

Full Program

Sunday

- 4:00 pm - 8:00 pm Arrival and Check-in
- 6:00 pm Dinner
- 7:30 pm - 7:40 pm Welcome / Introductory Comments by GRC Site Staff
- 7:40 pm - 9:30 pm **Metals and Biological Signalling**
- Discussion Leader: **Emily Weinert** (Emory University, USA)
- 7:40 pm - 8:20 pm **Michael Marletta** (University of California, Berkeley, USA)
"Selective Sensing of Nitric Oxide in Biology"
- 8:20 pm - 8:35 pm Discussion
- 8:35 pm - 9:15 pm **Thomas O'Halloran** (Northwestern University, USA)
"Zinc Receptors, Fluxes and Switches in Control of Cell Fate Decisions"
- 9:15 pm - 9:30 pm Discussion

Monday

- 7:30 am - 8:30 am Breakfast
- 8:30 am Group Photo
- 9:00 am - 12:30 pm **Metal Ion Homostasis, Proteins and Nucleic Acids**
- Discussion Leader: **Sheila David** (University of California, Davis, USA)
- 9:00 am - 9:30 am **Victoria DeRose** (University of Oregon, USA)
"Platinum interactions across the cell: new players and pathways"
- 9:30 am - 9:45 am Discussion
- 9:45 am - 10:15 am **Lauren Waters** (University of Wisconsin Oshkosh, USA)
"Regulation of Mn metabolism in bacteria: from a small RNA to a small protein to riboswitches"
- 10:15 am - 10:30 am Discussion
- 10:30 am - 11:00 am Coffee Break
- 11:00 am - 11:30 am **Walter Chazin** (Vanderbilt University, USA)
"What are those Fe-S clusters doing in genome maintenance proteins?"
- 11:30 am - 11:45 am Discussion
- 11:45 am - 12:15 pm **David Giedroc** (Indiana University, USA)
"Structural mechanisms of transition metal homeostasis in bacteria"
- 12:15 pm - 12:30 pm Discussion
- 12:30 pm Lunch
- 1:30 pm - 4:00 pm Free Time
- 4:00 pm - 6:00 pm Poster Session
- 6:00 pm Dinner

7:30 pm - 9:30 pm	Metal Ion Regulation and Human Health
	Discussion Leader: Celia Goulding (University of California, Irvine, USA)
7:30 pm - 8:00 pm	Ashley Bush (Florey Institute of Neuroscience & Mental Health, Australia) "Iron and ferroptosis in brain disease"
8:00 pm - 8:10 pm	Discussion
8:10 pm - 8:40 pm	Guenter Schwarz (University of Cologne, Germany) "New Functions Of Molybdenum Enzymes In Neurodegeneration And Nitric Oxide Synthesis"
8:40 pm - 8:50 pm	Discussion
8:50 pm - 9:20 pm	Dianne Newman (California Institute of Technology / Howard Hughes Medical Institute, USA) "Selective Degradation of an Extracellular Electron Shuttle Abrogates Biofilm Development"
9:20 pm - 9:30 pm	Discussion

Tuesday

7:30 am - 8:30 am	Breakfast
9:00 am - 12:30 pm	Global Chemical Cycles: Nitrogen
	Discussion Leader: Yilin Hu (University of California, Irvine, USA)
9:00 am - 9:30 am	Jonas Peters (California Institute of Technology, USA) "Synthetic Single-Site Fe N ₂ -ases"
9:30 am - 9:45 am	Discussion
9:45 am - 10:15 am	Serena Debeer (Max Planck Institute for Chemical Energy Conversion, Germany) "From FeMoco to FeVco: Heterometal Contributions to Nitrogenase Reactivity"
10:15 am - 10:30 am	Discussion
10:30 am - 11:00 am	Coffee Break
11:00 am - 11:30 am	Leslie Murray (University of Florida, USA) "Towards understanding how metal ions cooperate to activate dinitrogen"
11:30 am - 11:45 am	Discussion
11:45 am - 12:15 pm	Lance Seefeldt (Utah State University, USA) "Light-driven N ₂ reduction catalyzed by a CdS-nitrogenase MoFe protein hybrid"
12:15 pm - 12:30 pm	Discussion
12:30 pm	Lunch
1:30 pm - 4:00 pm	Free Time
4:00 pm - 6:00 pm	<u>Poster Session</u>
6:00 pm	Dinner
7:30 pm - 9:30 pm	Global Chemical Cycles: Energy
	Discussion Leader: Anne Jones (Arizona State University, USA)
7:30 pm - 8:00 pm	Fraser Armstrong (Oxford University, United Kingdom) "New insights into Hydrogenase Catalysis"
8:00 pm - 8:10 pm	Discussion

- 8:10 pm - 8:40 pm **Michael Rose** (The University of Texas at Austin, USA)
"Functional Models of Mono-[Fe] Hydrogenase using an Anthracene-based Ligand Scaffold"
- 8:40 pm - 8:50 pm Discussion
- 8:50 pm - 9:20 pm **Leslie Dutton** (University of Pennsylvania, USA)
"Toward biogenesis of first-principle design and engineering of light- and redox- active proteins working in cells"
- 9:20 pm - 9:30 pm Discussion

Wednesday

- 7:30 am - 8:30 am Breakfast
- 9:00 am - 12:30 pm **Metalloenzymes: Mechanisms and Models**
- Discussion Leader: **Michael Green** (University of California, Irvine, USA)
- 9:00 am - 9:30 am **Steve Yu** (Academia Sinica, Taiwan)
"Selective Oxidation of Aromatics and Mechanisms Mediated by Iron Monooxygenases (AlkB, XylM and/or Cytochrome P450)."
- 9:30 am - 9:45 am Discussion
- 9:45 am - 10:15 am **Joseph Martin Bollinger** (Pennsylvania State University, USA)
"Emerging diversity in the chemistry of iron- and 2-oxoglutarate-dependent oxygenases"
- 10:15 am - 10:30 am Discussion
- 10:30 am - 11:00 am Coffee Break
- 11:00 am - 11:30 am **Judith Klinman** (University of California, USA)
"Lipoxygenase: An Enzyme for All Seasons"
- 11:30 am - 11:45 am Discussion
- 11:45 am - 12:15 pm **John Peters** (Montana State University, USA)
"New Insights into the Mechanism of Electron Bifurcating NADH-Dependent Reduced Ferredoxin:NADP Oxidoreductase"
- 12:15 pm - 12:30 pm Discussion
- 12:30 pm Lunch
- 1:30 pm - 4:00 pm Free Time
- 4:00 pm - 6:00 pm Poster Session
- 6:00 pm Dinner
- 7:00 pm - 7:30 pm Business Meeting
- Nominations for the Next Vice Chair; Fill in Conference Evaluation Forms; Discuss Future Site and Scheduling Preferences; Election of the Next Vice Chair*
- 7:30 pm - 9:30 pm **Metals and the Environment, from the Deep Past to Today**
- Discussion Leader: **William Casey** (University of California, Davis, USA)
- 7:30 pm - 8:00 pm **Alison Butler** (University of California, Santa Barbara, USA)
"Biological Wet Adhesion to Mineral Surfaces: Mussels, Siderophores and the Catechol-Cation Synergy"
- 8:00 pm - 8:10 pm Discussion

- 8:10 pm - 8:40 pm **Dan Rothman** (Massachusetts Institute of Technology, USA)
"Nickel-Driven Methanogenic Burst Accompanying Earth's Greatest Extinction"
- 8:40 pm - 8:50 pm Discussion
- 8:50 pm - 9:20 pm **Thomas Spiro** (University of Washington, USA)
"How bacteria use a multicopper oxidase to close the environmental Mn cycle by producing MnO₂ biomineral"
- 9:20 pm - 9:30 pm Discussion

Thursday

- 7:30 am - 8:30 am Breakfast
- 9:00 am - 12:30 pm **Water Oxidation/Oxygen Evolution**
- Discussion Leader: **Richard Debus** (University of California, Riverside, USA)
- 9:00 am - 9:30 am **Woodward Fischer** (California Institute of Technology, USA)
"A geobiological perspective on the role of Mn in the evolution of photosynthesis"
- 9:30 am - 9:45 am Discussion
- 9:45 am - 10:15 am **Victor Batista** (Yale University, USA)
"Studies of Oxomanganese Complexes for Natural and Artificial Photosynthesis"
- 10:15 am - 10:30 am Discussion
- 10:30 am - 11:00 am Coffee Break
- 11:00 am - 11:30 am **Nicholas Cox** (Max Planck Institute for Chemical Energy Conversion, Germany)
"High-Field Pulse EPR: A New Biophysical Tool for the Study of the Oxygen Evolving Complex"
- 11:30 am - 11:45 am Discussion
- 11:45 am - 12:15 pm **Petra Fromme** (Arizona State University, USA)
"New Insights into the water splitting mechanism of Photosystem II by time-resolved Femtosecond Nanocrystallography"
- 12:15 pm - 12:30 pm Discussion
- 12:30 pm Lunch
- 1:30 pm - 4:00 pm Free Time
- 4:00 pm - 6:00 pm Poster Session
- 6:00 pm Dinner
- 7:30 pm - 9:30 pm **Oxygen, Life in the Balance**
- Discussion Leader: **Kara Bren** (University of Rochester, USA)
- 7:30 pm - 8:00 pm Short Talk Selected from Poster Abstracts
- 8:00 pm - 8:15 pm Discussion
- 8:15 pm - 9:15 pm **Harry Gray** (California Institute of Technology, USA)
"Living with Oxygen"
- 9:15 pm - 9:30 pm Discussion

Friday

- 7:30 am - 8:30 am Breakfast

9:00 am

Departure