ISM³ 2017 International Symposium on Multi-scale Modeling & Simulation of Materials

July 3-7 2017, Shenyang, China

IMR | MRS | C-MRS

Home   Committee   Invited Speakers   Programme   Registration Fee   Travel & Housing   Contacts   Sponsors

HISTORY, AIM & SCOPE

Multi-scale modeling and simulation have become major tools in the design and optimization of novel materials and their processing. Since the establishment of the Computational Materials Science Branch of the Chinese Materials Research Society in 2005, a series of annual international symposia have been organized at Fudan University (2008 and 2013), Tsinghua University (2009), Institute of Metal Research, Chinese Academy of Sciences (IMR, CAS) (2010), Shanghai Institute of Ceramics, CAS (2011), University of Science and Technology Beijing (2012), Institute of Solid State Physics, CAS (2014), Beihang University (2015) and Dalian University of Technology (2016). These symposia have promoted the development of materials computation in China and the participating countries, and were warmly welcomed by the community.

The annual symposium in 2017 is the 10th in the series, and will be organized by the Institute of Metal Research, CAS, during July 3-7, in Shenyang, China. It will provide a platform for the materials computation community to present recent advances in computational methods and to promote their practical applications in the design of new materials and components. The experimentalists who work on validation and verification of computation results, and those who wish to seek computational solutions are also welcome. The meeting will be arranged in two parts, the first is a two-day workshop, composed of invited talks and poster sessions on the new development of computational methods and their applications; the second is a two-day training program, and a series of talks in a more introductory and systematic nature will be given on simulation methods. Invited talks will be given by renowned scientists around the world on the new development of multi-scale computational methods and their applications in different kind of materials, especially those on the understanding of the performance of structural materials and the optimization of their manufacturing. Several best poster awards will be given to the young authors of best posters selected by committee members and invited speakers. The training program is planned for young scientists and students in this field to help them learn the state-of-the-art methods in multi-scale modeling and simulation.

The symposium intends to promote the shifting of the materials research paradigm from the traditional trial and error approach to the Materials Genome Initiative (MGI) and Integrated Computational Materials Engineering (ICME) approach, with a view of accelerating the design and application, and at the same time reduce the cost of the development of new materials, by integrating multi-scale modeling and simulation with experimental efforts. Contributions are welcome on, but not limited to the following topics:

11111)1MGI and ICME methodology, including high-throughput computation, sample preparation and characterization method and database technology;

11112)1First principles prediction of the fundamental properties of alloys, high-throughput evaluation of the effects of alloying elements and impurities;

11113)1Atomistic simulation of dynamic process, such as deformation, defects formation and interaction, their effects on the mechanical behavior of materials, including strength, ductility, fatigue, fracture, creep and wear, etc;

11114)1Meso-scale simulation of phase transformations and microstructural evolution during thermo and thermo-

Important Days

March 10	First Circular Download PDF
May 24	Abstract Deadline
May 31	Acceptance Notification
June 28	Early Payment Deadline New Afterwards: 1200RMB/600RM
July 3-7	Symposium

Registration   Submission

Payment   Hotel Reservation

mechanical treatment, phase diagram computation, thermodynamics, kinetics and microstructure optimization;

1111 5) Process simulation for thermo-mechanical processing, melting, casting, welding, 3-D printing and machining, crystal plasticity FEM simulation, defects and distortion prediction, process optimization;

1111 6) Structure, stability and migration of grain boundary and other interface during deformation and phase transformation; nucleation, growth and interaction of dislocation, deformation twin, and point defects formation, their effects on the properties of materials, such as strength, ductility, electrical, optical and magnetic behavior of materials;

1111 7) Modeling of nano- and amorphous materials, gradient and architecture materials, high-entropy alloys, their deformation, stability, shear localization and flow. Hardening, degradation and phase transformation driven by radiation, electrochemical, oxidation, corrosion and mechanical force;

1111 8) Synergy between modeling and experiments, validation and verification of results of simulations from atomic to acroscopic scales, and stimulating experimental work seeking computational solutions.

The official language of the symposium is English.