

# Lighting Up Rochester

By Joel Seligman

On July 27, Vice President Joe Biden announced the exciting news that a consortium of which the University is a key partner had won a national competition to advance United States photonics manufacturing capability. This is a historic achievement, one of the largest awards ever made of its kind. Rochester will now be the headquarters of the American Institute for Manufacturing Integrated Photonics or AIM Photonics, which will be a leader in a critical 21st-century advanced technology. AIM Photonics also will have operations in other cities throughout the country.

Rochester was chosen after a lengthy competition administered by the Department of Defense to be the headquarters for the photonics initiative because of its historical strengths and for its ability to help provide a comprehensive solution to photonics packaging and assembly. Photonics—which is the science of using light in processes from advanced manufacturing to transmitting data—has a strong footprint in Rochester.

Photonics and related fields including optics and imaging account for an estimated 17,000 jobs in our region. AIM Photonics is expected to emulate the success of the electronics industry for the past 40 years and become an innovative ecosystem of development. AIM will create a hub focused on the design, manufacturing, and packaging of circuits that combine photonic and electronic components.

Integrated photonics has the potential to revolutionize the carrying capacity of Internet networks, improve performance in biological research, cyber defense, banking, investing, video conferencing, weather models, as well as other applications. The photonics industry's use of light to produce energy and operate sensors and computer chips will become increasingly important in fields such as manufacturing, where laser-guided robots make precision parts, and in computer processing and development of semiconductor technology.

Defense applications include night-vision systems, satellite-surveillance systems, infrared, flexible displays, sensors, directors, data communications, and lasers. AIM Photonics will bridge the gap between research and innovation, retooling semiconductor fabrication and packaging methods and equipment that made integrated circuits widespread.

AIM Photonics will receive \$110 million from the U.S. Air Force Research Laboratory and another \$250 million from the State of New York. Additional funding commit-



**HISTORIC NEWS:** Vice President Biden announced that Rochester would be the headquarters for a new national photonics institute.

ments from public and private partners, including the States of California and Massachusetts, will exceed \$245 million over the next five years for a five-to-one matching of federal funds. More than \$130 million of those funds are committed to the Rochester region. The institute will be part of the federal National Network for Manufacturing Innovation proposed by President Barack Obama in October 2014 to “create a competitive, effective, and sustainable manufacturing research-to-manufacturing infrastructure for U.S. industry and academia to solve industry-relevant problems.”

The consortium behind AIM Photonics comprises a coast-to-coast academic-industry partnership that includes the University of Rochester, SUNY Polytechnic University, RIT, MIT, the University of Arizona, the University of California–Santa Barbara, and Columbia University, as well as corporate partners led by Boeing, IBM, Intel, Hewlett-Packard, Lockheed Martin,

Infinera, Corning, and Synopsis. In all there are 90 partners from 18 states.

The University leadership team, led by Robert Clark, senior vice president for research and dean of the Hajim School of Engineering & Applied Sciences, and Duncan Moore, vice provost for entrepreneurship and the Rudolf and Hilda Kingslake Professor of Optical Engineering, was pivotal in helping achieve this success. Governor Andrew Cuomo's commitment of \$250 million in support from New York State was particularly decisive.

The total investment by state and federal governments will drive transformative development in the Finger Lakes region and beyond. I also am deeply grateful to the New York congressional delegation, led by Senator Charles Schumer and Representative Louise Slaughter, as well as Senator Kirsten Gillibrand and Representative Tom Reed, for their support. Others were instrumental in their efforts to advance our consortium's application through this extremely competitive process, notably including Assembly Majority Leader Joseph Morelle, Rochester

Mayor Lovely Warren, Dr. Alain Kaloyeros, president and CEO of SUNY Polytechnic Institute, and RIT President William Destler. AIM Photonics is the culmination of several years of bipartisan support from our congressional delegation and was made possible by the recent enactment of the Revitalize American Manufacturing Innovation Act.

Rochester has a long and hallowed history of training successive generations of optics and imaging workforces. With this award, we are fortified in our leadership role in photonics, a pivotal emerging part of optics. The new institute will empower the best talent, sustainable relationships, and infrastructure required to make the United States a global leader in this industry, leveraging the capabilities of our University as well as those of other academic partners to make this revolution possible. A critical milestone in the revitalization of Rochester has been achieved with this award. **6**