



“A Point of Reflection: Understanding our Progress and Challenges”

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Discovery, development and implementation of advanced technologies to enable a cleaner, healthier and safer world depend on the materials systems available, understanding of which is ever more complicated and nuanced – and ever more urgently needed. Reflecting on the tools at hand to accelerate both the use of emergent materials systems and the advancement of the underlying knowledge that supports them, we find a common thread emphasizing the importance of translation: translation of understanding into terms multiple engineering disciplines can use, translation of principles from one discipline to another, translation of discovery to product/capability. Computational codes and quantitative data descriptions enable that translation.

With this hypothesis, work in Integrated Computational Materials Engineering (ICME) and work toward the goals of the Materials Genome Initiative (MGI) have focused on developing the computational tools and supporting quantitative data to enable effective translation of knowledge. In this talk, we pause to assess our progress and begin to identify purposeful next steps for our community of materials science and engineering, particularly for multiscale materials modeling.