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The National Photonics Initiative (NPI) had an energetic start to 2015. The NPI recently participated in a successful Congressional Visits Day to educate lawmakers in Washington, DC about photonics and advocate for critical funding; members of the NPI Photonics Industry Neuroscience Group were invited to present the group's technology road map during a White House Office of Science and Technology Policy (OSTP) BRAIN Initiative meeting; and the NPI has been closely monitoring the Integrated Photonics Institute for Manufacturing Innovation (IP-IMI), the location of which is anticipated to be announced in June. At the NPI, we welcome new leadership in Alan Willner following the conclusion of Tom Baer's fantastic chairmanship in March. Alan has long served as a member of the NPI Steering Committee and brings to the NPI a wealth of photonics knowledge and passion. Tom will continue to serve the NPI as a member of the Steering Committee and chair of the Photonics Industry Neuroscience Group.

Progress on the Integrated Photonics Institute for Manufacturing Innovation (IP-IMI)

The NPI eagerly awaits the final selection from the Department of Defense (DOD) for the consortium awarded the IP-IMI; the decision is expected to be announced in June. While the NPI did not endorse any specific IP-IMI proposal, we find all three finalists – led by University of Central Florida, University of Southern California and the Research Foundation for the State University of New York – to be excellent candidates and look forward to working with the awardee to help ensure its long-term success.

The IP-IMI is the culmination of over a year of work from the NPI which began with several iterations of a white paper and conversations with OSTP, the result of which was a recommendation made by the NPI to the administration for a photonics prototyping and advanced manufacturing facility. "[Strategic Request: A National Photonics Prototyping and Advanced Manufacturing Facility to Ensure Economic Growth and National Security](#)" was submitted by the NPI to OSTP in February 2014, and opened the door to conversations between the NPI and DOD.

In June 2014, DOD announced a Request for Information (RFI), the first step in the process of creating a new public-private innovative manufacturing institute (IMI) as part of the President's National Network for Manufacturing Innovation (NNMI). In the RFI, DOD listed technological areas under consideration, which included photonics for the first time. The NPI hosted a [webinar](#) that included a DOD official and spurred the optics and photonics community to respond. The RFI led to a Funding Opportunity Announcement (FOA) to support the establishment of an IP-IMI to advance the design, manufacture, testing, assembly, and packaging of complex photonic integrated circuits that combine a variety of photonic and electronic components to achieve functionality.

The NPI and its supporting societies, the American Physical Society (APS), the IEEE Photonics Society, the Laser Institute of America (LIA), the Optical Society (OSA) and the International Society for Optics and Photonics (SPIE), are prepared to support the IP-IMI, and by association work with the DOD, by leveraging the platforms, programs and resources of these societies. The NPI looks forward to continuing its role as an advocate for the photonics community and continuing to serve as a private sector resource for the DOD as it moves forward with its IP-IMI selection process.

Advocating for Photonics on Capitol Hill



From right to left: Tom Battley, Pedro Vallejo-Ramirez, Filipp Ignatovich and Alexander Mitropoulos with Sen. Elizabeth Warren (D-MA).

For the second year in a row, the NPI participated in Congressional Visits Day (CVD) – a two-day event in March that brings scientists, engineers, researchers, educators, and technology executives to Washington to raise visibility and support for science, engineering, and technology. CVD is coordinated by coalitions of companies, professional societies and educational institutions and it is open to all who believe that science and technology comprise the cornerstone of our nation's future.

On behalf of the NPI, society members and volunteers fanned out across Capitol Hill to meet with and lobby lawmakers on the importance of photonics. Turnout this year was great with 30 individuals visiting over 50 congressional offices. Key messages discussed in congressional meetings included:

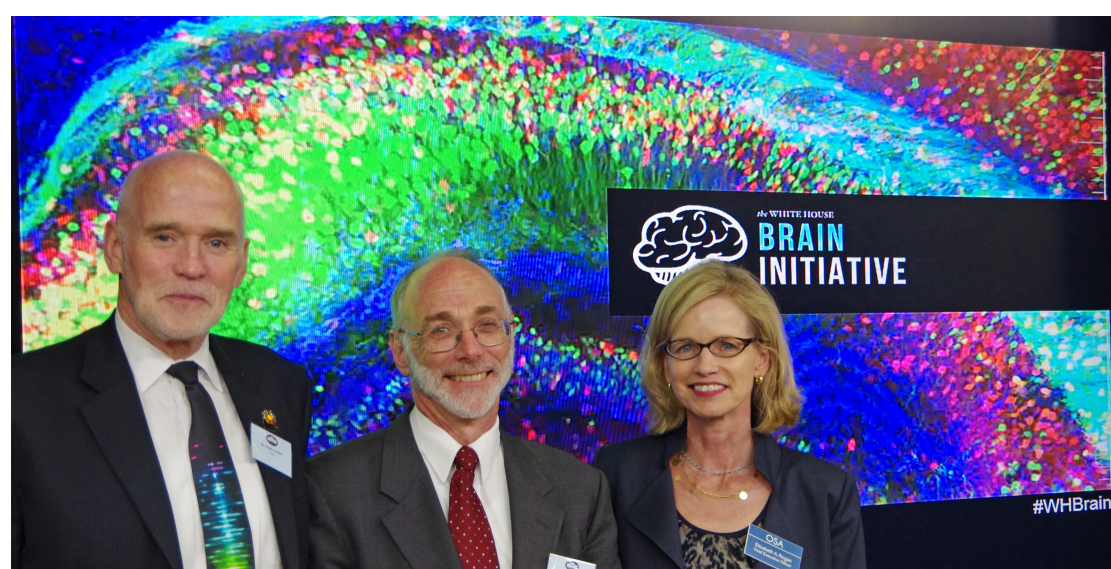
- **Reauthorize the America Creating Opportunities to Meaningfully Promote Excellence in Technology, Education, and Science (COMPETES) Act**, which invests in innovation through research and development and improves US competitiveness.
- **Support funding for the Revitalize American Manufacturing and Innovation (RAMI) Act**, which passed in 2014 and authorizes the establishment of several Centers for Manufacturing Innovation. The NPI asked Congress to support America's advanced manufacturing ecosystem by providing \$150 million in funding to NIST for the NNMI program for FY 2016.
- **Support the President's budget request for science R&D funding** within the National Science Foundation (NSF), National Institute of Standards and Technology (NIST), National Institute of Health (NIH) and the Department of Energy's (DOE) Office of Science, as well as an overall funding increase for science and technology programs within the Department of Defense (DOD).



From right to left: Krisinda Plenkovich, SPIE; Rich Vohanel, Corning; Farzan Ghaur, Vardex Laser Solutions; Rep. Leonard Lance (R-NJ); Naresh Chand, Huawei; and Tyler Morgus, Thorlabs.

We have already seen some quick results from discussions with lawmakers: in the House Energy Appropriations bill, it was included that DOE support, "Highly Integrated Photonics to accelerate computing research leading to exascale computing while reducing computing energy consumption by a factor of 100 or more;" in late May, the House Appropriations Committee approved the Fiscal Year 2016 Commerce, Justice, Science Bill which directs \$675 million to NIST and \$5.98 billion to the National Science Foundation (NSF); and, in the House COMPETES bill, it was included that "Longstanding United States leadership in supercomputing, genomics, nanoscience, photonics, quantum physics, and other key technological areas is jeopardized if United States investments in basic research in the natural sciences do not keep pace." The NPI will continue to work with our elected officials in Washington to push for the inclusion of photonics and photonics-related funding in current and upcoming legislation.

NPI Participates in White House BRAIN Initiative Meeting



Eugene Arthurs, SPIE CEO, Tom Baer, NPI past-president, and Elizabeth Rogan, OSA CEO, attended the White House BRAIN Initiative meeting on September 30, 2014.

On September 30, 2014, the NPI launched the Photonics Industry Neuroscience Group alongside officials from the White House and OSTP in support of President Obama's Brain Research through Advancing Innovative Neurotechnologies (BRAIN) Initiative. The NPI Photonics Industry Neuroscience Group – consisting of top US industry leaders in optics and photonics including Accumetra, LLC, Agilent, Applied Scientific Instrumentation, Coherent, Hamamatsu, Incscopix, Inc., Spectra-Physics and THORLABS – announced that it is committing upwards of \$30 million in existing and future research and development (R&D) spending over the next three years to advance optics and photonics technology in support of the BRAIN Initiative.

Under the leadership of the NPI, the industry consortium is working closely with national BRAIN Initiative leadership and neuroscience research communities to help achieve the administration's objective of revolutionizing our understanding of the human brain.

On March 27, 2015, the NPI was invited to participate in another White House BRAIN Initiative meeting. NPI Photonics Industry Neuroscience Group Chair Tom Baer was joined by other members of the NPI including Steve Laderman of Agilent and Mark Schnitzer of Stanford University. The NPI was one of only a handful of non-funding agencies represented at the meeting. Funding agency participation included officials from the Food and Drug Administration (FDA), Intelligence Advanced Research Projects Activity (IARPA), National Institutes of Health (NIH), National Science Foundation (NSF) and the Defense Advanced Research Projects Agency (DARPA).

During the meeting, the NPI provided industry and academia perspectives on the important role that optics and photonics will play in helping achieve the administration's BRAIN Initiative goals. Tom Baer also presented a draft technology road map produced by the NPI Photonics Industry Neuroscience Group. The final road map, presented to OSTP on May 1, 2015, detailed recommendations derived from in-depth discussions and information gathered from optics and photonics industry leaders, prominent researchers, and agency program managers who attended several NPI Photonics Industry Neuroscience Group meetings over the course of the past six months. The NPI hopes the road map will launch public/private collaborations, provide insight from Photonics Industry Neuroscience Group industry partners on areas of technology development they are actively pursuing, and illuminate potential areas for economic growth within the US. To read NPI's "A Neuroscience Road Map for the Brain Research through Advancing Innovative Neurotechnologies (BRAIN) Initiative," [click here](#).

Leadership Changes at NPI

In March, Tom Baer stepped down from his role as the first chairman of the NPI Steering Committee. During his tenure, Tom built a stronger, more united optics and photonics community. His commitment launched the NPI, helped to shape the future IP-IMI and created a unique role for the optics and photonics industry in the White House BRAIN Initiative. Our community is deeply grateful for Tom's dedication, hard work, guidance and commitment to photonics. Tom will continue to serve the NPI as a member of the Steering Committee and chair of the Photonics Industry Neuroscience Group.

The NPI welcomes its new Steering Committee Chair Alan Willner, who has served on the committee since its inception. Alan currently serves as the Steven and Kathryn Sample Chaired Professor of Engineering at the University of Southern California (USC). Alan also serves as the Associated Director for the Center for Photonics Technology at USC, is a member of the Defense Sciences Research Council, a 16-member body that provides reports to the DARPA Director and Office Directors, and was co-chair of the US National Academies Committee on the Optics and Photonics Study (also called Harnessing Light II). In addition to experience serving on several scientific advisory boards for small companies and advising venture capital firms, Alan founded Phaethon Communications where he worked as CTO. Alan is currently serving as the President-elect of the Optical Society.

Along with Alan, the NPI Steering Committee is comprised of:

- Eugene Arthurs – SPIE, the International Society for Optics and Photonics (SPIE)
- Phil Bucksbaum – Stanford University
- Tom Baer – Stanford University
- Meredith Lee – Stanford University
- Bob Lieberman – Lumoptix LLC
- Jason Mulliner – Edmund Optics
- Liz Rogan – The Optical Society (OSA)
- Matt Weed – Open Photonics, Inc.

[Laura Kolton](#) of OSA and [Krisinda Plenkovich](#) of SPIE are the committee staff liaisons.

Contact Us

The NPI is interested in hearing from you. Are you interested in joining our efforts? Do you have questions? Need additional information? Please contact [Laura Kolton](mailto:Laura.Kolton@osa.org) at (202) 416 1499 or lkolto@osa.org, or [Krisinda Plenkovich](mailto:Krisinda.Plenkovich@spi.org) at (360) 685 5518 or krisindap@spi.org.