alberto Amadori (University of Padua)

Dr. Tomas Morosinotto (University of Padua)

Dr. Marco Degani (University of Bologna)

Prof. Nicola Biagio Mercuri (Università di Roma Tor Vergata)

Dr. Ranieri Guerra (Scientific Attache')

U.S. Delegation

Technology for Restoration

Dr. Tanja Pietrass, Deputy Director, Division of Chemistry, National Science Foundation
(Co-chair)

Barbara Berrie, Head of the Scientific Research Department, Conservation Division,
National Gallery of Art

Fraser Fleming, Program Officer, Division of Chemistry, Directorate of Mathematical
and Physical Sciences, National Science Foundation

Jong-on Hahm, Office of International and Integrative Activities, National Science
Foundation

John Henry Scott, Physicist, NIST

Odile Madden, Museum Conservation Institute, Smithsonian

Magdalena Navarro, NIST

Physics

Jim Siegrist, Associate Director, Department of Energy, Office of High Energy Physics
(co-chair)

Glen Crawford, Director, Division of Research and Technology, Department of Energy,
Office of High Energy Physics

Michael Procario, Director, Facilities Division, Department of Energy, Office of High
Energy Physics

Michael Salamon, Department of Energy, Office of High Energy Physics

Corey Cohn, Advisor for International Programs, Office of Science, Department of
Energy

Stephanie Sparks, International Programs Intern, Office of Science, Department of
Energy

James Whitmore, Deputy Division Director, Physics Division, National Science Foundation

Vic Teplitz, U.S. Department of State, Office of Space and Advanced Technologies

Advanced Materials

Mary Galvin, Director, Division of Materials Research, National Science Foundation (Co-chair)

Sofi Bin Salamon, Air Force Office of Scientific Research

Meredith M. Drosback, TMS/AAAS Fellow, Office of Science and Technology Policy

Eileen Herrera, U.S. Department of Agriculture-Agriculture Research Service

Earth Science

Ingrid Verstraeten, U.S. Geological Survey (Co-chair)

Tom Cecere, USGS Land Remote Sensing Program International Liaison, U.S. Geological Survey

Pablo Clemente-Colon, Chief Scientist, National/Naval Ice Center (NIC), NOAA

Derek Hanson, International Relations Specialist, Satellite and Information Service (NESDIS), NOAA

Eileen Herrera, U.S. Department of Agriculture-Agriculture Research Service

Will Logan, U.S. Army Corps of Engineers

Nick Sherman, Department of Energy

Pierre Comizzoli, Smithsonian

Fernando Echevarria, Office of Space and Advanced Technologies, U.S. Department of State

Julie Rottier, Office of Space and Advanced Technologies, U.S. Department of State

Food Safety and Security

Eileen Herrera, USDA-ARS (Co-chair)

Anne Berlow, Office of Global Affairs, Department of Health and Human Services

Yelena Shnayder, Office of Global Affairs, Department of Health and Human Services

Shashi Sharma, U.S. Food and Drug Administration

Life Science

Ted Trimble, Director, Center for Global Health, National Cancer Institute (Co-chair)

Kalina Duncan, Center for Global Health, National Cancer Institute

Pierre Comizzoli, Smithsonian

Anne Berlow, Office of Global Affairs, Department of Health and Human Services

Yelena Shnayder, Office of Global Affairs, Department of Health and Human Services

Gwen Tobert, Foreign Affairs Officer, Office of International Health and Biodefense,
U.S. Department of State

ANNEX II

Selected Significant Bilateral Projects

RESEARCH AREA	PROJECT TITLE	ITALIAN PARTNER	U.S. PARTNER
Physics	Ultra-Fast Silicon Detector	Nicolò Cartiglia (INFN Torino)	Armut Sadrozinski (SCIPP - University of California)
Energy and Environment	Environmental sensing of water bodies through patrolling drones	Salvatore Grimaldi (La Tuscia University)	Maurizio Porfiri (Polytechnic Institute of New York University)
Energy and Environment	Innovative Structures for Energy Efficient Buildings	Fernando Fraternali (Salerno University)	Mauricio De Olivera (University of California)
Technologies applied to Cultural and Natural Heritage	Development and integration of complementary imaging and micro-analytical methods for the study of paintings	Austin Benjamin Nevin (CNR – Milano)	Marco Leona (New York The Metropolitan Museum of Art)
Information and Communication Technologies	Multi-layer interconnection network based on optical angular momentum multiplexing & wavelength division multiplexing switching (COMBINE)	Antonella Bogoni (CNIT- Pisa)	Alan E. Willner (University of Southern California)
Information and Communication Technologies	US-Italy Cooperation Exhibit Fablab at Città della Scienza	Luigi Amodio (Fondazione IDIS Città della Scienza)	DURANT John (Massachusetts Institute of Technology)
Marine and Earth Sciences	Absolute crust, glacier and iceberg georeferencing with unified sar, optical gnss laser observations	Simone Dell'Agnello (INFN – LNF)	Stephen Merkowitz PhD (NASA-GSFC)
Marine and Earth Sciences	Combining satellite, in-situ and modeling approaches to	Salvatore Marullo (ENEA Roma)	Peter Minnett (Rosenstiel School of Marine and

	reconstruct the diurnal sea surface temperature variation in the Mediterranean Sea: impact on the basin heat budget and climate (COSIMO)		Atmospheric Science)
Nanosciences and Advanced Materials	Dendritic upconverting nanoparticles for optical imaging	Paola Ceroni (Bologna University)	Sergei Vinogradov (University of Pennsylvania)
Nanosciences and Advanced Materials	Nanoscience for energy: a joint Italy-U.S. laboratory	Alberto Morgante (CNR IOM)	James T. Yardley (Columbia University – CISE)
Life Sciences	Body machine interfaces for neuromotor rehabilitation and healthy aging	Maura Casadio (Genova University)	Alessandro Ferdinando Mussa-Ivaldi (Rehabilitation Institute of Chicago – RIC)
Life Sciences	Malignant degeneration in multiple osteochondromas: murine models for therapeutical approach in cartilaginous diseases	Luca Sangiorgi (IRCCS – Bologna)	Maurizio Pacifici PhD (Children Hospital of Philadelphia)
Life Sciences	Understanding the interplay between cancer stem cells and immune system: an innovative cells-on-chip approach	Daniele Santini (Bio Medical Campus University of Rome)	Stefano Cabrini (Molecular Foundry – Lawrence Berkeley National Laboratories)
Life Sciences	Novel approaches for the selective inhibition of the chaperone activity of HIV-1 nucleocapsid protein	Barbara Gatto (Padova University)	Daniele Fabris (University of Albany)
Life Sciences	Genomic selection in alfalfa	Paolo Annichiarico (Agricultural Research Council – CRA)	Charles Brummer (The Samuel Roberts Noble Foundation)

**U.S.-Italy S&T Joint Commission Meeting
Action Plan
2013 – 2015**

Life Sciences

The U.S. and Italy identified priority areas of collaboration for Life Sciences:

- Cancer Research
- Brain Research
- Aging
- Tissue engineering
- Biobanking
- Diabetes, Obesity, Metabolic and Liver Diseases
- Life Sciences Higher Education
- Nanotechnology applied to health
- Rare diseases

Priority action items from the Life Sciences working group include:

- Identify interlocutors for each area of mutual interest for collaboration.
Deadline: Early 2014
- Assess the need for additional workshops on the areas of mutual interest identified.
Deadline: Early 2014
- Identify ways to leverage the U.S. and Italian research systems to make the most efficient use of resources.
Deadline: Mid- 2014
- Identify methods to encourage U.S. and Italian applications under Horizon 2020
Deadline: Before the second call for proposals.

The Co-Chairs for the Life Sciences working group were Dr. Edward L Trimble (NCI) (Edward.Trimble@nih.hhs.gov) for the United States and Prof. Mario Strazzabosco (University of Milan-Bicocca) (mario.strazzabosco@yale.edu) for Italy.

Physics

The U.S. and Italy identified two potential areas for future collaboration in Physics:

- 1) High Energy Physics, that is already a well-established subject for the bilateral collaboration and that includes the following topics.
 - Short and long baseline neutrino experiments, such as the Long Baseline Neutrino Experiment, based at Fermilab and South Dakota's Sanford Underground Research

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Facility, and ICARUS, based at the National Laboratory at Gran Sasso, to explore neutrino properties, including the search for the source of the primordial matter-antimatter asymmetry.

- Continued collaboration on Mu2e

2) Quantum Communications (QComms).

- Free-space QComms along ground and Space channels including joint test on satellites links, entanglement sharing in turbulent links, dense and adaptive state preparation.
- Integrated nanostructured photonics components for multimodal QComms.

Priority action items from the Physics working group include:

- Establish an Implementing Arrangement for cooperation in particle, astroparticle, and nuclear physics and related technologies between DOE, NSF and the Italian Ministry of Research, Universities and Education/INFN.
Deadline mid-2014.
- Establish a Project Annex under the Implementing Arrangement for cooperation in neutrino physics.
Deadline mid-2015.
- Continue biennial DOE-NSF-INFN meetings that review and plan cooperative activities.
Deadline April 2014 for next meeting.
- Expand the Italy-U.S. Summer Student Exchange Program.
Deadline early 2015.
- Explore the possibility of an Implementing Arrangement for cooperation in QComms.
Deadline mid-2014.

The Co-Chairs for the Physics working group were Dr. Jim Siegrist, Associate Director, DOE Office of High Energy Physics (Jim.Siegrist@science.doe.gov) for the United States and Prof. Antonio Masiero, Vice President, INFN (antonio.masiero@pd.infn.it) for Italy.

Technologies for Restoration

The United States and Italy identified potential areas for future collaboration:

- Material sciences in conservation:
 - materials and structural characterization
 - understanding material degradation and aging
 - materials stabilization, strengthening, monitoring and repair
- Indoor conservation of movable cultural heritage objects
 - Technologies for conservation and restoration of plastics and composite artworks in confined environments
 - Technologies for indoor environmental controls

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- Technologies to increase reversibility, low impact methodologies, and long term efficiency of conservation treatments
 - Cleaning methodology, laser cleaning, bio-cleaning, water based gels, etc.
- Outdoor conservation of movable and immovable cultural heritage objects
 - Technologies for conservation of inorganic materials: consolidation, protection, disinfection
- Innovative methods for diagnostics and non-invasive technologies of investigation
- Standardization, imaging processing and data management
- Mutual exchange of knowledge and personnel.

Priority action items for the Technologies for Restoration working group include:

1. U.S. delegation to set up a collaborative webspace (external Share Point Site) to exchange information.
Deadline: December 20, 2013
2. Italian delegation to focus on material science/chemistry topics and cultural heritage conservation and restoration topics to be proposed and shared in the collaborative web space.
Deadline: January 15, 2014
3. Both delegations intend to compile a list of upcoming conferences on conservation science and related activities and identify a suitable meeting venue to flesh out concrete joint activities.
Deadline: January 15, 2014
4. U.S. delegation to complete a report to the State Department.
Deadline: Late February 2014.
5. Italy and the U.S. delegation intend to hold a joint teleconference to plan a follow-up meeting at a suitable conference.
Deadline: Mid-February 2014
6. Support dissemination and knowledge exchange to facilitate integration at the international level by aggregating information on extant postdoctoral and scientific exchange opportunities especially within governmental channels.
Deadline: On-going.

Co-chairs for the Technologies for Restoration working group were Dr. Tanja Pietraß, National Science Foundation (tpietras@nsf.gov) for the United States and Dr. Donatella Cavezzali, ISCR-Higher Institute for Conservation and Restoration (Istituto Superiore per la Conservazione ed il Restauro) (donatella.cavezzali@beniculturali.it) for Italy.

Food Safety and Food Security

The United States and Italy identified potential areas for future collaboration:

- Enhancement of existing areas:
 - Integrated Control of Pests and Diseases, with a focus on bio control, plant biological mechanisms, and other sustainable approaches.
 - Genetics/genomics approaches to biotic and abiotic stresses in crops and animals (telecom).
- Consideration of collaborations through existing/emerging platforms:
 - Address agricultural adaptation through modeling, including increasing datasets needed, using the Agricultural Model Intercomparison and Improvement Project (AgMIP), as a platform for cooperation and leverage.
 - Food Safety – food borne botulism, track and trace back program; Global Genome Net is an area to be explored as a nexus of cooperation for food borne pathogens.
 - Data quality, management, and sharing as an area of potential cooperation in a number of areas.

Priority action items for the Food Safety and Food Security working group include:

- Modeling – teleconference with relevant parties
Deadline: Late January 2014
- Genetics/genomics - teleconference with relevant parties
Deadline: Late February 2014
- Food Safety – teleconference with relevant parties
Deadline: Late February 2014

Co-chairs for the Food Safety and Food Security working group were Dr. Eileen Herrera, USDA Agricultural Research Service (eileen.herrera@ars.usda.gov) for the United States and Dr. Marcello Donatelli (marcello.donatelli@entecra.it) for Italy.

Earth Sciences

The United States and Italy identified potential areas for future collaboration:

- General topics: on-going framework and agreements
 - Further the discussion of Implementing Arrangement between ASI and U.S. institutions (NOAA, USGS).
 - Finalize joint activities between USGS and INGV under the existing MOU.
 - INGV-JPL-USGS cooperation on ASTER data archives, SAR data analysis and new mission requirements (Hyperspectral, thermal infrared).
 - Istituto Nazionale di Fisica Nucleare (INFN)-ASI-NASA/GSFC/USGS intercalibration and absolute georeferencing of GNSS, SLR, SAR.
- Environment

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- Explore oceanographic cooperation based on the Italian RITMARE study to set up a new oceanographic infrastructure with inclusion of CNR-INGV and others.
 - Carbon capture and storage – DOE and ENEA, INGV projects with ENEL.
 - Risk assessment and mitigation in hydrology – USCOE.
 - Exploring collaboration on GRACENET – e.g. soil capture of carbon, environmental effects of greenhouse gases.
 - Explore collaboration on long-term monitoring of natural areas by Smithsonian, NOAA, USGS, Min Ambiente, and CNR.
- Natural Hazards
 - Volcanology
 - i. Sharing experience and best practices in communication
 - ii. Sharing common data policies
 - iii. Exchange of personnel from volcano observatories and research centers
 - iv. Creation of a USGS-INGV Task Force on Calderas
 - v. Factors controlling explosive basaltic volcanism
 - vi. Best Practices for basaltic lava flow inundation modeling and lava flow hazard maps
 - vii. Debris flows or landslides
 - viii. Ash cloud study cooperation
 - Seismology
 - ix. Seismic hazard assessment
 - x. Induced seismicity
 - xi. Collaboration on zones with special studies
 - xii. Sharing of real-time data, analyses, and products
 - xiii. Strong motion analyses
 - xiv. Paleoseismology
 - xv. Seismic swarms
- Space Applications
 - Landsat Data - Sensor intercalibration/Multi-sensor techniques/ Refinement of Essential Climate Variables/Remote Sensing Education and Outreach/ Effectively Capture Land Remote Sensing Requirement
 - Hyperspectral data: spectral analysis techniques, SO₂, CO₂, CH₄ gas emissions analysis, fire front analysis using specific spectral features,
 - SAR data-interferometric techniques, time series surface velocity analysis
 - Geomagnetic data
 - Calibration and validation techniques
 - Georeferencing from Space (Scuola Superiore Sant'Anna, ASI, INFN, INGV, NIC,USGS, NASA GSFC)
- Working with Third Countries
 - Volcano Observatories Best Practices Workshops

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- Consider cooperation/participation on Africa Array Network activities, including annual meetings, research programs, workshops and conferences – (CNR, NSF, INGV, UNAVCO, Department of State).
- Organization of training on remote sensing data (not only in third countries) using potential funding with /from World Bank, NSF, EC, UN, U.S., Italy, Volcano Disaster Assistance Program-VDAP.
- Peace Corps – Western Michigan University joint master program on international natural hazards mitigation.
- Explore collaboration with multilateral institutions, e.g. World Bank, Interamerican Development Bank, Asian Development Bank, and others.

Priority action items for the Earth Sciences working group include:

- Completion of the Implementing Arrangement between NOAA and ASI on SkyMED data access, Start of ASI-USGS Implementing Arrangement, furthering the NASA-INFN-INGV agreement implementation on geodesy and geophysics applications.
Deadline: Late 2014
- WG internal organization structure: steering committee definition
Deadline: March 2014
- Finalizing the USGS-INGV collaboration and meeting of USGS-INGV task force on natural hazards and earth science cooperation twice per year.
Action: Next meeting is scheduled for June 17 & 18, 2014 in Rome, Italy
- Workshop to discuss the removal of obstacles for data sharing and management of large data sets.
Deadline: June 2014 in Italy
- Discussion of sharing of resources infrastructure, i.e. RITMARE
Deadline: June 2014
- Creation of working group task force to follow all activities (including mobility)
Deadline: Agreed upon now with finalizing of meeting summary June 2014
Proposed date for WG meeting in Italy June 19th

Co-chairs for the Earth Sciences working group were Dr. Ingrid Maria Verstraeten, USGS (imverstr@usgs.gov) for the United States and Dr. Maria Fabrizia Buongiorno, INGV (fabrizia.buongiorno@ingv.it) for Italy.

Advanced Materials

The United States and Italy identified potential areas for future collaboration:

- Materials for biosensing
- Materials modeling and computation
- Light weight and structural materials
- Novel Materials for electronics–graphene and other smart materials
- Superconducting materials

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- Critical materials

Priority action items for the Advanced Materials working group include:

- Leverage attendance at the Materials Research Society in San Francisco April 21st-25th to have an informal meeting of computational materials scientists to discuss further collaborations. – Led by NSF
Deadline: List of participants by end January 2014
- Workshop to explore areas of common collaboration (AFOSR hosted)
Deadline: June-September 2014. March 2014 - list of major participants-AFOSR
- Task force to identify best common curricula and mobility mechanism - Led by Italian Embassy.
Deadline: Late 2014
- Discuss modes to jointly fund - NSF, CNR, AFOSR, NIST, DOE, ENEA
Deadline: Late 2014

Co-chairs for the Advanced Materials working group were Dr. Mary Galvin, Director, Division of Materials Research, National Science Foundation (mgalvind@nsf.gov) for the United States and Dr. Antonella Tajani, International Relations Office, CNR (antonella.tajani@cnr.it) for Italy.