



**42nd INTERNATIONAL EPR SYMPOSIUM
JULY 22-25, 2019
DENVER, COLORADO, USA**

EPR SYMPOSIUM COMMITTEE

Susumu Takahashi (Chair)
Fraser MacMillan (Co-Chair 2019, Chair 2020)
Ania Bleszynski-Jayich
Christoph Boehme
Enrica Bordignon
Boris Epel
Gail Fanucci
Songi Han
Stephen Hill
Dane McCamey
Chandrasekhar Ramanathan

AGENDA

MONDAY, JULY 22, 2019

8:10 AM	Welcoming Remarks. Susumu Takahashi, EPR Symposium Chair
Materials I. Christoph Boehme, Chair	
8:15 AM	Electrical Control of Quantum Spins. Arzhang Ardavan, Oxford University
8:45 AM	Photodriven Quantum Teleportation of an Electron Spin State in a Covalent Donor-Acceptor-Radical System. Michael R. Wasielewski, Northwestern University
9:00 AM	Probing Spin Decoherence Mechanisms in Cr₇Mn Molecular Nanomagnets Using an Atomic Clock Transition. Gajadhar Joshi, Amherst College
9:15 AM	Divalent Lanthanide Complexes as Molecular Spin Qubits. Lydia Nodaraki, University of Manchester
9:30 AM	An Integrated Magnetic Resonance Investigation of Metal-Metal Bonded Systems: Potential New Routes to Single-Molecule Magnets. Stephen Hill, Florida State University and National High Magnetic Field Laboratory
9:45 AM	<i>Break</i>
Materials II. Stephen Hill, Chair	
10:25 AM	Chemical Design of Qubits. Danna E. Freedman, Northwestern University
10:55 AM	Photogenerated Spin-Correlated Radical Pairs as Spin Qubit Pairs for Quantum Information Science. Matthew D. Krzyaniak, Northwestern University
11:10 AM	Magnetic Interactions and Coherence Transfer in Magnetic Graphene Nanoribbons. Michael Slota, Oxford University
11:25 AM	Surprising Manifestations of the Isotropic Exchange Interactions in High-Field EPR. Andrew Ozarowski, National High Magnetic Field Laboratory
11:40 AM	Bioinspired Systems for Solar Fuel Production: Advanced EPR/DFT Biohybrid Characterization. Oleg G. Poluektov, Argonne National Laboratory
12:00 PM	<i>Lunch</i>
Biomacromolecules I. Fraser MacMillan, Chair	
1:30 PM	The Structure of the Central 'Janus' Intermediate of Nitrogenase: A Novel Integration of Experiment and Computation. Brian M. Hoffman, Northwestern University
2:00 PM	Allosteric Gating in Cyclic Nucleotide-gated Ion Channels: New Insights from DEER Spectroscopy. Eric G. B. Evans, University of Washington
2:15 PM	From Conditions to Conformations via Components. Unraveling Functional Dynamics from DEER Data. Eric J. Hustedt, Vanderbilt University
2:30 PM	Unveiling the Mechanics of a Tc Toxin in Action: An Integrative EPR and EM Approach. Svetlana Kucher, Ruhr University Bochum
2:45 PM	Site-directed Spin Labeling of Proteins using NcAA-mediated Conjugation Techniques and a Photocaged Nitroxide. Anandi Kugele, University of Konstanz
3:00 PM	<i>Break</i>
Biomacromolecules II. Songi Han, Chair	
3:40 PM	Advanced EPR Study of Intermediates of Water Oxidation Catalysis. Sun Hee Kim, Korea Basic Science Institute
4:10 PM	Determining Structural Features and Elucidation of Mechanisms in Membrane-associated Transport Proteins. Fraser MacMillan, University of East Anglia
4:25 PM	Vanadyl Porphyrin Speciation Through High-Resolution ¹H Mims ENDOR Spectroscopy. Donald Mannikko, University of Washington
4:40 PM	Structural Dynamics of Biomolecules through Atomistic Simulations Guided by DEER Measurements. Fabrizio Marinelli, National Institutes of Health
IES Fellow Award Presentation	
5:00 PM	Thomas Prisner (IES President) to Lawrence Berliner (University of Denver)
5:30-7:00 PM	<i>Conference Reception (included with registration)</i>
Posters	
7:00-9:00 PM	Authors Present for Posters Labeled A

TUESDAY, JULY 23, 2019

Methods I. Chandrasekhar Ramanathan, Chair	
8:15 AM	In-cell Distance Measurements. Daniella Goldfarb, Weizmann Institute of Science
8:45 AM	Perks and Pitfalls of Nitroxide-Metal Ion RIDME for Distance Measurements. Irina Ritsch, ETH Zürich
9:00 AM	High-field ENDOR Spectroscopy at 263 GHz. Igor Tkach, Max Planck Institute for Biophysical Chemistry
9:30 AM	High-Q Resonators for mm-Wave EPR Just Got Bigger. Alex I. Smirnov, North Carolina State University
9:45 AM	<i>Break</i>
Methods II. Chandrasekhar Ramanathan, Chair	
10:25 AM	Binding of Tetracycline to its Aptamer Probed by Pulsed Dipolar and Hyperfine EPR Spectroscopy. Thomas Prisner, Goethe University Frankfurt
10:55 AM	Multi-frequency Rapid-scan HF-EPR Spectroscopy. Petr Neugebauer, Brno University of Technology
11:10 AM	Development of Photo-Activated Switches for Advanced Pulse Sequences for EPR powered by a Free-Electron Laser. Marzieh Kavand, University of California Santa Barbara
11:25 AM	Application of Pulse Shaping in Double Electron-electron Resonance Spectroscopy at 115/230 GHz. Zaili Peng, University of Southern California
11:40 AM	Double Resonance Calibration of g Factor Standards: Carbon Fibers as a High Precision Standard. Konstantin Herb, ETH Zürich
12:00 PM	<i>Lunch</i>
Exotic Topics. Susumu Takahashi, Chair	
1:30 PM	Quantum Sensing at High Pressures using Spin Defects in Diamond. Satcher Hsieh, University of California Berkeley
2:00 PM	Multi-Extreme THz ESR: Developments on High-Pressure ESR and Mechanically Detected ESR. Hitoshi Ohta, Kobe University
2:15 PM	Suppressing Spectral Diffusion in Phosphorus-doped Silicon via Optical Excitation in High Magnetic Fields. Chandrasekhar Ramanathan, Dartmouth College
2:30 PM	Multi Frequency ESR Measurements of Organic Low-dimensional Antiferromagnets. Toshikazu Nakamura, Institute for Molecular Science
2:45 PM	A New Design Paradigm for Improved Q-factors in Microresonators with Nanoliter Active-Volumes. Nandita Abhyankar, University of Maryland and National Institute of Standards and Technology
3:00 PM	<i>Break</i>
Spin Devices. Ania Bleszynski-Jayich, Chair	
3:40 PM	Electron Spin Characteristics Unveiled by Resistively-detected NMR. Yoshiro Hirayama, Tohoku University
4:10 PM	Realizing Two-dimensional NMR Using Diamond Quantum Sensors in a Microfluidic Platform. Joshua T. Damron, University of New Mexico
4:25 PM	Three-dimensional Distance Measurements of Nuclear sSpins in Diamond. Jonathan Zopes, ETH Zürich
4:55 PM	Adiabatic Pulse Control of NV Center Spin States at 115 GHz. Benjamin Fortman, University of Southern California
Posters	
7:00-9:00 PM	Authors Present for Posters Labeled B

Spin Centers I. Enrica Bordignon, Chair	
8:15 AM	Decay, Decoherence, Diffusion - Understanding the Dynamics of Large Spin Ensembles. Stefan Stoll, University of Washington
8:45 AM	Spin-probe EPR of Nanoheterogeneous Media: MOFs and ILs. Matvey V. Fedin, Novosibirsk State University
9:00 AM	Cu²⁺-ion as a ESR Probe of Protein/DNA Structure and Flexibility. Sunil K. Saxena, University of Pittsburgh
9:30 AM	Electrostatics of Silica Nanoparticle - Water Interface by EPR of pH-Sensitive Spin Probes. Vladislav Perelygin, North Carolina State University
9:45 AM	<i>Break</i>
Spin Centers II. Gail Fanucci, Chair	
10:25 AM	High Field EPR Studies of Ferromagnets and Anti-ferromagnets for Spintronics. Johan van Tol, Florida State University and National High Magnetic Field Laboratory
10:55 AM	New Spin Labels and Spin Labeling Methods. Janet E. Lovett, University of St Andrews
11:10 AM	Determining the Relative Orientation of Rigidly-Bound Cu²⁺ Spin Labels in Biomolecules by Electron Paramagnetic Resonance. Austin Gamble Jarvi, University of Pittsburgh
11:25 AM	Precisely Determining Changes in Shape and Flexibility of DNA using Copper-Based EPR Techniques. Shreya Ghosh, University of Pittsburgh
11:40 AM	Copper-Copper and Copper-Nitroxide Distance Measurements for Uncovering Conformations of Multi-copper Binding Cellular Prion Protein PrPc. Tufa E. Assafa, University of California Santa Cruz
12:00 PM	<i>Lunch</i>
Biomacromolecules III. Enrica Bordignon, Chair	
1:30 PM	Spin-Labeling EPR Applications in Polymeric Macromolecules: Biomimetic Polymers and Block Copolymer Systems. Gail E. Fanucci, University of Florida
2:00 PM	CRISPR-Cas Mediated DNA Unwinding Detected Using Site-directed Spin Labeling. Peter Z. Qin, University of Southern California
2:15 PM	Probing the Structure of the Immature HIV-1 Reverse Transcriptase (RT) Homodimer Using Double Electron- Electron Resonance EPR Spectroscopy. Thomas Schmidt, National Institutes of Health
2:30 PM	Turning Charges "On" and "Off" in Transmembrane Protein Domains: A Spin-Labeling EPR Study. Tatyana I. Smirnova, North Carolina State University
2:45 PM	Correlating Light-Induced Conformational Changes and Photointermediate States in Proteorhodopsin Detected by Time-Resolved 240 GHz EPR. C. Blake Wilson, University of California Santa Barbara
3:00 PM	<i>Break</i>
Biomacromolecules III (continued). Fraser MacMillan, Chair	
3:40 PM	Orthogonal Biocompatible Labels for In-cell EPR at Physiological Concentrations: Milestones and Challenges Ahead. Enrica Bordignon, Ruhr University Bochum
3:55 PM	From Structure to Function: Multifrequency Pulsed EPR Investigations of Assembly Intermediates in Mn/Fe R2lox. Effie K. Miller, The Ohio State University
4:10 PM	Beyond Pairwise Distance Determination: Resolving Dynamic Conformational Change in CDF Regulatory Domains. Jenny Hall, University of East Anglia
7:00-9:00 PM	<i>Conference Banquet & Awards Ceremony (Enjoy an evening of comradeship, fine food and recognition of peers. Pre-registration required.)</i>
7:55 PM	Welcoming Remarks. Thomas Prisner, Chair
8:00 PM	Physics/Material Science. Christoph Boehme, University of Utah
8:15 PM	Biology/Medicine. Harold Swartz, Dartmouth College
8:30 PM	Chemistry/Instrumentation. Gareth Eaton, University of Denver
8:45 PM	EPR Poster Awards

THURSDAY, JULY 25, 2019

EPR Imaging-clinical. Boris Epel, Chair	
8:15 AM	Oxygen Diffusion in Microencapsulated Live Cells, Studied by Electron Spin Resonance Microscopy. Aharon Blank, Technion, Israel Institute of Technology
8:45 AM	Biologic Validation of Pulsed Spin Lattice Relaxation Based EPR pO₂ Images. Howard J. Halpern, University of Chicago
9:05 AM	Synthesis and Characterization of New Triarylmethyl (TAM) Radicals for Biomedical EPR Applications. Benoit Driesschaert, West Virginia University
9:25 AM	Clinical Applications of EPR: Using Results to Date to Predict the Future Course of Clinical Uses of EPR. Harold M. Swartz, Dartmouth College
9:45 AM	<i>Break</i>
Materials III. Stephen Hill, Chair	
10:25 AM	Engineering Coherent Defects in Diamond. Nathalie de Leon, Princeton University
10:55 AM	The Dynamics of Spin-dependent Charge Carrier Recombination in Tris(8-hydroxyquinolato) Aluminium (Alq₃). Henna Popli, University of Utah
11:10 AM	Controlling Electron Spin Relaxation Times via Molecular Design. Joseph M. Zadrozny, Colorado State University
11:25 AM	Advancing Liquid-State Overhauser DNP Instrumentation and Applications. John M. Franck, Syracuse University
11:40 AM	Electrically Detected Electron Paramagnetic Resonant Multi-photon Transitions. Hans Malissa, University of Utah
11:55 AM	Closing Remarks. Susumu Takahashi, EPR Symposium Chair