

US-Japan Materials Genome Workshop

June 23-24, 2015

International Congress Center "Epochal Tsukuba" 2-20-3, Takezono, Tsukuba, Ibaraki, 305-0032, Japan

<http://www.epochal.or.jp/eng/index.html>

Workshop rationale: Structural materials play a central role in National physical infrastructure development, and both the US and Japan have concerted efforts in developing structural materials for applications in maintaining, and improving their large-scale physical infrastructure. In addition, both nations have efforts to discover, design, and deploy advanced structural materials for dynamic applications as in aerospace and power generation industries. These are major undertakings that require a concerted effort ranging from fundamental materials science research, to acquiring, curating, and maintaining high-quality data, and, ultimately, to manufacturing products that are energy efficient, environmentally sustainable, and durable.

The goals of this and subsequent workshops is to bring together a diverse group of researchers from the US and Japan to discuss ways to use predictive theory and modeling, combined with machine learning, data mining, and rapid-acquisition of experimental data to produce highly efficient and low-cost manufactured products.

Workshop goal: This workshop will strive to develop a collaborative framework for complementary joint research using the materials genome and concurrent engineering paradigm to meet the development goals set by each country. To this end, we have designed a 2-day agenda with 5 plenary speakers and 30 distinguished colleagues in the field to lecture and lead 5 parallel sessions. The workshop will identify both important scientific and engineering challenges in materials topics including metals, polymer composites, and ceramics. A final report, to be drafted after the workshop conclusion, will inform and guide potential collaborations and implementation.

Parallel discussion sub-topics:

- (1a) Materials design by calculation and modeling
- (1b) Materials design by simulation and modeling
- (2) Materials synthesis and data base
- (3) Materials characterization and data mining
- (4) Infrastructure needs for materials development
(Synchrotron, neutron and other large scale facilities; Nanotechnology Platforms)

Plenary Speakers:

- Dr. James Warren, Director, Materials Genome Program, NIST
[The Materials Genome Initiative: Four years of progress](#)
- Prof. Gregory Olson, Northwestern University and QuesTek Innovations
[Genomic materials design: From CALPHAD to flight](#)
- Prof. Tetsuo Mohri, Tohoku University
[Materials design by computation, phase diagram, K-computing](#)
- Prof. Isao Tanaka, Kyoto University
[Materials design by computation, materials informatics](#)
- Prof. Masato Okada, University of Tokyo
[Machine learning, sparse model](#)



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