Accelerating Discovery and Optimizing Industrial-scale Synthesis of Functional Materials

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Solutions to many of our current challenges, from sustainable energy production and storage, cleaner water and environment to faster electronics and higher performance medical devices are based on the discovery of new functional materials and market-place deployment of devices. Discovery of new functional materials and optimization of their synthesis at industrial scale currently depends on serendipity, plagued with dead-ends, takes more than 20 years and is prohibitively expensive. Accelerating the pace of new material discoveries and significantly reducing the cost of industrial- scale production is the challenge we must solve.

A new paradigm of combining large scale computation with high throughput experimentation promises to meet this challenge. Success of this paradigm depends on rapid extraction of information from large datasets generated by diverse communities, from material modelers to process engineers, who make the information available in computable form on demand.