

Programme ICAME 2015
(preliminary version - 17. August 2015)

Sunday, 13 September 2015, Tutorials

Location: Hotel Scandic Emporio, Dammtorwall 19, 20355 Hamburg

12:30 Yutaka Yoshida, *Shizuoka Institute of Science and Technology (Japan)*

Diffusion and point defects in metals and semiconductors

13:10 Eckard Münck, *Carnegie Mellon University, Pittsburgh (USA)*

**Analyzing ^{57}Fe Mössbauer Spectra Exhibiting Paramagnetic
Hyperfine Structure**

13:50 Coffee break

14:20 Tim Sage, *Northeastern University, Boston (USA)*

Recoiling nuclei probe biomolecular structure and elasticity

15:00 Michael Reissner, *Technical University of Vienna (Austria)*

High field Mössbauer spectroscopy in magnetism

15:40 Coffee break

16:10 Svetoslav Stankov, *Karlsruhe Institute of Technology (Germany)*

Phonons in Rare Earth Nanoscale Materials

Sunday Evening Social Event

19:00 - 21:00 **Welcome Reception**

Location: Restaurant of the Hotel Scandic Emporio

Monday, 14 September 2015, Morning Sessions

Location: University of Hamburg, Main Building, Lecture Hall A

9:00 **Welcome Adresses**

9:30 Catherine McCammon, *Bayerisches Geoinstitut, Bayreuth (Germany)*
Descent to the Underworld or a Synchrotron Opera in Many Acts
(Keynote Lecture)

10:10 Christian Schröder, *University of Stirling (UK)*
The (bio)geochemical iron cycle and astrobiology

10:40 Coffee break

11:10 Carsten Krebs, *Penn State University (USA)*
**Exploring the Mechanistic Diversity of Non-Heme-Iron Enzymes
by Freeze-Quench Mössbauer Spectroscopy**

11:40 Ulrike Kramm, *Technical University of Darmstadt (Germany)*
**Structural characterization of non-precious PEM-fuel cell catalysts
by Mössbauer spectroscopy**

12:10 Stephen P. Cramer, *University of California, Davies (USA)*
Biophysics via Nuclear Resonance Vibrational Spectroscopy

12:40 Waldemar Macedo, *CDTN, Belo Horizonte (Brazil)*
**Layered magnetic nanostructures studied via
⁵⁷Fe Mössbauer spectroscopy**

13:10 - 14:30 Lunch break

Monday, 14 September 2015, Afternoon Sessions

The scientific programme on Monday afternoon is divided into two parallel sessions in Lecture Halls ESA A and ESA B, respectively.

Monday Afternoon, Session A

Location: Lecture Hall ESA A

14:30 Liudmila Dzemiantsova, *DESY (Germany)*
**Nuclear GISAXS Superstructure Peaks for Characterization of
Antiferromagnetically Ordered Nanostripes**

14:50 Marina Andreeva, *M.V. Lomonosov Moscow State University (Russia)*
**Synchrotron Mössbauer Source for reflectivity investigations of
cluster-layered [Fe/Cr]_n structures**

15:10 Lars Bocklage, *Deutsches Elektronen-Synchrotron (Germany)*
**Spin precession mapping at ferromagnetic resonance via
nuclear resonant scattering**

15:30 Taizo Kawauchi, *The University of Tokyo (Japan)*
Photo-excitation of Fe on TiO₂(100) by visible light irradiation

15:50 - 16:20 Coffee break

- 16:20 Alix Ladam, *University of Montpellier (France)*
Electrochemical properties of Ti-Ni-Sn materials predicted by ^{119}Sn Mössbauer spectroscopy
- 16:40 Valentin Gavriljuk, *G. V. Kurdyumov Institute for Metal Physics (Ukraine)*
Physics of coal methane: Decisive role of iron compounds
- 17:00 Chenghua Zhang, *Institute of Coal Chemistry, Taiyuan (China)*
Phase Structures of Iron Nanoparticles in Fischer-Tropsch Synthesis Studied by Mössbauer Spectroscopy
- 17:20 Vijayendra Garg, *University of Brasilia (Brazil)*
Ferrimagnetic to Superparamagnetic Transition in Fe_3O_4 Nanoparticles Synthesized on Zeolite Template

Monday Afternoon, Session B

Location: Lecture Hall ESA B

- 14:30 Valeriu Mereacre, *Karlsruhe Institute of Technology (Germany)*
Probing the magnetic anisotropy and spin structure of Fe-4f compounds by ^{57}Fe Mössbauer spectroscopy
- 14:50 Tilo Söhnle, *University of Auckland (New Zealand)*
Mössbauer spectroscopy on Fe, Ru and Ir-Sn cluster compounds
- 15:10 Hans-Jörg Krüger, *University of Kaiserslautern (Germany)*
Effect of coordinated radical ligands on the rate of spin crossover processes in iron(II) complexes
- 15:30 Shengfa Ye, *Max-Planck Inst. for Chemical Energy Conversion (Germany)*
Explanation of the Counterintuitive Correlation between Isomer Shifts and Oxidation States for Dinitrogen Complexes
- 15:50 - 16:20 Coffee break
- 16:20 Alfred X. Trautwein, *University of Lübeck (Germany)*
Crystal structure, Mössbauer-, rRaman-, DFT-studies of the peroxo-diiron intermediate of deoxyhypusine hydroxylase
- 16:40 Lars Böttger, *Stanford University (USA)*
Structure/Function correlations over Binuclear Non-Heme Iron Centers in Enzymes
- 17:00 Mubuabua Yambissa, *Sheffield Hallam University (UK)*
 ^{57}Fe Mössbauer spectroscopy used to develop an understanding of a diamond preservation index model
- 17:20 Elizabeth Sklute, *Mount Holyoke College, South Hadley (USA)*
Bioreduction of Iron Oxide Minerals

Monday Evening Event

19:00 - 21:00 Reception in the Hamburg City Hall

Tuesday, 15 September, Morning Sessions

Location: Lecture Hall ESA A

- 9:00 Quentin A. Pankhurst, *University College London (UK)*
Mössbauer spectroscopy of magnetic nanoparticles for biomedical applications
- 9:30 Paul Lindahl, *Texas A&M University (USA)*
Iron Metabolism in Cells and Organelles
- 10:00 Virender K. Sharma, *Texas A&M University (USA)*
Ferrate(VI)-promoted removal of metals by ferrate(VI): Mechanism studies using Mössbauer spectroscopy
- 10:30 - 11:00 Coffee break
- 11:00 Ekkes Brück, *Delft University (The Netherlands)*
Mössbauer studies of materials for applications in magnetic cooling
- 11:30 Raphael P. Hermann, *Forschungszentrum Jülich GmbH (Germany)*
Mössbauer and nuclear resonant spectroscopy in phase change materials
- 12:00 Vera Lazenka, *KU Leuven, Instituut voor Kern- en Stralingsfysica (Belgium)*
Strain induced spin reorientation in a multiferroic BiFeO₃-BaTiO₃ multilayer
- 12:20 Edson Passamani, *Universidade Federal do Espirito Santo, Vitoria (Brazil)*
Do Fe and Mn in the Fe₂MnGa compound order magnetically at the same temperature ?
- 12:40 Eric Colineau, *Institute for Transuranium Elements, Karlsruhe (Germany)*
Magnetic sublattices in Np₂Co₁₇ and Np₂Ni₁₇
- 13:00 - 14:20 Lunch break

Tuesday, 15 September, Afternoon Sessions

14:20 - 16:20 Poster Session 1

Location: University Main Building, East - Wing

All posters are on display during the whole conference !

In this session:

Presenters of posters with even numbers should be available at their posters !

T01 - Magnetism and Solid State Physics :	Posters T01-1 - T01-62
T02 - Thin Films and Nanostructures:	Posters T02-1 - T02-34
T03 - Materials Science and Industrial Applications:	Posters T03-1 - T03-42
T04 - Biological and Medical Applications:	Posters T04-1 - T04-16
T05 - Chemistry:	Posters T05-1 - T05-29
T06 - Earth Science and Mineralogy:	Posters T06-1 - T06-13
T07 - Cultural Heritage and Environmental Science:	Posters T07-1 - T07-09
T08 - Coherent Phenomena:	Posters T08-1 - T08-06
T09 - Lattice Dynamics and Vibrational Properties:	Posters T09-1 - T09-08
T10 - Experimental Techniques and Methodology:	Posters T10-1 - T10-25

IBAME Award Lectures

Chair: Michael Reissner

Location: Lecture Hall ESA A

16:20 Charles Johnson, *University of Tennessee Space Institute (USA)*

Mössbauer studies of Fe₃O₄ crystals and nanocrystals

16:50 Rudolf Rüffer, *ESRF-The European Synchrotron (France)*

Nuclear Resonance Scattering - Expectations, Visions and their Challenges

17:20 Ryo Masuda, *Kyoto University (Japan)*

Synchrotron-Radiation-Based Mössbauer absorption Spectroscopy with Internal Conversion Electrons

Tuesday Evening Social Event

20:00 - 21:30 **Piano Recital by Itsuko Yoshida**

Location: Laiesz - Halle, Kleiner Saal

Wednesday, 16 September 2015, Morning Sessions

Location: Lecture Hall ESA B

9:00 Thomas Pfeifer, *Max-Planck Institut für Kernphysik, Heidelberg (Germany)*
Coherent control of atomic and nuclear resonances

9:30 Laszlo Deak, *Wigner Research Centre for Physics, Budapest (Hungary)*
Various types of reciprocity violation in Mössbauer scattering

10:00 Heiko Wende, *University of Duisburg-Essen (Germany)*
Mössbauer Study of Temperature-Dependent Cycloidal Ordering in BiFeO₃ Nanoparticles

10:30 - 11:00 Coffee break

11:00 Yann Garcia, *Universite Catholique de Louvain (Belgium)*
Iron(II) spin crossover nanomaterials and thermochromic coordination polymers

11:30 Alexsey Sobolev, *Lomonosov Moscow State University, Moscow (Russia)*
Mössbauer Spectroscopy of Spin-frustrated Magnetic Systems: Unusual Magnetism, Magnetoelectric Interactions, Charge and Orbital Ordering

12:00 Valerie Augustyns, *KU Leuven, IKS (Belgium)*
 γ -Fe nanoparticles embedded in SrTiO₃: Towards novel artificial multiferroics

12:20 Marcus Herlitschke, *Deutsches Elektronen-Synchrotron DESY*
Spin Orientation in γ -⁵⁷Fe₂O₃ Nanoparticles studied with Polarized Nuclear Resonant Scattering

12:40 Ilya Mishchenko, *Institute of Physics and Technology, Moscow (Russia)*
Quantum-mechanical and continual models of magnetic dynamics for antiferromagnetic particles in Mössbauer spectra analysis

13:00 - 14:20 Conference Photo, Lunch break

Wednesday, 16 September, Afternoon Sessions

14:20 - 16:20 Poster Session 2

Location: University Main Building, East - Wing

All posters are on display during the whole conference !

In this session:

Presenters of posters with **odd numbers** should be available at their posters !

T01 - Magnetism and Solid State Physics :	Posters T01-1 - T01-62
T02 - Thin Films and Nanostructures:	Posters T02-1 - T02-34
T03 - Materials Science and Industrial Applications:	Posters T03-1 - T03-42
T04 - Biological and Medical Applications:	Posters T04-1 - T04-16
T05 - Chemistry:	Posters T05-1 - T05-29
T06 - Earth Science and Mineralogy:	Posters T06-1 - T06-13
T07 - Cultural Heritage and Environmental Science:	Posters T07-1 - T07-09
T08 - Coherent Phenomena:	Posters T08-1 - T08-06
T09 - Lattice Dynamics and Vibrational Properties:	Posters T09-1 - T09-08
T10 - Experimental Techniques and Methodology:	Posters T10-1 - T10-25

16:20 - 17:50 Wednesday Afternoon Session

Location: Lecture Hall ESA B

- 16:20 Tsukasa Matsuo, *Kinki University, Osaka (Japan)*
Synthesis and Properties of Linear Two-Coordinate Organoiron(II) Complexes
- 16:50 Tao Zhang, *Mössbauer Effect Data Center, Dalian (China)*
Towards a Mössbauer Effect Knowledge Center
- 17:20 John Stevens, *University of North Carolina at Asheville (USA)*
Mössbauer Drivers: Past, Present, and Future
- 17:40 Discussion

Wednesday Evening Social Event

19:00 - 23:00 Conference Dinner

Location: Nord Event Panoramadeck, Dammtorwall 15

Thursday, 17 September 2015

Location: DESY main auditorium

9:00 **Welcome to DESY**

9:30 Hisao Kobayashi, *University of Hyogo (Japan)*

Nuclear inelastic scattering on iron-based high-T_c superconductors

10:00 Margriet Van Bael, *KU Leuven (Belgium)*

Nuclear inelastic scattering studies of the phonon properties of nanoscale superconductors

10:20 Wenli Bi, *Argonne National Laboratory (USA)*

Magnetism of Europium under Extreme Pressures

10:40 Walter Potzel, *Technical University of Munich (Germany)*

Clock hypothesis of relativity theory, maximal acceleration, and Mössbauer spectroscopy

11:00 - 11:30 Coffee break

11:30 Libor Machala, *Palacky University in Olomouc (Czech Republic)*

Ferrate compounds solid-state synthesis, characterization, stability, applications

12:00 Alexander I. Chumakov, *ESRF - The European Synchrotron (France)*

Multiple coherent excitations of a nuclear ensemble by an X-ray laser

12:20 Kilian Heeg, *Max-Planck-Institut für Kernphysik, Heidelberg (Germany)*

Group velocity control for x-ray photons

12:40 Ercan Alp, *Argonne National Laboratory (USA)*

High Precision Synchrotron ⁵⁷Fe Mössbauer Spectroscopy in Hybrid Mode of the APS

13:00 - 14:30 Lunch break (DESY Canteen)

14:30 Hans-Christian Wille, *DESY, Hamburg, Germany*

Introduction to DESY

15:00 - 17:00 **Guided Tours to Photon Science Facilities at DESY**

afterwards bus transfer to Hamburg Harbour for excursion

Thursday Evening Social Event

19:00 - 23:00 Excursion: Boat Trip on the Elbe River

Friday, 18 September 2015

Location: Lecture Hall ESA B

- 9:00 Jennifer Jackson, *California Institute of Technology (USA)*
**Melting and thermoelasticity of deep Earth materials:
Implications for deep mantle dynamics**
- 9:30 Michael Hu, *Argonne National Laboratory (USA)*
Pressure induced amorphization in SnI₄
- 9:50 Ilya Kupenko, *ESRF-The European Synchrotron (France)*
**Time differentiated nuclear resonance spectroscopy with
pulsed laser heating in diamond anvil cells**
- 10:10 Yuji Ino, *Shizuoka Institute of Science and Technology (Japan)*
**3D-Mössbauer Spectroscopic Microscope for mc-Si solar cell
evaluation**
- 10:30 - 11:00 Coffee break
- 11:00 Olga Kocharovskaya, *Texas A&M University, College Station (USA)*
**Coherent Control of gamma-Photon Waveforms: Applications in
Quantum Information Science**
- 11:30 Hans-Henning Klauss, *Technical University of Dresden (Germany)*
Electronic and structural properties of Ca_{1-x}Na_xFe₂As₂
- 11:50 Varimalla Raghavendra Reddy, *Indore (India)*
⁵⁷Fe nuclear inelastic scattering study of BaFe_{1.5}Ru_{0.5}As₂
- 12:10 Fritz Wagner, *Technical University of Munich (Germany)*
**Mössbauer and XRD Study of Roman Amphorae Buried
in the Sea for Two Millennia**
- 12:30 - 13:00 **Closing Ceremony**
NN : **Presentation of Poster Awards**
Chair of the IBAME: **Concluding remarks**
Valentin Semenov, *St. Petersburg State University, St. Petersburg (Russia):*
Announcement of ICAME 2017