

International Workshop on Materials Design Process:

Thermodynamics, Kinetics and Microstructure Control

June 3-4, 2013,

IMDEA Materials Institute, Tecnogetafe (Madrid), Spain

SYNOPSIS:

The development of advanced materials has been at the core of many of the emerging industries that will address challenges in energy, aerospace, healthcare, transportation, electronics, etc. The discovery to fabrication/replication to processing (if applicable) to characterization of new materials involve much knowledge and incorporation of thermodynamics, kinetics and microstructure control, forming a materials design (and/or control) process that integrates computational, experimental, and data informatics tools and enables it to accelerate the development of advanced materials, which is in the focus of this workshop.

SCOPE

The objective of this international workshop is to primarily **bring together experts and scientists working on thermodynamics, kinetics and microstructure control** to facilitate collaborations on materials design/control process between leading research groups in this area. The workshop also provides an opportunity to **assemble those contributors of CALPHAD XLII (May 26-31, San Sebastian, Spain) who have great interest to intensify interaction and cooperation with the community of microstructural development, replication, characterization and modeling** for the exchange of ideas, knowledge and information on the state-of-the art in the field by a sojourn to the capital of Spain.

MAIN TOPICS

- Ab initio Calculation, Molecular Dynamics and Thermodynamic Modeling
- Kinetics and Phase Transformation Modeling
- State-of-the-art Techniques for Fabrication/Replication, Processing and Microstructural Characterization.
- Multi-scale Modeling and Multi-Physics Approaches (e.g., Meso-Scale and Process modeling)
- Rational Microstructural Design/Control of Advanced Materials and Industrial Applications

CONFERENCE CHAIRS

- **Prof. J. M. Torralba** Universidad Carlos III de Madrid & IMDEA Materials Institute
- **Dr. Yuwen Cui**, IMDEA Materials Institute
- **Prof. Xiao-Gang Lu**, Shanghai University

KEYNOTE SPEAKERS (confirmed)

- **Prof. Sofía Calero** (University Pablo de Olavide, Spain), "Molecular Simulations for Design of Multifunctional Nanostructured Materials and Complex Molecules"
- **Prof. Francisco Castro** (CEIT, Spain), "tbd"
- **Prof. Alphonse Finel** (CNRS/ONERA, France), "Phase field methods: Microstructures"
- **Prof. Laszlo Granasy** (Hungarian Academy of Sciences, Hungary), "Phase-field Modeling of Polycrystalline Solidification: From Needle Crystals to Spherulites"
- **Prof. Kiyohito Ishida** (Tohoku University, Japan), "Design of Advanced Materials and Industrial Applications"
- **Prof. Tetsuo Mohri** (Hokkaido University, Japan), "Cluster Variation Method and Its Applications to Materials Science"
- **Prof. Dr. Jörg Neugebauer** (Max-Planck-Institut für Eisenforschung GmbH, Germany), "Ab initio Thermodynamics of High-Strength Steels with an Adaptive Microstructure"
- **Prof. Di Zhang** (Shanghai Jiaotong University, China), "Hierarchical microstructure of Bio-inspired functional Materials Derived from Natural Species"

TECHNICAL PROGRAM

The workshop program will include plenary sessions on the different topics, and each session will start with a keynote lecture on a predetermined topic followed by invited lectures and contributed presentations. Poster sessions will be scheduled between oral presentation sessions so graduate students, postdoctoral fellows, and young researchers can present their work. No parallel session is planned.

Call for Papers!

Interested authors should submit abstracts to one of three conference chairs by email before March 15, 2013, to Prof. J. M. Torralba at josemanuel.torralba@imdea.org, to Dr. Yuwen Cui at yuwen.cui@imdea.org, and to Prof. Xiao-Gang Lu at xnew707@hotmail.com. A technical program page will be created soon, please visit for the complete listing.

REGISTRATION

Attendees, including authors and presenters, are required to register and badges must be shown to have access to the technical sessions and social activities. Fees include registration, **lunches, coffee breaks, welcome reception** and visit to

IMDEA Materials Institute. The workshop also provides a **guided visit to Old Madrid and/or Toledo on June 2** and **workshop dinner** on June 3 to enjoy Madrid's famous hospitality, wine and food as part of a comprehensive social program.

Rates in Euro:

- €450 Full Registration
- €225 Student Registration
- €125 Accompanying Person
- €540 Full Registration with round trip by train from Madrid to San Sebastian*
- €315 Student Registration with round trip by train from Madrid to San Sebastian*
- €215 Accompanying Person with round trip by train from Madrid to San Sebastian*

Note: the timetable of train to/from San Sebastian will be distributed to the interested participants, and we'll email the tickets in pdf to the email address we were given.

Registration deadline: March 30, 2013.

Cancellation Policy

Requests for cancellations must be made in writing to the conference chairs. A €50 processing fee is charged for all cancellations. No refunds will be processed after the registration deadline date.

TRAVEL & ACCOMMODATIONS

Obtain a Travel Visa

Workshop attendees from countries that require a visa to enter into Spain are reminded that the process of obtaining a visa may take months. You are strongly encouraged to plan ahead and begin the application process early. **If you need an invitation letter or more information contact: Vanessa Fernández Chateignier at vanessa.fernandez@imdea.org.**

Accommodation

A block of rooms at various local hotels would have been reserved at a special rate for your convenience.

CONFERENCE VENUE

The conference will be held at IMDEA Materials Institute, which is located in TecnoGetafe, a technological park in Getafe, a satellite city along the south outskirts of Madrid. The Institute contains an auditorium with a capacity for 150 people, open areas for poster sessions, coffee breaks and a cafeteria for lunch, in addition to a variety of meeting rooms.

Madrid

It was King Felipe II who made Madrid the capital of his Empire when he chose it as the location for his court in 1561. The capital of an empire upon which the sun never set, and Madrid has continued to gather and maintain, throughout the centuries, the history and art of all the people who have visited it. The result is a cultural legacy, without which it would be impossible to fully understand the history of Europe. Madrid boasts one of the largest and most efficient public transport systems in the world and there are direct flights from most of the main world cities in the world. The weather in early June is delightful; warm and dry with average temperatures around 22°C.

CONTACT

For more information about this workshop, please contact:

Dr. Yuwen Cui
Researcher,
Computational Alloy Design Group,
IMDEA Materials Institute, Tecnogetafe
c/ Eric Kandel, 2
28906 Getafe (Madrid), Spain
tel. +34 91 787 18 76
fax +34 91 550 30 47
email: yuwen.cui@imdea.org