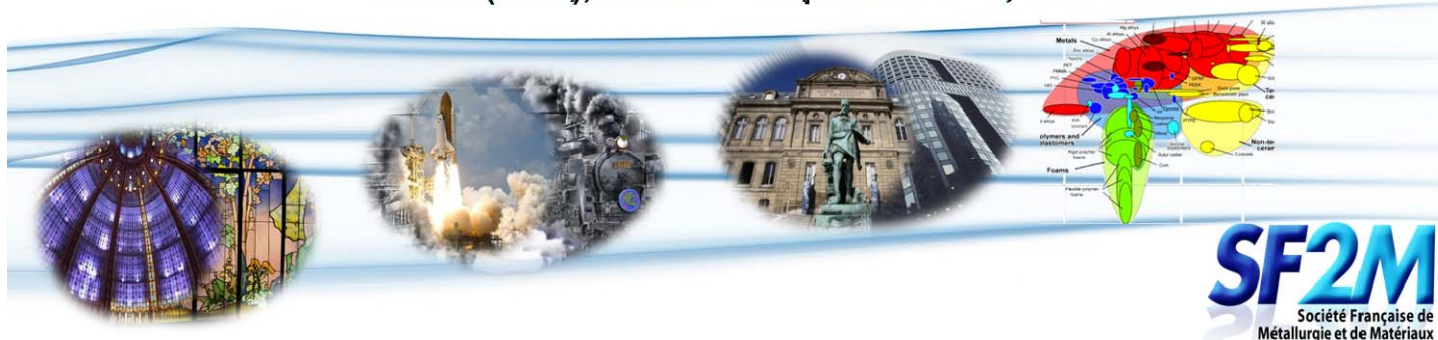


# MAPPING THE FUTURE OF MATERIALS SCIENCE

Sèvres (Paris), France - September 7 - 9, 2015



## Objectives and organisation of the workshop

This short Workshop based on the concepts developed in the Gordon Conferences of combining clear overviews of a topic and lively and challenging debate is organised by SF2M on the topic of “**Mapping the Future of Materials Science**”. It is important to attempt to map the Future of Materials Science from both a pedagogical viewpoint and from the viewpoint of developing clear synthesis of how the various crucial aspects of materials science are related.

The objectives of this workshop are to explore first new aspects of the traditional strength of Materials Science namely linking modelling and new experimental methods and then examine the important development of combined structural and functional materials. The last part of the workshop will be devoted to considering the impact of new manufacturing methods and recycling in the context of developing more sustainable industries in the future.

The workshop is based on invited 30 minutes presentations, with large open discussions and poster sessions devoted to student's work in progress. In order to encourage in depth discussion and to allow for student participation, the program has periods for open discussion. Reduced fees are proposed to PhD students who present their work on posters. The best 3 student posters will be awarded prizes.

The evolution of materials science and its spreading through education owe much to the works of Professor Michael F. Ashby, to whom this workshop is dedicated, and who will open the workshop by a Keynote Lecture.

## Program overview

*Monday, September 7<sup>th</sup>, 10:30 – to Wednesday, September 9<sup>th</sup>, 12:30*

### Introductory session

A view of the future of materials science

Materials in the context of energy production

### **New aspects of Bonding and Structures**

Studies of deformation in complex structures

New aspects of polymers

### **Approaches to modelling**

Modelling of thermodynamics and kinetics

### **Exploring Microstructures**

New techniques for quantifying metallic microstructures

4D *in situ* microtomography in materials science

### **Linking Structural and Functional Materials**

Critical parameters for Functional Materials

Investigating combined structural and functional materials

Paper as an innovative material

### **Materials for Construction**

Multifunctional materials in building construction

### **New Ways of Exploiting Phase Transitions**

From models to strong materials by deformation induced phase transitions

New views of carbon in iron

Strong materials by electrodeposition

A critical assessment of interfaces

### **Future Aspects of Materials Utilisation**

Self healing materials

Microstructure design of magnets

New materials based on bioinspiration

### **Future Aspects of Manufacturing**

Additive manufacturing and other innovative technologies

Recycling materials – an industrial perspective

### **Final wrap up discussion**

## Confirmed speakers

John Agren, Michael .F. Ashby, Jean-Francois Bloch, Yves Bréchet, Alexis Deschamps, Patricia Donnadieu, John Dunlop, Lionel Flandin, Norman Fleck, Dominique Givord, John Hutchinson, Pascal Jacques, Lu Ke, Thomas Pardoën, Luc Salvo, Frédéric Schuster, Chad Sinclair, Farouk Tedjar, Sybrand Van der Zwaag, Bernard Yriex,

## Organizing committee

J. David Embury, Yves Bréchet, Jean-Marc Chaix, Jean-Hubert Schmitt

## Venue

The workshop will take Place in the [Centre International d'études pédagogiques](#) (CIEP)  
 1 avenue Léon-Journault  
 92318 Sèvres, France

As a public institution of the French Education Ministry, CIEP has longstanding expertise in hosting conferences, seminars and forums for French and international organisations active in education cooperation.

Situated in Sèvres, in the South-West part of Paris, the Centre can be reached by Paris public transports.



The exceptional environment of the former Manufacture Royale de Porcelaine de Sèvres (Royal Porcelain Manufacture) built in 1756 by King Louis XV, upon request from Mme de Pompadour.



The workshop will start on Monday, September 6<sup>th</sup> at 10 a.m. and end on Wednesday Sept. 9<sup>th</sup> at 2 p.m. after lunch.

The normal resident registration fees include participation to oral and poster sessions, documentation, accommodation in single room for two nights (Sept. 7<sup>th</sup> to 9<sup>th</sup> , 3 lunches, Monday dinner, Tuesday Gala dinner. Arrival on Sunday evening will be possible.

Due to the limited number of available rooms, an external participant status is proposed, including Participation to oral and poster sessions, documentation, 3 lunches, Monday dinner, Tuesday Gala dinner

## Registration

In order to promote students' participation, reduced fees are proposed to PhD students (student's card required) who are asked to present a poster, and 30 % of available rooms in the conference center (CIEP) are reserved for them. The students' special fees are submitted to the presentation of a poster on their work.



Resident fees	450 €
Reduced resident fees (students)	350 €
Extra night (Sunday to Monday) + breakfast	55 €
External participant fees	350 €
Reduced external participant fees (students)	250 €

Registration will be open from May 26<sup>th</sup> to July 28<sup>th</sup>:

<http://www.sf2m.asso.fr/materialsfuture2015>