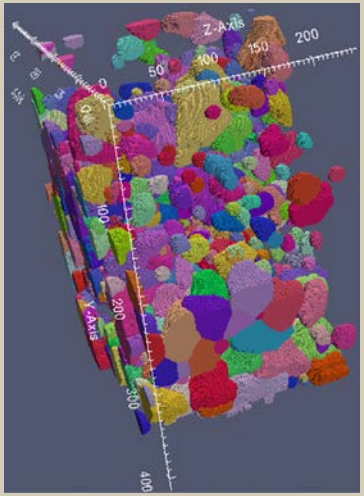
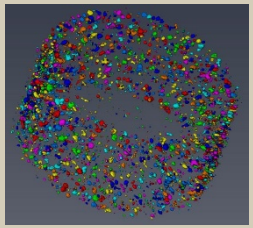
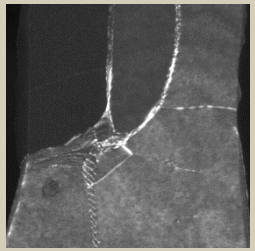


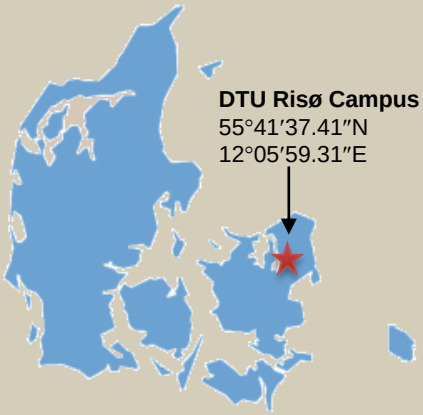




Venue

The symposium will take place at the Niels Bohr Auditorium (building 112) at DTU Risø Campus.

DTU Risø Campus is situated by Roskilde Fjord, 7 km north of Roskilde. In the center of Roskilde you will find many cultural highlights e.g. Roskilde Cathedral which was built during the 12th and 13th centuries, and the Viking Ship Museum exhibiting viking ships found in the local fjord.



Registration

The registration fee is DKK 5000 (approx. EUR 670) covering the Symposium proceedings, lunch and refreshments all days, two conference dinners, and social arrangements.

The registration fee for bona fide students is DKK 2500 (approx. EUR 335).

Accommodation

Hotel reservations must be made directly with the hotel. The following hotels in Roskilde (near DTU Risø Campus) and Copenhagen (close to the central railway station) are recommended:

Comwell Roskilde
Vestre Kirkevej 12, DK-4000 Roskilde
Phone: +45 4632 3131; hotel.roskilde@comwell.dk

Zleep Hotel Roskilde
Algade 13, DK-4000 Roskilde
Phone: +45 7023 5635; info@zleephotels.com

Scandic Roskilde
Ved Ringen 2, DK-4000 Roskilde
Phone: +45 4632 4632; roskilde@scandichotels.com

First Hotel Mayfair Copenhagen
Helgolandsgade 3, DK-1653 Copenhagen K
Phone: +45 7012 1700; www.first-hotel-mayfair-copenhagen.hotel-ds.com/

Grand Hotel Copenhagen
Vesterbrogade 9, DK-1620 Copenhagen K
Phone: +45 3327 6900; info@grandhotel.dk

Contact

Lone Groes Hede, Conference coordinator
Department of Mechanical Engineering
Technical University of Denmark
Nils Koppels Allé, Building 404
DK-2800 Kgs. Lyngby, Denmark
Phone +45 4525 6256
E-mail: symp40@mek.dtu.dk
Web: www.conferencemanager.events/40thsymposium

40th Risø International Symposium on Materials Science: **Metal Microstructures in 2D, 3D and 4D**

2th – 6th of September 2019

Department of Mechanical Engineering
Technical University of Denmark

This symposium is supported by
the European Research Council (ERC) under
the European Union's Horizon 2020
research and innovation programme
(M4D - grant agreement No 788567)

40th Risø International Symposium: Metal Microstructures in 2D, 3D and 4D

This year the Risø International Symposium on Materials Science is celebrating its 40th jubilee. During this 40-year period, significant progress has taken place and new discoveries and understanding in the field of material science and engineering have materialized in advanced metals and alloys, with wide applications in society. In parallel, there has been an unprecedented development of 2D, 3D and 4D characterization techniques, operating over multiple length scales down to the atomic dimension. These developments have led to revision of established ideas and to the formulation of new fundamental principles and models, for example in the areas of plastic deformation, recovery and recrystallization of metals and alloys. This in-turn has led to new and demanding challenges to be addressed in the 40th Risø Symposium in 2019, where we welcome presentations which cover:

- Transitional stages in the evolution of deformation microstructure and strengthening mechanisms.
- Effects of local microstructural variations on the evolution of microstructures during annealing.
- 2D, 3D and 4D characterization techniques based on for example x-ray and electron diffraction in the laboratory or at large-scale international facilities.
- Microstructural variations at different length scales, which are of critical importance for the properties and performance of metals and alloys for engineering applications.
- Advanced and new processing techniques of bulk materials and application of powder metallurgy in additive manufacturing, spark plasma sintering and electrodeposition.
- Experimental findings in 3D and 4D used as inputs to analytical and numerical models and for validation of model outputs.

The metals and alloys to be investigated can be single or multi-phase, and they can be in bulk form or present as gradient or multilayer structures.

In contrast to the many scientific and technological changes during the 40 years, the format of the Symposium will follow its traditional scheme, with all presentations being given in the Auditorium at the DTU Risø Campus. There will be no parallel sessions and the participants will have ample time for in-depth discussions both following the presentations and during joint coffee breaks, lunches and dinners.

Keynote speakers

Sean R. Agnew (Virginia University, USA)
"New opportunities to characterize dislocations and their arrangements – The internal state variables of plastic deformation."

H.K.D.H. Bhadeshia, (University of Cambridge, UK)
"Length scales in the characterisation of iron alloys."

Laurent Delannay (Université Catholique de Louvain, Belgium)
"Micromechanical modeling of lab-on-chip experiments on free-standing sub-micron metallic films."

Tadashi Furuhara (Tohoku University, Japan)
"Roles of transformation interface in the design of advanced high strength steel."

Hans Nørgaard Hansen (Technical University of Denmark, DK)
"Additive manufacturing of metal components. Process-material interaction in different process chains."

Lei Lu (Institute of Metal Research, CAS, China)
"Strengthening and work hardening of gradient nanotwinned metals."

Matthew Peter Miller (Cornell University, USA)
"Understanding the evolving state of deforming polycrystals using synchrotron x-rays."

Wolfgang Pantleon (Technical University of Denmark, DK)
"Monitoring microstructural evolution in-situ during cyclic loading."

Henning Friis Poulsen (Technical University of Denmark, DK)
"3D multiscale microscopy."

Helena Van Swygenhoven-Moens (Paul Scherrer Institut, Switzerland)
"Following microstructures during deformation: in-situ x-ray diffraction and HRDIC."

Nobuhiro Tsuji (Kyoto University, Japan)
"Linking local and heterogeneous deformation behaviors to global deformation of materials by in-situ experimental techniques."

Peter W Voorhees (Northwestern University, USA)
"4D simulations and experiments of Interfacial evolution in materials."

Tongmin Wang (Dalian University of Technology, China)
"Multi-dimensional characterization and controlling of microstructure evolution during solidification of metallic alloys."

Philip Withers (University of Manchester, UK)
"Rich multidimensional correlative imaging."

Yubin Zhang (Technical University of Denmark, DK)
"Quantification of local boundary migration in 2D/3D."

Furthermore we have 15-20 invited speakers.
These are listed on the Symposium website:
www.conferencemanager.events/40thsymposium

Abstracts of maximum 1 page should be submitted before February 15th 2019.

Proceedings

All the papers, including keynote, invited and contributed papers will be published in the open access journal "IOP Conference Series: Materials Science and Engineering", as well as being printed as a symposium proceedings to be distributed to the participants at the symposium.
Templates can be found on the symposium website: www.conferencemanager.events/40thsymposium.
For further information on IOP, please go to IOP website: https://publishingsupport.iopscience.iop.org/author-guidelines-for-conference-proceedings/

Important dates

15th of February 2019:	Abstract submission
1st of May 2019:	Paper submission
1st of July 2010:	Registration deadline

International advisory committee

- Leo Kestens (Ghent University, Belgium)
- Qing Liu (Jiangsu Industrial Technology Research Institute, China)
- Ke Lu (Institute of Metals Research Shenyang, China)
- Elena Pereloma (University of Wollongong, Australia)
- Reinhard Pippan (Austrian Academy of Science, Austria)
- David Scrolovitz (University of Pennsylvania, USA)
- Jon Tischler (Argonne National Laboratory, USA)