

255th ACS National Spring Meeting

March 18-22, 2018

New Orleans, LA

Nitrogen Un-Fixation: Mechanisms & Models of Nitrification/Denitrification Reactions



Organizers

Kyle Lancaster (Cornell University)

Nicolai Lehnert (University of Michigan)

Sunday, March 18 – SESSION 01 (MORNING)

Ernest N. Morial Convention Center Room 210

Chair: Kyle Lancaster (Cornell)

- 8:30** Nitrite-ammonia expressway, with no stop at dinitrogen.
Peter Kroneck
- 9:00** Evolution and modularity of ammonia oxidation pathways.
Lisa Stein
- 9:30** Evaluating the Mechanism of NO Reduction in a Flavodiiron Nitric Oxide Reductase Model Complex. **Corey White**
- 9:50** Nitrous oxide reduction mediated by a nucleophilic nickel(II) sulfide. **Trevor Hayton**
- 10:20** Intermission.
- 10:30** Structure and function of particulate methane monooxygenase, an ammonia monooxygenase homolog. **Amy Rosenzweig**
- 11:00** Synthetic copper-sulfide models of Cu_2 with activity towards N_2O and other small molecules. **Neal Mankad**
- 11:30** Revision by enzymology of bacterial ammonia oxidation.
Jon Caranto
- 11:50** Probing Mechanisms of Nitrous Oxide Generation in a Denitrifying Polyphosphate Accumulating Bacteria Enrichment Culture. **George Wells**

Sunday, March 18 – SESSION 02 (AFTERNOON)

Ernest N. Morial Convention Center Room 210

Chair: Sean Elliott (Boston University)

- 1:30** Bioinorganic aspects of nitrogen monoxide (NO) oxidation or reduction chemistry mediated at copper or heme centers.
Ken Karlin
- 2:00** A Missing Link from Nitric Oxide to Nitrite in Ammonia Oxidizing Bacteria. **Kyle Lancaster**

- 2:30** Investigation of enzymatic N₂O production through isotopic analysis and engineered enzymes. **Clarisse Finders**
- 2:50** *Mechanistic studies of denitrifying heme-nonheme nitric oxide reductases.* ** **Pierre Moenne-Loccoz**
- 3:20** Intermission.
- 3:30** A metallopeptide functional mimic of cytochrome c nitrite reductase. **Kara Bren**
- 4:00** Probing the mechanism of microbial N₂O production. **Eric Hegg**
- 4:30** Influences of the heme-lysine crosslink in Cytochrome P460 over redox catalysis and nitric oxide sensitivity. **Avery Vilbert**
- 4:50** Rebalancing the nitrogen cycle: Earth-abundant metal reduction of nitrate with purpose-designed ligands. **Kenneth Caulton**

Sunday, March 18 – POSTER SESSION (EVENING)

Ernest N. Morial Convention Center Hall D

- 5:30** Posters 199 - 206

Monday, March 19 – SESSION 03 (AFTERNOON)

Ernest N. Morial Convention Center Room 210

Chair: John Caranto (UCF)

- 1:30** Using Biosynthetic Models of Nitric Oxide Reductase (NOR) in Myoglobin to Elucidate Structural Features Responsible for NOR Activity and its Reaction Mechanism. **Yi Lu**
- 2:00** Cytochrome c nitrite reductase (ccNiR)-catalyzed reduction of nitrite to nitric oxide by ferrocyanide: insights into the mechanism of ccNiR-catalyzed ammonification. **Andrew Pacheco**

** Moved from Monday Afternoon session.

- 2:30** Nucleophilic attack at the bound NO of stable ferric nitrosyl porphyrins. **George Richter-Addo**
- 2:50** Ruthenium homogeneous catalysts for electrocatalytic oxidation of ammonia to dinitrogen at ambient temperatures. **Mitch Smith**
- 3:20** Intermission.
- 3:30** Advances in Electrocatalytic Ammonia Production by Cytochrome c Nitrite Reductases. **Sean Elliott**
- 4:00** Homogeneous Ammonia Oxidation: Mechanistic Investigation and Catalyst Development. **Gabriel Menard**
- 4:30** Nitrate binding and reduction by a cobalt-based electrocatalyst: the unique properties of DIM ligand. **Elena Jakubikova**

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