



*The National
Academies of*



Roundtable on Low-Earth Orbit Materials Research





Three organizations comprise the Academies:

the National Academy of Sciences,
the National Academy of Engineering,
the National Academy of Medicine

Known collectively as the National Academies
of Sciences, Engineering and Medicine,

Provides guidance that shapes policies, informs
public opinion, and advances the pursuit of
science, engineering, and medicine.





METHODS OF OPERATION

- CONSENSUS STUDIES
 - Committee of Experts
 - Extensive Report Review
 - Consensus Advice
- CONVENING ACTIVITIES
 - Workshops
 - **Roundtables**





Roundtable on Low-Earth Orbit Materials Research - Objectives

- To provide a forum, in a neutral setting, for -
 - Exploring the opportunities and capabilities of the International Space Station National Laboratory (ISSNL), and similar future platforms, for conducting materials research in low-Earth orbit.
 - Coordinating efforts among stakeholders.
 - Increasing awareness in the broader open science community of current and future capabilities for low-Earth orbit materials research.





Roundtable on Low-Earth Orbit Materials Research - Process

- Roundtable Membership - Approximately 15 individuals from universities, government agencies, foundations, industry, and other organizations with an interest in the research capabilities of ISSNL and future low-Earth-orbit research platforms.
- Will meet two times per year for a 1-day topical session.
- Each Roundtable meeting will focus on a chosen topic, with roundtable members selecting topics and setting the agenda.
- Sponsorship – Interested academic, government, industrial, other organizations to provide annual support.





Examples of Possible Topics

- Materials Research in the Absence of Shear Thinning: New Glasses and Ceramics
- Solidification in Micro Gravity: Superalloys
- High Entropy Alloys: no buoyancy convection
- Reference Thermophysical Properties
- Self-Assembly, Self-Organize in Absence of Directional Forces: Liquid crystals / colloids
- Semiconductors: Diffusion, Annealing and Containerless Processing
- Semiconductors: 2D and Multi-layer 2D Materials Synthesis, Assembly, and Measurement
- Testing of Radiation Hard Electronics
- Additive Manufacturing
- Potential Future Capabilities and Needs for Low-Earth orbit materials research

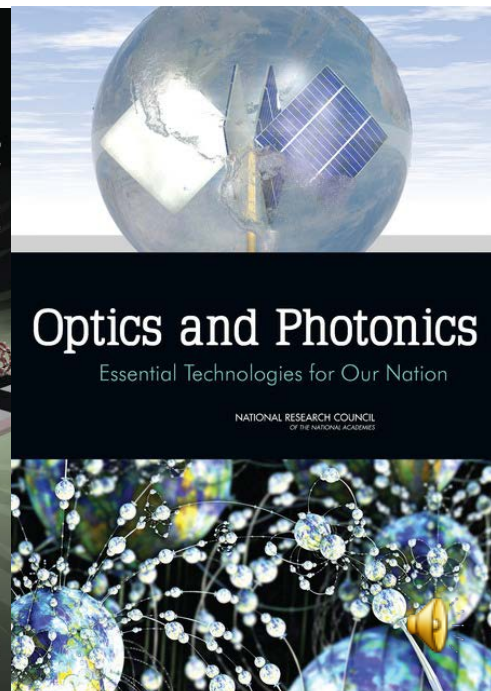
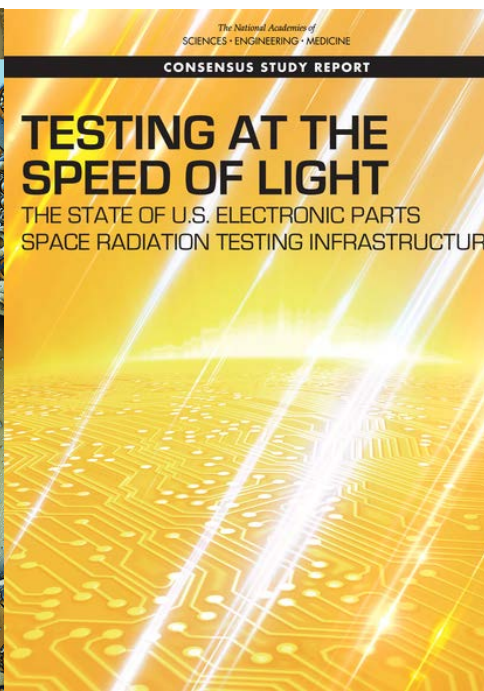
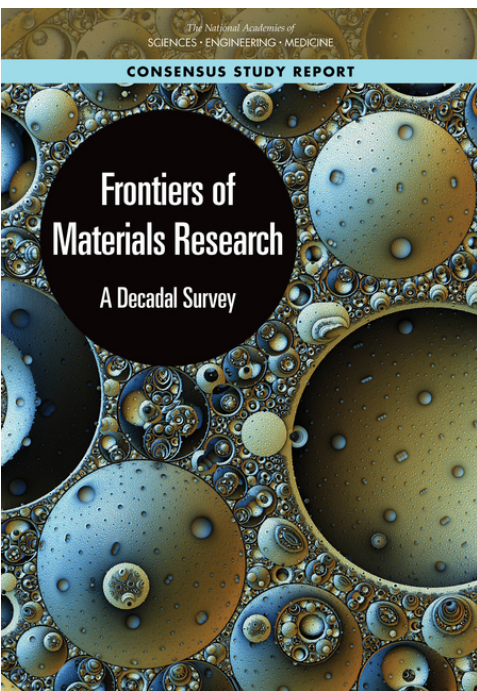




Effort of the National Materials and Manufacturing Board

NMMB's mission is to provide objective, independent assessments of the current state of materials and manufacturing research and the applications of new and existing materials in innovative ways, including pilot-scale and large-scale manufacturing, the design of new devices, and disposal.

NAP.EDU





Are you interested in this Roundtable?

Do you want to participate and set the direction?

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LEOMRR

Low-Earth Orbit Materials Research Roundtable

Image courtesy of the Duke Lemur Center