



**37th INTERNATIONAL EPR SYMPOSIUM
JULY 13-17, 2014
COPPER MOUNTAIN, COLORADO, USA**

EPR SYMPOSIUM COMMITTEE

Mark Sherwin (Chair)
Kurt Warncke (Co-Chair 2014, Chair 2015)
Christoph Boehme
Boris Epel
Howard J. Halpern
Songi Han
Steve Lyon
Fraser MacMillan
Dane McCamey
John McCracken

AGENDA

SUNDAY, JULY 13, 2014

Pre-Conference Activities	
9:30 AM-12:30 PM	Focus Group for Thursday Discussion of Grand Challenges in EPR <i>Led by Gary Gerfen</i>
1:00-3:30 PM	Viewing of World Cup Final <i>Incline Bar & Grill (food discount and limited reserved seating if wearing your RCMCMR badge)</i>
4:00-6:00 PM	“EasySpin” EPR Simulation Tutorial <i>Presented by Stefan Stoll</i>
6:30 PM	Bruker EPR Users’ Meeting <i>Meeting followed by Mixer</i>

MONDAY, JULY 14, 2014

Session I: Spin Devices and NV Centers. Steve Lyon, Chair	
8:10 AM	Welcoming Remarks. Mark Sherwin, EPR Symposium Chair
8:15 AM	Conditional Control of Donor Nuclear Spins in Silicon Using Stark Shifts. John Morton, University College London
8:45 AM	Anisotropic Stark Effect of Phosphorus Donors in Si Measured With Coplanar Waveguide Resonators. Anthony Sigillito, Princeton University
9:00 AM	Electrical Preparation, Control, and Readout of Single Spins in Semiconductor Nanowires. Jason Petta, Princeton University
9:30 AM	Magnetic Resonance Detection on the Nanoscale With Single Nitrogen-vacancy Center Spins in Diamond. Ania Bleszynski-Jayich, University of California Santa Barbara
9:50 AM	High-frequency EPR and DEER Spectroscopy to Study Impurities in Nanodiamonds. Franklin Cho, University of Southern California
10:05 AM	<i>Break</i>
Session II: Organic Semiconductors and High-frequency EPR. Dane McCamey, Chair	
10:35 AM	Investigation of Hyperfine Couplings in Organic Semiconductors With Electrically Detected ESEEM and ENDOR Experiments. H. Malissa, University of Utah
10:50 AM	High-Field ESR and Solid-State NMR Investigation for Novel Type of Organic Conductor, Self-doped TTF₂COONH₄ and its Analogs. T. Nakamura, Institute for Molecular Science, Okazaki
11:10 AM	Simultaneous Electrical and Optical Detection of Magnetic Resonance in an MEH-PPV Light Emitting Diode. Marzieh Kavand, University of Utah
11:25 AM	Multi-Extreme THz ESR: Present and Future. H. Ohta, Kobe University
11:45 AM	Improving the Sensitivity of THz Frequency Domain Magnetic Resonance. Petr Neugebauer, University of Stuttgart
12:00 PM	<i>Lunch (included with registration)</i>
Session III: Biological Macromolecules. John McCracken, Chair	
1:30 PM	The Structure of Nature's Water Splitting Catalyst Prior to O-O Bond Formation. Nicholas Cox, MPI for Chemical Energy Conversion, Mülheim
2:00 PM	Quantum Chemical Computation of the EPR Parameters of Multinuclear Metal Sites in Proteins. Martin Kaupp, Technical University of Berlin
2:20 PM	High Resolution 3D Model of CYP450 Active Site with EPR: A Gateway to Drug Design Optimization. Alex Cruce, University of Alabama
2:35 PM	Dynamics and Thermal Phase Behavior Within a Self-assembled Nanofiber. Julia Ortony, Northwestern University
2:50 PM	Exploring the Human Copper Transporter, CTR1, Import Mechanism by EPR Spectroscopy. Sharon Ruthstein, Bar Ilan University
3:10 PM	<i>Break</i>
3:40 PM	Identification and Characterization of the Contribution of Collective Solvent and Coupled Protein Configurational Dynamics to the Core Chemical Reaction Step in a B₁₂ Enzyme. Kurt Warncke, Emory University
4:10 PM	PsaBCA and Manganese Acquisition: Elucidating the Molecular Basis of Metal ion Selectivity and Binding by Gram Positive Bacteria. Fraser MacMillan, University of East Anglia
4:30 PM	Electrostatic Phenomena at the Lipid-Peptide Interface Assessed by Ionizable EPR Probes. Matthew Donohue, North Carolina State University
4:45 PM	An ESEEM Analysis of Metal Histidine Coordination In Amyloid-β. K. Ishara Silva, University of Pittsburgh
5:00 PM	Probing Sequence-dependent DNA Duplex Shape Using Site-directed Spin Labeling. Peter Qin, University of Southern California
5:30-7:00 PM	<i>Conference Reception</i>
Session IV, Posters	
7:30-9:00 PM	Posters With Presenter Last Names Starting With M-Z

TUESDAY, JULY 15, 2014

Session V: Functional Dynamics of Macromolecular Complexes. Fraser MacMillan, Chair	
8:15 AM	Tracing Light Induced Conformational Changes in Transmembrane Signaling and Transport Using SDSL EPR. Heinz-Jürgen Steinhoff, University of Osnabrück
8:45 AM	Structure, Dynamics, and Electrostatic Effects on Membrane Binding of NOD Peptides. Tatyana Smirnova, North Carolina State University
9:05 AM	Anisotropic Backbone Dynamics Investigation on Intrinsically Disordered Protein IA3 by SDSL-EPR and Theoretical Simulation. Zhangong Liu, University of Florida
9:20 AM	Elucidating the Mechanisms of Drug Resistance in HIV-1 Protease: Conformational Sampling and Dynamics. Gail Fanucci, University of Florida
9:50 AM	Shape Matters: How Bending of Lipid Bilayers Affects Structure, Dynamics, Phase Properties and Surface Electrostatics. Alex Smirnov, North Carolina State University
10:10 AM	<i>Break</i>
Session VI: High-Field, High Frequency Methods. Christoph Boehme, Chair	
10:40 AM	Developments in the ACERT 95GHz High Power Quasioptical Pulse ESR Spectrometer. Boris Dzikovski, Cornell University
11:00 AM	Measurement of Gd-Gd Distances by cw-EPR at 240GHz. Jessica Clayton, University of California Santa Barbara
11:15 AM	Pulsed Electron-Electron Double Resonance Spectroscopy on a High-Spin Mn²⁺ Ion Covalently Attached to a Nitroxide Radical. Dmitry Akhmetzyanov, Goethe University
11:30 AM	High-Field, High-Frequency EPR Investigations of the Metal-Metal Interactions in Small Transition Metal Cluster Complexes. Andrew Ozarowski, National High Magnetic Field Laboratory
12:00 PM	<i>Lunch (included with registration)</i>
Session VII: Double Resonance Methodology in Biological EPR. Fraser MacMillan, Chair	
1:30 PM	Double Resonance Techniques in EPR at High Fields: From Sensitivity Enhancements to Applications in Biological Science. M. Bennati, Göttingen
2:00 PM	Crystal Structure of Doubly Spin-labeled Protein Resolves Multiple Solvent-exposed β-sheet Rotamers Allowing for Comparison With DEER Spectroscopy. Timothy Cunningham, University of Pittsburgh
2:15 PM	Double Electron-electron Resonance Reveals cAMP and TRIP8b Induced Conformational Changes in HCN ion Channels. Hannah DeBerg, University of Washington
2:30 PM	Do Spin Labels Tell the Truth? Peter Fajer, Florida State University
2:50 PM	<i>Break</i>
Session VIII: <i>in Vivo</i> EPR. Boris Epel, Chair	
3:20 PM	Monitoring Tissue Oxygen Levels to Improve Treatment Outcome in Stroke and Cancer. Nadeem Khan, Dartmouth College
3:40 PM	Biological Application of EPR Oxygen Imaging in Tumors. Howard Halpern, University of Chicago
4:10 PM	New Spectral-spatial Imaging Algorithm for Full EPR Spectra of Multiline Nitroxides and pH-sensitive Trityl Radicals. Mark Tseitlin, University of Denver
4:40 PM	In vivo EPR / NMR Coimaging of Radical Probes: Advances and Challenges. Jay Zweier, Ohio State University
Piette Award, Introduction by Sandra Eaton	
5:15 PM	EPR Oxymetry: Of Mice and Men. Lawrence H. Piette Memorial Lecture, Periannan Kuppusamy, Dartmouth College
Session IX: Posters	
7:30-9:00 PM	Posters With Presenter Last Names Starting With A-L

WEDNESDAY, JULY 16, 2014

Session X: Mechanisms and Methods of DNP. Song-I Han and Ulrich Scheler, Chairs	
8:15 AM	Dynamic Nuclear Polarization: Electrons and Nuclei and What's in Between. Shimon Vega, Weizmann Institute of Science
8:45 AM	Overhauser Dynamic Nuclear Polarization in Insulating Solids. Robert Griffin, MIT
9:15 AM	What Can DNP Learn From High Field EPR? Graham Smith, University of St. Andrews
9:40 AM	Challenges in Adapting Pulsed Field Gradients and DNP to Fast MAS Solid-State NMR. Kurt Zilm, Yale University
10:05 AM	<i>Break</i>
Session XI: EPR Methods, Including DNP. Christoph Boehme, Chair	
10:40 AM	Spin Dynamics and DNP of Concentrated Trityl Solutions. Michael Bowman, University of Alabama
11:00 AM	Spin-lattice Relaxation of Trityl Radicals at Low Temperatures. Hanjiao Chen, University of Alabama
11:15 AM	Complementary Overhauser DNP and ESEEM Approach to Measure Surface Water Dynamics and Accessibility. Timothy Keller, University of California Santa Barbara
11:45 AM	DAC-board Based X-band EPR With Arbitrary Waveform Control. Song-I Han, University of California Santa Barbara
12:00 PM	<i>Lunch (included with registration)</i>
Session XII: Materials - Quantum Information to Nanomagnetism. Dane McCamey, Chair	
1:30 PM	Semiconductor Isotope Engineering for EPR Quantum Information Processing. Kohei M. Itoh, Keio University
2:00 PM	Suppressing Effects of Magnetic Field Noise in Long Echo Decay Measurements. Abraham Asfaw, Princeton University
2:15 PM	Recent Developments in the Application of High-Field Electron Paramagnetic Resonance to the Study of Molecular Nanomagnetism. Stephen Hill, National High Magnetic Field Laboratory
2:45 PM	High Frequency (~210 GHz) Determination of the Cubic Spin Zeeman Term For U³⁺ in PbEuTe and PbEuSe Single Crystals at 5K by EPR. Sushil Misra, Concordia University
3:05 PM	<i>Break</i>
Session XIII: Organic Spin Devices. Steve Lyon, Chair	
3:35 PM	Promises and Challenges of Spintronics Devices Based on Organic Semiconductor Materials. Christoph Boehme, University of Utah
4:05 PM	Photoinduced Charge Separation Processes in Organic Photovoltaic Materials as Revealed by Advanced EPR Techniques. Oleg Poluetkov, Argonne National Laboratory
4:25 PM	Artifact Free Inverse Spin Hall Effect Measurements in Organic Semiconductor Devices by Pulsed Ferromagnetic-Resonant Spin-Pumping. Kipp van Schooten, University of Utah
4:40 PM	Fine Structure of Electrically Detected Spin Rabi Beating in the Conjugated Polymer PEDOT:PSS. Douglas Baird, University of Utah
General Business Meeting	
5:15 PM	EPR Symposium Business Meeting
EPR Banquet	
7:00-9:00 PM	<i>Enjoy an evening of comradeship and fine food in the scenic South Hall of Copper Station. (Pre-registration required - \$60 fee for dinner; Cash bar)</i>

THURSDAY, JULY 17, 2014

Session XIV, Grand Challenges in EPR.* Gary Gerfen, Chair	
9:00 AM	Introductory Remarks. Gary Gerfen, Einstein College of Medicine
9:15 AM	Breakout sessions
10:15 AM	<i>Break</i>
10:45 AM	Discussion
11:45 AM	Closing Remarks. Mark Sherwin, EPR Symposium Chair

* Format of this session determined by results of Focus Group held July 13.