
PROGRAM FOR THE

CATALYSIS CLUB OF CHICAGO

2021 SYMPOSIUM

MAY 13TH AND 14TH, 2021

VIRTUAL MEETING

HELD VIA ZOOM

Schedule

Day 1 (Thursday, May 13th, 2021) – All times listed in CDT

Main Zoom Link (Day 1)

Morning Session: Heterogeneous (moderated by: Raj Gounder and Dave Kaphan)

10:00 **Opening Remarks**

10:10 **Keynote Address #1: Controlling Selectivity in Oxidative Conversion of Organic Molecules**

Prof. Prashant Deshlahra, Tufts University

11:00 **Oral Talk #1: Solvent Molecules Form Surface Redox Mediators in situ and Cocatalyze O₂ Reduction on Pd**

Jason S. Adams, University of Illinois at Urbana-Champaign

11:25 **Oral Talk #2: Ni and Co Based Metal Phosphides as Non-Noble Metal Ethane Dehydrogenation Catalysts**

Jessica A. Muhlenkamp, University of Notre Dame

11:50 **Vendor Talk #1: Anton Paar**

12:00 *Break*

12:10 **Poster and Networking Session #1**

Please join the poster session in Spatialchat

See Table of Contents (pages [8-12](#)) for individual poster abstracts

14:00 *Break*

Afternoon Session: Theory (moderated by: Raj Gounder and Dave Kaphan)

14:10 **Keynote Address #2: Interaction of Water with Active Sites and Its Relevance in Catalysis**

Prof. Bin Wang, University of Oklahoma

15:00 **Oral Talk #3: Rationalizing Ethylene Oligomerization on Single-site Ga³⁺ Catalysts Supported on Amorphous Silica: a First Principles Analysis Combined with Microkinetic Modeling and Experiments**

Yinan Xu, Purdue University

15:25 **Oral Talk #4: How to write the rate of A* + A***

Neil K. Razdan, University of Minnesota

15:50 **Vendor Talk #2: Unchained Labs**

16:00 **Closing Remarks**

Schedule

Day 2 (Friday, May 14th, 2021) – All times listed in CDT

Main Zoom Link (Day 2)

Morning Session: Electrocatalysis (moderated by: Raj Gounder and Dave Kaphan)

10:00 **Opening Remarks**

10:10 **Keynote Address #3: Understanding Mechanisms in Electrocatalytic Syntheses with Renewable Feedstocks**

Prof. Adam Holewinski, University of Colorado – Boulder

11:00 **Oral Talk #5: Relationship between Aerobic Oxidation Catalysis and Electrochemical O₂ Reduction on Heterogeneous M–N–C Catalysts**

Jason S. Bates, University of Wisconsin – Madison

11:25 **Oral Talk #6: Probing relationship between bulk and local environments to understand impacts on electrocatalytic oxygen reduction reaction**

Brianna N. Ruggiero, Northwestern University

11:50 **Vendor Talk #3: Micromeritics**

12:00 *Break*

12:10 **Poster and Networking Session #2**

Please join the poster session in Spatialchat

See Table of Contents (pages [8-12](#)) for individual poster abstracts

14:00 *Break*

Afternoon Session: (moderated by: Raj Gounder and Dave Kaphan)

14:10 **Keynote Address #4: What Problems can Machine Learning Solve in Transition Metal Complex Discovery?**

Prof. Heather J. Kulik, Massachusetts Institute of Technology

15:00 **2021 Herman Pines Award Address: The Catalytic Mechanics of Dynamic Surfaces for Energy Technology**

Prof. Paul J. Dauenhauer, University of Minnesota

15:55 **Concluding Remarks, Announcement of Poster Prizes and Election Results**

Acknowledgements

The Catalysis Club of Chicago would like to thank the following people and organizations for their generous contributions to the success of the 2021 Symposium, including:

- Honeywell UOP for sponsoring the 2021 Herman Pines Award
- The Center for Catalysis and Surface Science at Northwestern University for making the Herman Pines Award plaque
- The North American Catalysis Society for their support of student involvement with the Chicago Catalysis Club
- Raj Gounder (Purdue University), Dave Kaphan (Argonne National Laboratory), Jason Adams (University of Illinois), Kenton Hicks (Northwestern University), Prajay Patel (Argonne National Laboratory), Pushkar Ghanekar (Purdue University), Siddarth Krishna (Purdue University), Melissa Cendejas (University of Wisconsin-Madison), and Hanyu Ma (University of Notre Dame) for their efforts in organizing this symposium



Academic Sponsors: Northwestern University, Purdue University, University of Illinois, University of Minnesota, University of Notre Dame



Industrial Exhibitors (see pages 75-76): Anton Paar, Micromeritics, and Unchained Labs



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Herman Pines Award in Catalysis - History

2021 Herman Pines Award in Catalysis

The Herman Pines Award is presented annually by the Catalysis Club of Chicago at its Spring Symposium for outstanding research in the field of catalysis. Herman Pines was an outstanding research scientist, and his work revolutionized the general understanding of organic chemistry, particularly the chemistry of hydrocarbons interacting with strong acids. The award in his honor is co-sponsored by UOP and the Catalysis Club of Chicago. Herman began his industrial career at UOP in 1930 and amassed 145 US patents over a 23-year period, and was a founding member of the Catalysis Club of Chicago.

List of past recipients of the Herman Pines Award:

1999	Harold Kung (Northwestern University)
2000	John Monnier (Eastman Chemical)
2001	Lanny Schmidt (University of Minnesota)
2002	James Brazdil (BP)
2003	James Dumesic (University of Wisconsin)
2004	Alak Bhattacharyya (BP)
2005	Israel Wachs (Lehigh University)
2006	Jeffrey Miller (BP)
2007	Chunshan Song (Pennsylvania State University)
2008	Aleksey Yezerets (Cummins)
2009	Tobin Marks (Northwestern University)
2010	James Rekoske (UOP)
2011	Jingguang Chen (University of Delaware)
2012	Stuart Soled (ExxonMobil)
2013	W. Nicholas Delgass (Purdue University)
2014	Hai-Ying Chen (Johnson Matthey)
2015	Fabio Ribeiro (Purdue University)
2016	Deng-Yang Jan (Honeywell UOP)
2017	Peter Stair (Northwestern University)
2018	Jerzy Klosin (Dow Chemical)
2019	Manos Mavrikakis (University of Wisconsin)
2020	Christopher Nicholas (UOP)
2021	Paul Dauenhauer (University of Minnesota)

Oral Presentations

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Note: All oral presentations will be hosted through Zoom

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