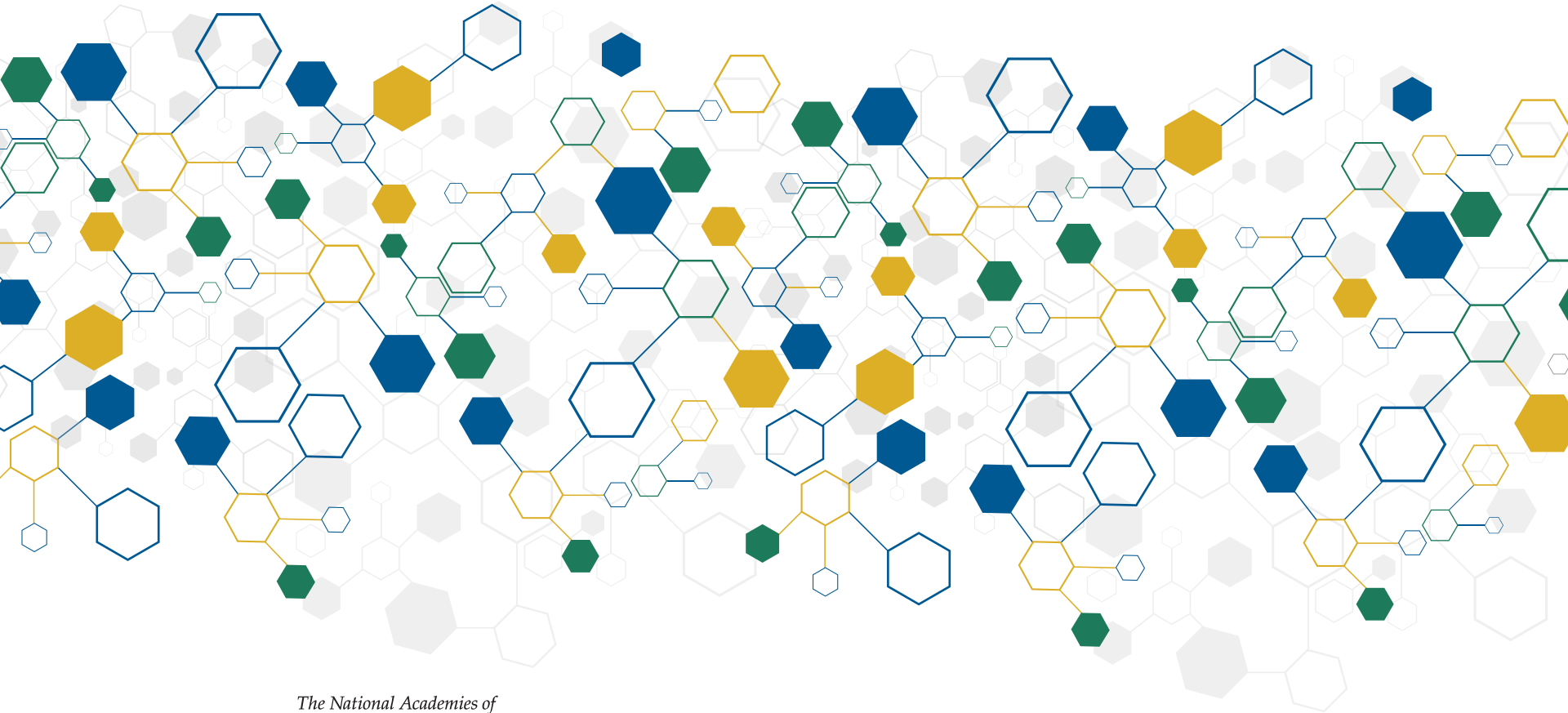


# NATIONAL MATERIALS AND MANUFACTURING BOARD



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The nation turns to the National Academies of Sciences, Engineering, and Medicine for independent, objective advice on issues that affect people's lives worldwide.

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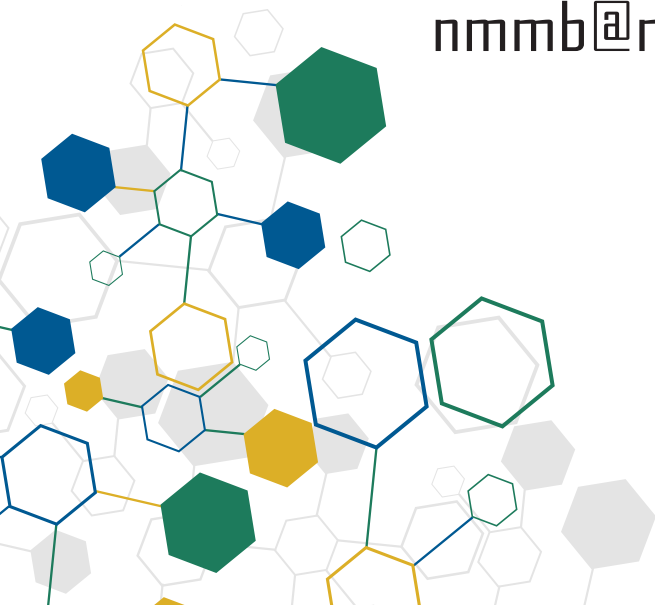
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# ABOUT NMMB

The National Materials and Manufacturing Board (NMMB) is the principal forum at the National Academies for issues related to materials and advanced manufacturing. We provide objective, independent advice on science and engineering topics including technology, policy, workforce, and infrastructure. We carry out our responsibilities through a variety of activities including ad hoc studies, workshops, symposia, and expert meetings on emerging topics in materials and manufacturing. Our studies guide government research programs and regulatory activities, and our workshops provide a forum for discussion across disciplines about pressing issues. Past and current sponsors of the NMMB include the DOD, DOE, DOI, DHS, FDA, NASA, NIH, and NSF. Sign up for updates about NMMB activities at [nas.edu/NMMB](https://nas.edu/NMMB).

[nas.edu/nmmb](https://nas.edu/nmmb)

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## ABOUT THE NATIONAL ACADEMIES

The National Academies of Sciences, Engineering, and Medicine are private, nonprofit institutions that provide expert advice on some of the most pressing challenges facing the nation and the world. Our work helps shape sound policies, inform public opinion, and advance the pursuit of science, engineering, and medicine. The National Academies do not receive direct appropriations from the federal government, although many of our activities are mandated and funded by Congress and federal agencies. Work done by the National Academies extends well beyond fulfilling federal government requests, however. Foundations, state governments, the private sector, and philanthropy from individuals enable us to address critical issues on behalf of the nation.

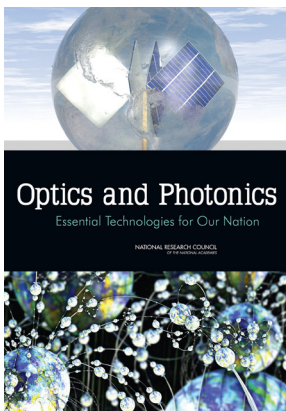
# OUR PRODUCTS

NMMB facilitates independent, objective, and knowledgeable advice from: members of the National Academies; other leaders of the science, engineering and medical communities; and distinguished associates from the academic, private, and public sectors.

ACTIVITY	TYPICAL SCHEDULE	PRODUCTS
<p><b>In-Depth/Consensus Studies</b> approach complex questions by enlisting the foremost experts in a given area to gather information and provide consensus recommendations</p>	<p>6-36 months, depending on scope</p>	<p>Peer-reviewed reports with conclusions and recommendations</p>
<p><b>Workshops</b> provide a means for sponsors and participants to gather information, share ideas, and discuss pressing issues with a diverse group of expert speakers</p>	<p>4-12 months</p>	<p>Publication summarizing the workshop; webcast and video recording (optional)</p>
<p><b>Standing Committees, Roundtables, Forums, Colloquia, and Meetings of Experts</b> provide a means for representatives of government, industry, and academia to gather periodically to discuss specific topics</p>	<p>Varies, depending on the number of meetings requested</p>	<p>No written products, benefits are generated from participation; webcast and video recording (optional)</p>



## MAKING AN IMPACT



Optics and photonics play essential roles in many advanced technologies and applications. At the request of the National Science Foundation, the Department of Energy, NIST, the Army Research Office, and DARPA, and with additional support from professional societies SPIE and OSA, NMMB conducted a study to help guide the nation's thinking in this area. The resulting report, *Optics and Photonics—Essential Technologies for Our Nation*,

has provided the impetus for a number of governmental and industrial efforts in this area, including the National Photonics Initiative. Download the report at [nap.edu/13491](http://nap.edu/13491).

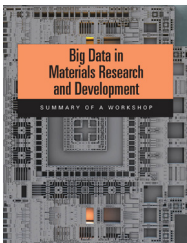
# FEATURED PUBLICATIONS



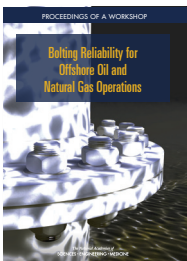
**Triennial Review of the National Nanotechnology Initiative** recommends applying nanotechnology research to benefit the nation's economy and security. The report identifies the physical and human resources needed for successful nanotechnology development in the U.S. Download the full report at [nap.edu/23603](http://nap.edu/23603).



**Airport Passenger Screening Using Backscatter X-Ray Machines** examines whether exposure to x-ray backscatter screening devices complies with health and safety standards. The report also considers whether the system design, operating procedures, and maintenance procedures are appropriate to prevent overexposure. Download the full report at [nap.edu/21710](http://nap.edu/21710).



**Big Data in Materials Research and Development** summarizes an NMMB workshop where participants discussed the impact of big data on materials and manufacturing and identified ways to enable broader data access across the field. Download the complete proceedings at [nap.edu/18760](http://nap.edu/18760).



**Bolting Reliability for Offshore Oil and Natural Gas Operations** summarizes the results of a workshop where participants discussed how to advance and develop a comprehensive awareness of the outstanding issues associated with fastener material failures and equipment reliability issues in offshore operations. Download the complete proceedings at [nap.edu/24896](http://nap.edu/24896).