



## Materials Research Society Public Comment on the MGI Strategic Plan

The Materials Research Society (MRS) has supported MGI since its inception, as MRS's long-term commitment to promote and facilitate interdisciplinary materials research and technology is consistent with MGI's goal of integrated materials research linking computation, data, and experiment across academia, government, and industry. MRS appreciates the opportunity to comment on the MGI strategic plan and would like to focus on five areas that are essential for success:

- 1) **Develop roadmaps.** Materials R&D warrants significant government funding and the level of strategic focus provided by MGI. While we fully support MGI's vision to accelerate the discovery-to-deployment timeline, we recommend carefully planning roadmaps and prioritizing milestones that will allow the materials community to focus its efforts within the confines of today's fiscal environment.
- 2) **Support access to digital data.** The federal government can play a critical role in overcoming barriers to broad and efficient data sharing. In contrast to the relatively homogenous data involved in the Human Genome Project, materials attributes are much more heterogeneous and difficult to digitize and make interoperable among platforms. A key goal of MGI should be to identify the kinds of data for each material class that are digitizable and highly relevant to incorporating that material into technology and products. Additionally, research proposals should require stronger iterative feedback loops between theorists and experimentalists and address issues such as data protocols, data interoperability, data access, and data curation. Substantial focus and investment will be required to achieve success in this aspect of MGI.
- 3) **Invest in computational modeling.** The materials community has benefitted significantly from open source codes, and MGI can further support developing and deploying open source codes for computational materials science. We also recommend investing in high-performance computing facilities, which have been critical to advancing other scientific fields.
- 4) **Support new scientific avenues.** Materials research has a strong track record in improving and optimizing current systems, as well as exploring new material systems that have provided revolutionary advances. We recommend that the agency emphasis areas in Appendix A be more forward looking—highlighting the importance of investing in leading edge approaches—rather than largely focusing on existing programs.
- 5) **Communicate the ROI.** To ensure sustained support for MGI, it is critical to communicate the ROI across the vast diversity of sectors and technologies impacted by materials. We recommend complementing the current industrial case studies with examples from the telecommunication, data storage, and electronic device communities. Strong and continued engagement from the commercial sector will be important in justifying the level of investment necessary to achieve the ambitious goals of MGI.

We see a continued important role for MRS and other professional materials societies in helping to convene meetings and discussions to advance the MGI vision. In addition, MRS efforts in public and government outreach can help provide valuable information about the impact of materials research on critical areas and can influence the next generation of scientists and engineers that will drive this important field.

A handwritten signature in black ink, reading "Tia Benson Tolle". The signature is written in a cursive, flowing style with some capitalization.

Tia Benson Tolle, PhD  
President