Hamamatsu joins an NSF-funded regional consortium to advance photonics research and workforce development

Bridgewater, New Jersey – May 11, 2023 – Hamamatsu is honored to be part of a regional consortium seeking to advance photonics. This new Princeton-led collaboration to drive economic and technological advancements in photonics – the branch of science that includes lasers, optical fibers and cutting-edge light-based innovations – has been awarded a development grant from the U.S. National Science Foundation's Regional Innovation Engines, or NSF Engines, program.

The grant will lay the groundwork for a multistate collaboration called [Advancing Photonics Technologies](#) that aims to advance research, transition discoveries into the economy, and build the region's technological workforce.

The collaboration includes universities and community colleges, leading photonics companies, statewide economic and workforce development programs, and technology accelerators and incubators that help transition research into startup companies.

Photonics, which involves the control of light for use in technologies, has applications in healthcare, clean energy, computing, telecommunications, advanced manufacturing, and more. It has the potential to improve cancer detection, food safety, smart phones, computing and self-driving cars, among other uses.

The Advancing Photonics Technologies collaboration is one of more than 40 teams across the nation selected to receive one of the first-ever NSF Engines Development Awards, which provide up to two years of funding toward the planning of a multistate initiative to create economic, societal and technological opportunities for their regions. The awards enable the teams to prepare strong proposals for becoming future NSF Engines, which will each have the opportunity to receive up to $160 million to implement their plans.

[Princeton University](#) will lead the development-stage collaboration along with co-lead [Rowan University](#), both in New Jersey, with partners throughout neighboring states Delaware, Pennsylvania and New York.

"These NSF Engines Development Awards lay the foundation for emerging hubs of innovation and potential future NSF Engines," said NSF Director Sethuraman Panchanathan. "These awardees are part of the fabric of NSF's vision to create opportunities everywhere and enable innovation anywhere. They will build robust regional partnerships rooted in scientific and technological innovation in every part of our nation. Through these planning awards, NSF is seeding the future for in-place innovation in communities and to grow their regional economies

through research and partnerships. This will unleash ideas, talent, pathways and resources to create vibrant innovation ecosystems all across our nation."

Launched by NSF's new Directorate for Technology, Innovation and Partnerships and authorized by the "CHIPS and Science Act of 2022," the NSF Engines program aims to catalyze robust partnerships, accelerate technology development, address societal challenges, advance national competitiveness and create high-wage jobs.

"Photonics is one of the unseen gems of the New Jersey economy, providing thousands of good-paying jobs and leading global innovation," said Governor Phil Murphy. "Congratulations to Princeton University, Rowan University, and the many other New Jersey institutions of higher education, companies, and state agencies that are joining forces on this effort to affirm our state's longstanding role as a leader in innovation."

The initiative will focus on increasing opportunities for growth and participation in the photonics economy in ways that ensure diversity and equity while providing an inclusive and accessible environment.

The development grant enables the collaboration's universities, community colleges, industry and state economic development agencies to plan:
- a diverse and inclusive research and innovation ecosystem around photonics
- expansive opportunities for the translation of technological and scientific breakthroughs from research labs to industry
- a robust pipeline for jobs creation and workforce development

"This initiative unites colleges and universities, startups, and established companies across our region to catalyze research, develop new technologies, create jobs and strengthen the economy," said Christopher L. Eisgruber, president of Princeton University. "Princeton is proud to be part of this National Science Foundation program, which is helping to grow scientific research and technological innovation in every part of our nation."

Princeton's co-lead institution is Rowan University, a rapidly growing public research institution.

"Public-private partnerships between industry and higher education institutions are critically important for driving economic growth and workforce development," said Rowan University President Ali Houshmand. "We are pleased to share in this effort and look forward to translating research into opportunities for our region."

The collaboration will be led by principal investigator Craig B. Arnold, the Susan Dod Brown Professor of Mechanical and Aerospace Engineering and Princeton's Vice Dean for Innovation. Arnold's research expertise spans materials synthesis and processing in areas including advanced manufacturing, energy storage and conversion, and optics and photonics. A holder of 13 granted

patents, Arnold is the co-founder of two companies and leads Princeton's campus-wide initiative to broaden opportunities in innovation.

"Photonics will play a crucial role in pushing 21st century applications to be cleaner, smarter, and more secure," Arnold said. "To enable this technology and expand its reach, we aim to grow a robust, diverse photonics workforce that is tightly integrated within an ecosystem of continuous innovation and use-inspired research."

The collaboration's co-principal investigator [Robert V. Chimenti](link) is a visiting assistant professor and photonics coordinator at Rowan University. An experienced industry expert, Chimenti's research focuses on new laser and spectroscopy applications, with an eye toward developing novel instrumentation for commercialization. As a community college alumnus, Chimenti is deeply committed to workforce development opportunities and alternate pathways for non-traditional students.

"The mid-Atlantic region has a long history of photonic innovations ranging from the light bulb to the color TV to the modern liquid crystal display, making it the ideal choice for this venture," said Chimenti. "We have a diverse talent pool, exceptional resources with a high density of companies producing and using photonics technologies and devices, as well as an established academic and technical research ecosystem. In short, we're at just the right time and place."

Partners in the collaboration include:

Universities and colleges
- **Princeton University – lead institution**
- **Rowan University – co-lead institution**
- Delaware State University
- Lehigh University
- New Jersey Institute of Technology
- Penn State University
- Rowan College of South Jersey
- Rutgers University-Newark
- Rutgers University-New Brunswick
- Stevens Institute of Technology
- Sussex County Community College
- University of Delaware

Companies
- Edmund Optics
- Go!Foton
- Hamamatsu
- Hellma USA
- Horiba Scientific

- Kearfott Corporation
- Metrohm Spectro
- Nokia Bell Labs
- Nubis Communications
- OFS
- Thorlabs

Statewide economic development agencies
- New Jersey Commission on Science, Innovation and Technology
- New Jersey Council of County Vocational-Technical Schools
- New Jersey Economic Development Authority
- New Jersey Manufacturing Extension Program

Entrepreneurial incubators and accelerators
- Material Impact
- Princeton Innovation Center BioLabs
- SOSV, HAX Accelerator
- VentureWell

View a [map of the NSF Engines Development Awards](#). More information can be found on the [NSF Engines program website](#).
NSF media requests: media@nsf.gov

Princeton University media requests:
Catherine Zandonella, czandone@princeton.edu
Tracy Meyer, twmeyer@princeton.edu

Rowan University media requests:
Kimberly J. Mulford, mulford@rowan.edu

About Hamamatsu Corporation

Hamamatsu Corporation is the North American subsidiary of Hamamatsu Photonics K.K. (Japan), a leading manufacturer of devices for the generation and measurement of infrared, visible, and ultraviolet light. These devices include photodiodes, silicon photomultipliers, photomultiplier tubes, scientific light sources, infrared detectors, image sensors, spectrometers, and cameras. The parent company is dedicated to the advancement of photonics through extensive research. This corporate philosophy results in state-of-the-art products which are used throughout the world in scientific, industrial, and commercial applications.

Media contact

Marketing Communications

Hamamatsu Corporation

360 Foothill Road, Bridgewater, New Jersey 08807

Phone: (908) 231-0960

Email: marcom@hamamatsu.com

\# \# \#