

Section Metal and Material Physics Fachverband Metall- und Materialphysik (MM)

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Overview of Invited Talks and Sessions

(lecture rooms H16, H4, and H6; Poster C)

Invited Talks

MM 1.1	Mon	9:30–10:00	H16	Size Effects in Metal Plasticity — ●ERICA LILLEODDEN
MM 2.1	Mon	10:15–10:45	H16	Effect of hydrogen and grain boundaries on dislocation nucleation and multiplication examined with a Ni-AFM — ●HORST VEHOFF, AFROOZ BARNOUSH
MM 7.1	Mon	14:00–14:30	H16	Metallic Glasses — ●LINDSAY GREER
MM 13.1	Tue	9:30–10:00	H16	Computational Materials — ●SIDNEY YIP
MM 14.1	Tue	10:15–10:45	H16	Micromechanics inside the SEM — ●BENEDIKT MOSER
MM 19.1	Tue	14:00–14:30	H16	Development of Platinum-Based Superalloys by Optimization of Microstructure — ●UWE GLATZEL
MM 21.1	Wed	14:00–14:30	H16	XRD residual stress analysis: one of the few advanced physical measuring techniques that have established themselves for routine application in industry — ●WOLFGANG NIERLICH, JÜRGEN GEGNER
MM 27.1	Thu	9:30–10:00	H16	Atomic Migration Phenomena in Intermetallics with High Superstructure Stability — ●RAFAL KOZUBSKI, VÉRONIQUE PIERRON-BOHNES, WOLFGANG PFEILER
MM 34.1	Thu	14:00–14:30	H16	Shape-Memory Polymers — ●ANDREAS LENDLEIN
MM 40.1	Fri	10:15–10:45	H16	Material science with positrons: From Doppler-Spectroscopy to Failure Prediction — ●MATZ HAAKS

Sessions

MM 1.1–1.1	Mon	9:30–10:00	H16	HV Lilleodden
MM 2.1–2.5	Mon	10:15–12:15	H16	SYM Micro- and Nanomechanics I
MM 3.1–3.4	Mon	10:15–11:15	H4	Liquid and amorphous materials I
MM 4.1–4.5	Mon	11:45–13:00	H4	Liquid and amorphous materials II
MM 5.1–5.4	Mon	10:15–11:15	H6	Interfaces I
MM 6.1–6.5	Mon	11:45–13:00	H6	Interfaces II
MM 7.1–7.1	Mon	14:00–14:30	H16	HV Greer
MM 8.1–8.6	Mon	14:45–17:00	H16	SYM Micro- and Nanomechanics II
MM 9.1–9.4	Mon	14:45–15:45	H4	Liquid and amorphous materials III
MM 10.1–10.5	Mon	16:15–17:30	H4	Liquid and amorphous materials IV
MM 11.1–11.4	Mon	14:45–15:45	H6	Interfaces III
MM 12.1–12.6	Mon	16:15–17:45	H6	Growth
MM 13.1–13.1	Tue	9:30–10:00	H16	HV Yip
MM 14.1–14.6	Tue	10:15–12:15	H16	SYM Micro- and Nanomechanics II
MM 15.1–15.4	Tue	10:15–11:15	H4	Phase transitions I
MM 16.1–16.4	Tue	11:45–12:45	H4	Phase transitions II
MM 17.1–17.4	Tue	10:15–11:15	H6	Hydrogen in materials
MM 18.1–18.4	Tue	11:45–12:45	H6	Electronic properties I
MM 19.1–19.1	Tue	14:00–14:30	H16	HV Glatzel

MM 20.1–20.55	Tue	14:45–18:00	Poster C	Poster session
MM 21.1–21.1	Wed	14:00–14:30	H16	HV Nierlich
MM 22.1–22.14	Wed	14:45–19:55	H16	SYM Physics meets Industry
MM 23.1–23.6	Wed	14:45–16:15	H4	Nano structured materials I
MM 24.1–24.6	Wed	16:45–18:15	H4	Nano structured materials II
MM 25.1–25.6	Wed	14:45–16:15	H6	Electronic properties II
MM 26.1–26.6	Wed	16:45–18:15	H6	Electronic properties III
MM 27.1–27.1	Thu	9:30–10:00	H16	HV Kozubski
MM 28.1–28.4	Thu	10:15–11:15	H16	Intermetallic phases I
MM 29.1–29.5	Thu	11:45–13:00	H16	Intermetallic phases II
MM 30.1–30.4	Thu	10:15–11:15	H4	Phase transitions III
MM 31.1–31.4	Thu	11:45–12:45	H4	Nano structured materials III
MM 32.1–32.4	Thu	10:15–11:15	H6	Diffusion and point defects I
MM 33.1–33.4	Thu	11:45–12:45	H6	Diffusion and point defects II
MM 34.1–34.1	Thu	14:00–14:30	H16	HV Lendlein
MM 35.1–35.28	Thu	14:45–20:45	H16	SYBM Bioinspired Materials
MM 36.1–36.6	Thu	14:45–16:15	H4	Nano structured materials IV
MM 37.1–37.5	Thu	16:45–18:00	H4	Nano structured materials V
MM 38.1–38.4	Thu	14:45–15:45	H6	Diffusion and point defects III
MM 39.1–39.8	Thu	16:15–18:15	H6	Mechanical properties I
MM 40.1–40.1	Fri	10:15–10:45	H16	HV Haaks
MM 41.1–41.4	Fri	11:00–12:00	H16	Materials design I
MM 42.1–42.4	Fri	12:30–13:30	H16	Materials design II
MM 43.1–43.4	Fri	11:00–12:00	H6	Mechanical properties II
MM 44.1–44.4	Fri	12:30–13:30	H6	Mechanical properties III

Symposium Bio-inspired Materials (SYBM)

offered jointly by the sections of MM (Metal and Material Physics), BP (Biological Physics), CPP (Chemical and Polymer Physics), DS (Thin Layers) and DY (Dynamics and Statistical Physics). Thursday, March 29, one-day-symposium, continuation 14:45 H16 and poster session starting 19:00 (MM35).

Organizers:

Prof. Dr. Eduard Arzt

Max-Planck-Institut für Metallforschung, Heisenbergstr. 3, D-70569 Stuttgart

Prof. Dr. Peter Fratzl

Department für Biomaterialien, MPI für Kolloid - und Grenzflächenforschung, D-14476 Potsdam

PD Dr. Peter Müller-Buschbaum

Physik-Department E13, Technische Universität München, D-85747 Garching

Nature provides a wide source of inspiration for chemists, physicists and engineers to create highly sophisticated functional materials. Many natural materials with complex, often hierarchical structure provide an unequalled level of adaptivity, multifunctionality, and mechanical performance. Biomimetic materials research provides a unique opportunity for physicists in a rapidly expanding field between the worlds of biology, physics and materials science. It starts by elucidating the physical origins of the outstanding functionality of biological materials, and aims at designing improved or even radically new materials based on the knowledge of natural systems. Bioinspired materials will have an impact on various fields, from engineering to functional materials, as well as regenerative medicine.

Symposium Strain Engineering for New Functional Structures (SYSE)

jointly proposed by the sections of DF (Dielectric Solids), HL (Semiconductors), DS (Thin Layers) and MM (Metal and Material Physics).

Symposium Physics meets Industry (MM 22)

Physical Measuring Techniques for Industrial Requirements Besides the description of open measuring problems in the field of materials physics and techniques this forum promoting the exchange

of information between physicists and engineers from industry, universities and research institutes is focusing on new physical measuring techniques and their commercialisation as well as on recent success stories.

Organizers:

Dr. Jürgen Gegner

SKF GmbH, Werkstoffphysik - STW3, Ernst-Sachs-Str. 5, D-97424 Schweinfurt

Prof. Dr. Ferdinand Haider

Institut für Physik, Lehrstuhl Exp. Physik 1, Universität Augsburg, Universitätsstr. 1, D-86135 Augsburg

Symposium Micro- and Nanomechanics (MM 2, MM 8, MM 14)

An insight into the micro- and nanomechanical properties of materials and structures is becoming more and more important in the development of new advanced materials and small devices. New microtesting techniques such as nanoindentation, nanopillar testing and microtensile tests allow us to study these properties on a very small scale. They are especially suitable for investigating features of nanostructured materials and thin films, and for evaluating the size effects which influence mechanical behaviour on the nanoscale. This symposium will present recent progress in the field of nanomechanical testing in several talks by leading experts in this field.

Organizers:

Prof. Dr. Mathias Göken

Institut für Werkstoffwissenschaften I, Universität Erlangen-Nürnberg, Martensstraße 5, 91058 Erlangen

Prof. Dr. Jörg Löffler

Laboratory of Metal Physics and Technology, Department of Materials, ETH Zürich, Wolfgang-Pauli-Str. 10, CH-8092 Zürich

Symposium Magnetic Shape Memory Alloys,

organized together with the sections of MA (Magnetism) and DS (Thin Layers)

The new class of magnetic shape memory (MSM) alloys allows the modification of structure and microstructure of solid materials by external magnetic fields. Since their discovery in 1996, the strain obtained in these smart materials has significantly increased and can reach up to 10%. This makes these materials very interesting for actuator and sensor applications and motivates the examination of the underlying microscopic mechanism and the search for new and better materials. The MSM effect originates from the interaction of magnetism and microstructure. As the application of MSM alloys in microsystems is very promising, a lot of research is conducted on thin films. Thus a joint symposium of MA, MM and DS is appropriate for this interdisciplinary topic. The DFG recently started to support this area within the priority program SPP 1239 'Modification of microstructure and shape of solid materials by external fields', which is coordinated by Dr. S. Fähler (<http://www.magneticShape.de>).

For the program see MA.

Annual General Meeting of the Section Metal and Material Physics

Tuesday 18:00–19:00 H33

- Report of the chairman of the section Metal and Material Physics
- Election of the chairman of the section Metal and Material Physics.
- Invited talks and symposia for the next spring meeting 2008 in Berlin.
- Other topics