



SPACE POLICY INSTITUTE

FALL – WINTER 2014 NEWSLETTER

The Space Policy Institute Hosts Distinguished Speakers

The Space Policy Institute welcomed a number of notable experts who spoke to students and members of the local space community. Presentations can be found on the Space Policy Institute website.

September 24. **Brett Biddington**, founder of a Canberra-based consulting company that specializes in space and cyber security matters, led a discussion at the Institute on “Space Activities in Australia. Mr. Biddington described Australia’s space journey and explained how Australia’s place and geography is opening new possibilities for space development.

December 1. **Mr. Phillippe Hazane**, Space Attaché and CNES representative in the Embassy of France, delivered a presentation on the French Space Policy and how it functions as a key element of the EU space policy and of ESA activities. After a brief background to better understand the relationship between France, the ESA and the EU on space matters, Mr. Hazane gave an overview of the European Union as an actor of the space adventure. He then highlighted the relations between the ESA and the EU, before presenting more in depth on the European Space Agency. The CNES roadmap was discussed with a focus on its short-term milestones.

December 9. **Mr. Guoyu Wang**, Deputy Dean, Institute of Space Law, Beijing Institute of Technology led a brown bag lunch discussion on the topic of Space Crisis Management (SCM) and the potential collaborative approach between Europe and China. Mr. Wang's discussion on a theoretical and strategic level offered an “equilibrium theory” guiding the selection of SCM rationale, and analyzed the equilibrium in space competition and cooperation. In particular, he examined the necessity and feasibility of the coordination and cooperation between Europe and China as well as gave relevant recommendations.

January 21. **Mr. Badri Younes**, Deputy Associate Administrator for NASA Space Communications and Navigation (SCaN). Mr. Younes delivered an overview of the space communications and navigation function at NASA, "Keeping the Universe Connected" and covered examples of mission support, emerging technologies, current challenges (Deep Space Network and TDRS), international cooperation and outreach, NASA's role in GPS, and upcoming issues for NASA at the WRC-2015 conference in Geneva this fall.

George Washington University space policy students also heard from several guest speakers in their classes including Richard Dalbello, Director of Science and Technology Policy; Chirag Parikh, Director of Space

Policy at the National Security Council; Buzz Aldrin; former NASA Astronaut; and Charles Bolden, NASA Administrator (see photo).



(Student's gather around the SPI conference room with Administrator Charles Bolden during class.)

SPI Students and Faculty at the 2014 International Astronautical Conference in Toronto

SPI faculty members and students attended the 65th annual International Astronautical Congress held in Toronto, Canada (see photo). SPI Director Scott Pace, Professor Henry Hertzfeld, Professor Pascale Ehrenfreund, and Professor Emeritus John Logsdon all participated extensively at the IAC in Toronto this past September giving papers on a range of space policy, law and technical topics.



(Current and former SPI students at the 2014 IAC in Toronto.)

SPI Director Scott Pace spoke at the Global Networking Forum Roundtable discussion featuring the topic “Security in Space”, held at the IAC. This GNF session explored and reviewed the opportunities and challenges facing the space community to ensure a safe, secure, and sustainable space environment. Material from this panel will be in a forthcoming special issue of *Space Policy*. Dr. Ehrenfreund served as session chair for “International Space Exploration Policies and Programmes”, gave two presentations and served as speaker in the panel on “Global societal challenges as the key driver for space activities.”

SPI Students

SPI welcomed new Masters degree students this term, all of whom were able to receive partial fellowships thanks to SPI's generous supporters. Over the summer and fall, SPI graduate students who were not already employed secured internships at Arianespace, the Federal

Communications Commission, NASA, the Office of Space Policy at the Department of Defense, and the UN Office of Disarmament Affairs in Vienna. Students Zack Hester and Jordan Sotudeh both wrote op-eds for *Space News* on the topics of a possible United States-China space race and the political mechanics of space policy respectively. In August 2014, Raphael Perrino gave a paper on "Is JFK-Like Leadership the Catalyst?" at the AIAA Space 2014 Conference in San Diego.

Six SPI students traveled to Cape Kennedy to view the Orion EFT-1 launch scheduled for December 4. Unfortunately a one-day launch delay and scheduled classes meant four had to return to Washington, D.C. before the launch. Two students were able to stay for the successful launch on December 5.



SPI Affiliated Faculty News

Professor Pascale Ehrenfreund is part of a team that launched

experiments on the EXPOSE-R2 facility to the International Space Station on July 24th, 2014. Experiments were successfully activated in November 2014. EXPOSE-R2 will remain in Low Earth Orbit (LEO) for 12-18 months and retrieved in 2016. Furthermore she is investigator on two instruments on the Rosetta Comet Rendezvous mission that accomplished a landing on Comet 67P-Churyumov-Gerasimenko in November 2014. The dust-imaging instrument MIDAS on the orbiter currently follows the comet on its way to the Sun and data obtained with the evolved gas analyser COSAC on the lander Philae are currently taking data. Dr. Ehrenfreund gave several public talks on the Rosetta mission, seminars at different international universities and attended the Roundtable at The Hague Institute for Global Justice in December in the Netherlands entitled "Space Mineral Resource Governance". She is serving as a member of the National Research Council Committee CAPS (Committee on Astrobiology and Planetary Science). In fall 2014 she published several peer-reviewed papers in *Planetary and Space Sciences*, *Space Policy*, *Langmuir* and *Life*.

Professor Henry Hertzfeld had a busy fall and travelled extensively. He was invited to lecture as a Visiting Professor at the Beijing Institute of Technology's Law School in November. While in Beijing he also chaired a session and gave a presentation at a United Nations Workshop on Space Law. He also gave presentations at the Eisenhower

School, National Defense University and the American Branch of the International Law Association's meeting in New York. He organized an October 31 Workshop with industry on the "Regulation of Space Commerce" that addressed upcoming issues on the regulatory process for private sector activities in the United States. In December Prof. Hertzfeld gave a presentation at the IISL's Galloway Space Law Conference in Washington and he also gave a talk on space economics and law at the Aerospace Corporation in January. As in previous years, he is serving at the faculty advisor for the GW law students who will be competing in the International Moot Court in Space Law on March 20-21 2015.



Szajnfarder on the cost of government oversight in space systems acquisition, with fieldwork at major aerospace contractors. This project is funded as part of the University of Alabama in Huntsville-led Systems Engineering Consortium. It has also created the mandate for new coursework on Policy for Engineers. Conferences and Publishing: The group presented three papers at each of the International Astronautical Congress in Toronto, Canada and AIAA Space in Pasadena. Szajnfarder and her students also published journal articles in *Acta Astronautica* and another in *IEEE Transactions on Engineering Management*. In March, Prof Szajnfarder will be speaking on a NASA panel at South by Southwest Interactive.

Professor Peter Hays

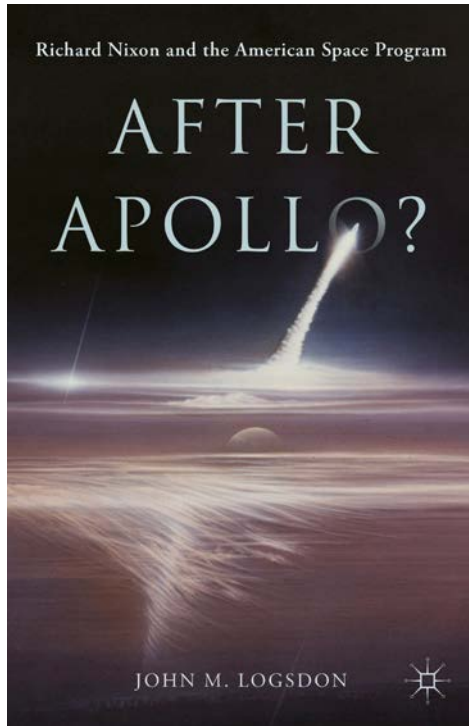
Four SPI students traveled to the Institute of Air and Space Law at McGill University in Montreal in May 2014 to present their draft chapters for the 2014 *Space Security Index (SSI)* and a total of eight SPI students (four two-person teams) have been selected to complete and present their research for the 2015 edition. In December 2104, Professor Hays was selected to participate in a wargame on the Future of Space Security sponsored by the Net Assessment Office in the Pentagon.

Professor Zoe Szajnfarder's research group had a busy summer and fall semester. Sponsored research projects continue with NASA's Space Technology Mission Directorate (mechanisms of technology infusion) and the Office of the Chief Technologist (expanding open innovation methods to complex systems). SPI alumnae and EMSE doctoral student Samantha Marquart continues her work with Prof

Professor Emeritus John Logsdon

Professor Logsdon focused on putting the final touches on the manuscript of his new book, *After Apollo? Richard Nixon and the American Space*

Program. The book will be released by Palgrave Macmillan in March 2015.



SPI Hosts Visiting Scholars

The Space Policy Institute continued to host international scholars this past summer and fall. The scholars came from all over the globe to and study and conduct their own research. This fall the Institute hosted Takehito Morishima from Japan's Ministry of Education, Culture, Sports, Science and Technology (MEXT). Mr. Morishima's work focused on enhancing cooperation and innovation in space. The Institute also welcomed Captain Daeweon Kim and Major Simon Kim of the Republic of Korea Air Force, both of whom were doing research on space situational awareness and international cooperation.

Space Policy in the News

The university newspaper, the *GW Hatchet*, featured SPI Professor Dr. Pascale Ehrenfreund in an article titled, "With Research launched into space, professor helps institute take off". Dr. Ehrenfreund was one of the many researchers on a European Space Agency project that landed the Philae probe on a comet in November, more than 300 million miles away from Earth. Her colleagues say her efforts will help draw the next generation of space policy and technology experts to GW. The article featuring Dr. Ehrenfreund can be found on the SPI website.

In the past several months you may have heard a member from the Space Policy Institute in the media. The Institute was cited extensively as an expert source in television, radio, and print media such as California Public Radio, ABC Radio Australia, NBC News Digital, Digital Roll Call, CQ Roll Call, BBC Futures, *National Geographic*, *Inside GNSS*, *New Scientist*, *Business Week*, *New Yorker*, *Scientific American*, *New York Times*, *Space News*, *Denver Business Journal*, *Los Angeles Register*, *Washington Post*, *Wall Street Journal*, *Garrett News*, *CQ Roll Call*, *USA Today*, and *Florida Today*. Recent foreign media coverage included the *Independent* (UK), *Deutsche Presse-Agentur*, *Guardian* (UK), *Life Week* (China), and *Agence France Presse* (France).

News from the Director

The success of SPI alumni has continued to be one of the most gratifying aspects of serving the Director of the institute. Faculty colleagues continue to cover the full range of space policy issues, to include legal, economic, technical, and historical questions. My own work continues to be focused on what I see as the most pressing or difficult policy issues, the future of human space flight and the engagement with space powers in the Asia-Pacific, notably Japan, China, Korea, and India. I authored a chapter on “U.S.-Japan Space Security Cooperation” in the Handbook of Space Security, Policies, Applications and Programs, published by Springer, New York, in 2015. At the 2014 IAF Conference in Toronto, I gave a paper on “Building a Strategic Framework for Human Spaceflight.” In September 2014, I co-authored an opinion piece for Aviation Week and Space Technology, entitled “Not a Replay, A Stepping Stone,” in which Rick Tumlinson and I argued for a return of humans to the Moon.

Like my colleagues, I have had a busy schedule of travel and speaking events. I spoke to a study group of the Japanese Diet on the regulation of commercial remote sensing systems. I was a private sector advisor on the U.S. delegation to the annual plenary meeting of the UN Committee on the Peaceful Uses of Outer Space, with a special focus on guidelines for the long-term sustainability of space activities. This past summer, I joined a group of Japanese industry and former government official in Montana for a

discussion of space policy hosted by the Mansfield Foundation, a well-known leader in promoting U.S.-Japan relations.

Closer to home, there were speaking events held at the Stimson Center (June 5), the Atlantic Council (September 19), and the Marshall Institute (July 23) on international space security topics. In November, I was the keynote speaker for the U.S. Telecommunication Training Institute for an international group of spectrum managers from developing countries on the use of “GPS for Disaster Management.” And really close to home, I gave a walking lecture tour at the Air and Space Museum for Elliott School administrative staff as part of a “Staff Appreciation Day.” The feedback was great and it was fun to explain why space is such an exciting topic to a new audience.

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