

German Mössbauer Workshop 2024

Helmholtz Institut Jena und Friedrich-Schiller-Universität Jena

13.-15. March 2024

Location: ZAF Lecture Hall, Philosophenweg 7, Jena

**SPIN+X**
SFB/TRR 173
Kaiserslautern • Mainz

March 13, 2024

13:00 - 13:30: Registration and Welcome

Novel Instrumental Developments (Chair: V. Schünemann)

13:30 – 13:55: Ilya Sergeev (DESY Hamburg): The Synchrotron ^{57}Fe Mossbauer source at P01, Petra III

13:55 – 14:20: Rudolf Rüffer (ESRF Grenoble): The brand-new Nuclear Resonance beam line at the ESRF Challenges, performance and first results

14:20 – 14:45: Ralf Röhlsberger (HI Jena/FSU Jena): NRS experiments with XFELs

14:45 - 15:20: Coffee break

New Trends in Material Science I (Chair: L. Bocklage)

15:20 - 15:45: Svetoslav Stankov (KIT Karlsruhe): Lattice dynamics of $\text{Cu}_2\text{ZnSn}(\text{Sx}, \text{Se}_{1-x})_4$ thin film solar cells studied by nuclear inelastic scattering

15:45 - 16:10: Johanna Lill (U Duisburg-Essen): Vibrational entropy change at the first order phase transition in magnetocaloric DyCo_2

16:10 - 16:35: Simon Rauls (U Duisburg-Essen): Understanding disorder in the ion induced phase transition of FeV thin films

16:35 - 17:00: Kai Schlage (DESY Hamburg): Customized spin structures in obliquely deposited thin films and nanostructure arrays

17:00 - 19:00: Poster Session (Chair: Sakshath Sadashivaiah)

19:00 – 20:00: Open Discussions and “Thüringer Abend”

March 14, 2024

New Trends in Material Science II (Chair: K. Schlage)

09:00 - 09:25: Vladimir Sepelak (KIT Karlsruhe): Local Structural Disorder-Magnetism Relationships in Nanostructured & Nonequilibrium Complex Oxides

09:25 - 09:50: Peter Adler (MPI für Chemische Physik fester Stoffe, Dresden): Studies on High Pressure Magnetism by Synchrotron Mössbauer Spektroskopie

09:50 - 10:15: Benedikt Eggert (U Duisburg-Essen): Insights into magnetostructural phase transitions in functional magnetic materials

10:15 - 10:50: Coffee break

New Trends in Material Science III (Chair: S. Stankov)

10:50 - 11:15: Sakshath Sadashivaiah (HI Jena) Pump probe NRS Experiments at magnetic phase transitions

11:15 - 11:40: Joachim Landers (U Duisburg-Essen) Nanosecond laser-tuning of spinel ferrite nanoparticles

11:40 - 12:05: Yutaka Yoshida (FSU Jena) Applications of Mössbauer Imaging Techniques to Materials Science

12:05 - 12:30: Maren Hock (RPTU Kaiserslautern-Landau) ^{193}Ir nuclear forward scattering of iridium containing molecules

12:30 - 14:00: Lunch break

Novel Chemical and Biological Applications of the Mössbauer Effect I (Chair: V. Schünemann)

14:00 - 14:25: Birgit Weber (FSU Jena) Mössbauer Spectroscopy of Spin Crossover Complexes and Composites

14:25 - 14:50: Juliusz A. Wolny (RPTU Kaiserslautern-Landau) DFT and Nuclear Inelastic Scattering give insight into cooperativity and dynamics of spin transitions

14:50 - 15:15: Hans-Jörg Krüger, Hartmut Spiering (RPTU Kaiserslautern-Landau): Application of Mössbauer Spectroscopy for Investigating the Kinetic Properties of the Spin-Crossover Process in an Iron(II) Radical Ligand Complex under Equilibrium Conditions

15:15 – 16:00: Coffee break

Novel Chemical and Biological Applications of the Mössbauer Effect II (Chair: F. Renz)

16:00 - 16:25: Soma Salamon (U Duisburg-Essen) Utilizing Mössbauer spectroscopy for catalysis research

16:25 - 16:50: Daniel J. SantaLucia (MPI für Kohleforschung, Mülheim) Reactive High-Spin Iron(IV)-Oxo Sites through Dioxygen Activation in a Metal–Organic Framework

16:50 - 17:15: Lukas Knauer (RPTU Kaiserslautern-Landau) Mössbauer spectroscopy on the iron-sulfur protein mitoNEET

March 15, 2024

X-Ray Quantum Optics I (Chair: R. Röhlberger)

09:00 - 09:25: Jörg Evers (MPI für Kernphysik, Heidelberg) Single-shot Mössbauer spectroscopy at X-ray free electron lasers

09:25 - 09:50: Sven Velten (DESY Hamburg) A Quantum memory based on a nuclear frequency comb

09:50 - 10:15: Olga Kocharovskaya (Texas A&M University, USA) X-ray Quantum Nuclear Optics

10:15 - 11:00: Coffee break

X-Ray Quantum Optics II (Chair: J. Evers)

11:00 - 11:25: Lars Bocklage (DESY Hamburg) Magnonic control of nuclear resonances

11:25 - 11:50: Leon Lohse (U Göttingen) Nuclear resonant quantum electrodynamics with planar X-ray waveguides

11:50 – 12:15: Ralf Röhlsberger (HI Jena/FSU Jena) News from the International Board on the Applications of the Mössbauer Effect (IBAME)

12:15 – 12:45: Concluding Remarks