



The international society  
for optics and photonics

## OPTICS AND PHOTONICS: ESSENTIAL TECHNOLOGIES FOR THE FUTURE OF OUR NATION

**SPIE**, the International Society for Optics and Photonics, believes we must prioritize investment in optics and photonics, which are essential to solving problems, enabling innovation, facilitating economic growth and improving lives.

To this end, we urge Congress to **support establishment of a National Photonics Initiative (NPI), to foster increased collaboration and coordination between industry, government and academia to identify and advance areas of photonics that are critical for maintaining U.S. competitiveness and national security.**

A recent National Academies report titled, **“Optics and Photonics, Essential Technologies for our Nation,”** underscores the importance of optics to the U.S. economy as an enabling technology. With an emphasis on opportunities in communications, advanced manufacturing, health and medicine, defense and national security, and energy US investment in these photonics-driven fields will grow our economy, protect and improve the lives of our people, and position the United States as a global technology leader.

**One of the key report recommendations is the creation of a U.S. National Photonics Initiative (NPI)** to bring together academia, industry, and government to steer federal research and development funding and activities.

The work of the NPI will help establish a network including industry, academia, national labs, and federal agencies to identify and advance areas of photonics that are critical for maintaining U.S. competitiveness and national security, and ensure that policymakers implement recommendations from the National Academies’ report.

As the report indicates, new technology is essential to job growth and a healthy economy. While calculating the amount of revenue and the number of jobs related to optics and photonics is complex, according to the report, public companies active in optics and photonics generated an estimated 10% of all public company revenues within the U.S. in 2010. These 282 unique public companies account for \$3 trillion in revenues and 7.4 million high-value U.S. jobs. SPIE alone interacts with 72,000 companies across the globe that are either active in the field or rely on optics and photonics in their daily business.

<b>PUBLIC PHOTONICS COMPANIES IN THE U.S.</b>		
	<b>2009</b>	<b>2010</b>
<b>Revenue</b> (\$millions)	<b>2,741,289</b>	<b>3,085,292</b>
<b>No. of Employees</b> (000s)	<b>7159</b>	<b>7415</b>
<b>R&amp;D: Expenditures</b> (\$millions)	<b>151,104</b>	<b>166,603</b>
<b>R&amp;D: % of Revenue</b>	<b>5.5%</b>	<b>5.4%</b>

Source: Table 2.2 Optics and Photonics, Essential Technologies for Our Nation. Data from 282 of the 285 unique public companies listed as members, employers, or exhibitors by SPIE & OSA.

Public companies that are focused on optics and photonics create more than 10% (>\$3 trillion) of all U.S. public company revenues and 6% (7.4 million) of public company jobs.

To ensure that the United States is at the forefront of these new technologies and to capture the new markets that will support continued job creation, the National Photonics Initiative (NPI) will foster increased collaboration and coordination between industry, government and academia to identify and advance areas of photonics that are critical for maintaining U.S. competitiveness and national security. Specifically, it will:

- Develop infrastructure to provide on-going input to government including road mapping strategic plans, global photonics developments, and identification of potentially disruptive technologies with market opportunity and recommendations for technology investments important to U.S. competitiveness and national security
- Coordinate industry input in key areas and provide a forum for it to be communicated to government
- Encourage technology transfer from lab to market / bench to bedside
- Strengthen and support STEM education (maintain defense workforce, develop technology training a community & technical colleges )

*SPIE is the largest international not-for-profit society in optics, photonics and imaging. Together with our 18,000 individual members and 600 corporate members, the Society seeks to build a better world with light through scientific education and innovation. [www.spie.org](http://www.spie.org)*