

**Report on the twelfth IUTAM Summer School on  
Mechanics of Microstructured Materials  
Udine, Italy, July 7-11, 2003**

**a) Organization**

The IUTAM summer school on "Mechanics of Microstructured Materials" was held at the International Centre for Mechanical Sciences at Udine, Italy, from July 7 to July 11, 2003.

**b) Lecturers**

The summer school was taught by the following lecturers:  
Professor Helmut J. Böhm, Vienna University of Technology, Austria;  
Professor Javier LLorca, Universidad Politécnica de Madrid, Spain;  
Professor Peter E. McHugh, National University of Ireland, Galway, Ireland;  
Professor Ryszard Pyrz, University of Aalborg, Denmark;  
Professor Thomas Siegmund, Purdue University, West Lafayette, USA;  
Professor Erik van der Giessen, University of Groningen, The Netherlands.

**c) Summer School topics**

The topics covered by the lecturers included:

- Introduction to continuum micromechanics; Modeling the behavior of short fiber reinforced composites (H.J. Böhm)
- Deformation and damage in particle reinforced composites (J. LLorca)
- Introduction to crystal plasticity theory (P.E. McHugh)
- Microstructural description of composites, statistical methods (R. Pyrz)
- Thermomechanical cohesive zone models; Processing–microstructure–property relationships in short fiber reinforced composites (T. Siegmund)
- Discrete dislocation plasticity; Creep rupture in polycrystalline materials (E. van der Giessen)

#### **d) Participants**

Some 37 participants from 15 countries attended the summer school, the majority of them young researchers.

#### **e) Scientific output**

The summer school introduced the attendees to current trends and fields of interest in the mechanics of microstructured materials. Modeling approaches, experimental techniques and statistical methods were covered. The school was structured to provide both overviews and lectures devoted to specific problems. Special points of interest were advanced descriptions of elastoplastic behavior, modeling of damage, and discontinuously reinforced composites.

#### **f) Publication of Proceedings of the Summer School**

Publication of the course notes within the CISM Lecture Notes series (Springer Verlag, Vienna) is in an advanced stage of preparation.

#### **g) Financial support**

The summer school was sponsored by IUTAM and CISM.

**Report composed by Helmut J. Böhm, Vienna, Austria**