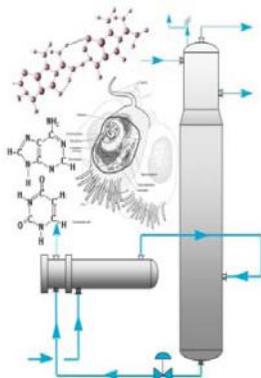


# November Newsletter

Chicago Section

[www.aiche.org/Chicago](http://www.aiche.org/Chicago)

November 2020



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## AIChE Chicago November Meeting

***Prof. Lars Garbow***

Dan Luss Professor

William A. Brookshire Department of  
Chemical and Biomolecular Engineering  
University of Houston



### ***Computational Design of Functional Materials in Catalysis and Electrochemical Energy Storage***

***Date:*** ***Thursday, November 12, 2020***

***Time:*** ***5:30-7:30 pm***

***Where:*** Zoom

***Cost:*** ***No Registration Fee. Voluntary Donation in link.***

***Registration and Information***

**[View Event Summary and Registration](#)**

***All attendees must register to get the passcode for the meeting.***

#### **Agenda**

5:30—5:35: Zoom Meeting Opens

5:35—6:00: Breakout Rooms for Socialization

6:00—7:30: Section Announcements, Technical Presentation, Q&A

## Chair's Corner

As the end of the year draws closer, I would like to express my gratitude to everyone who has worked to ensure the success of our virtual monthly meetings so far. In addition to our section conducting online-only virtual meetings at least until the end of 2020, a decision has been made to hold a virtual Midwest Regional Conference on March 17-18, 2021.



For the 2021 Midwest Regional Conference, Robert Tsai ([Robert.Tsai@honeywell.com](mailto:Robert.Tsai@honeywell.com)) will be the conference chair and Matthew Walters ([MWalters@exponent.com](mailto:MWalters@exponent.com)) the co-chair. I am sure that they, along with numerous other capable volunteers already involved, will guarantee an excellent conference. The level of effort required will be extraordinary due to the significant and different challenges associated with undertaking an online event rather than an in-person one. Session chairs, High School Outreach, Sponsorship, and other volunteers are still needed, so please contact Robert and Matthew if you are interested in getting involved. Stay tuned for additional conference-related information and provide your support to the Midwest Regional Conference in whatever way you can.

One of my personal goals for this year is to increase the visibility and membership of the Chicago Section. Our group already communicates via the newsletter and email, and has a presence on social media. If you have not yet done so, I encourage you to go to Facebook and “Like” AICHe Chicago Section and to join us on LinkedIn. Make sure to encourage your colleagues to do the same. In the coming weeks, we will be exploring additional means of connecting with Chicagoland chemical engineers and companies so that our organization can broaden its reach and have as positive an impact as possible. If you have any ideas in this space, feel free to reach out to our board ([aichechicago@gmail.com](mailto:aichechicago@gmail.com)). We strive to identify company liaisons and reach out to chemical engineers who may have never been involved with the Chicago Section before.

Jeffrey M. Zalc  
AICHe Chicago Section Chair  
AICHe Senior Member



## “Coming Soon”

### 2021 AIChE Midwest Regional Virtual Conference

Organized by Chicago Local Section of AIChE

MRC organizing committee is planning next year's conference with the following areas of interest. Invitations and call for contributions will follow soon.

For submission questions please contact the Programming Chair (Hakim Iddir) at [iddir@anl.gov](mailto:iddir@anl.gov)

For volunteer opportunities please contact the Conference Chair (Bob Tsai) at [robert.tsai@honeywell.com](mailto:robert.tsai@honeywell.com). Assistance is needed with programming, sponsorship, educational outreach, and more so please consider helping your technical community!

### Programming Areas

- ◇ Biomedical, Pharmaceutical and Nano-Engineering
- ◇ Catalysis and Reaction Engineering
- ◇ Energy and Sustainability
- ◇ Fluid Properties, Fluid Dynamics and Transport Phenomena
- ◇ Environmental Compliance and Remediation
- ◇ Process Engineering, Modeling, Control and Optimization
- ◇ Process Safety and Occupational Health
- ◇ Refining and Petrochemical Processing

### NOMINATIONS REQUESTED FOR THE ERNEST W. THIELE AWARD

The Ernest W. Thiele award is sponsored by bp and recognizes the outstanding contributions to our profession by a Midwest region chemical engineer. This award was established by the AIChE Chicago Section and is presented annually to a Midwest region AIChE member. This internationally recognized award consists of an engraved plaque and \$1,000 honorarium presented at a monthly section meeting.

Nomination forms and additional information can be obtained from the Thiele Committee Chair.

Completed nominations are due to the committee chair no later than **April 01, 2021**.

One of the highest honors a distinguished chemical engineer can receive is our AIChE Chicago Section Thiele award. Please consider nominating a deserving engineer for this prestigious award.

Jeffrey Zalc

bp Solutions, P&O

phone: 630.881.5478

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## November Meeting Information

### Speaker's Bio:

#### Prof. Lars

**Grabow** is the Dan Luss Professor in the William A. Brookshire Department of Chemical and Biomolecular Engineering at the University of Houston and holds a courtesy appointment in the Department of Chemistry. He received his PhD in Chemical Engineering from the University of Wisconsin in 2008, followed by postdoctoral appointments at the Technical University of Denmark and Stanford University. His expertise is the application of electronic structure calculations, kinetic modeling, data science and transient kinetic characterization to problems in heterogeneous catalysis, surface science and electrochemical energy storage. His papers have been cited more than 4,000 times and he was elected into the 2018 Class of Influential Researchers by Industrial and Engineering Chemistry (IE&C) Research. Prof. Grabow won the prestigious U.S. Department of Energy (DOE) Early Career Award (2014) and the NSF CAREER Award (2015), the Excellence in Research Award at the assistant professor level from the University of Houston (2017). He served as (Vice/Past) Chair of the AIChE Catalysis and Reaction Engineering (CRE) Division and continues to serve as Social Media Director. He is also the Chair of the Southwest Catalysis Society (SWCS) and Editor of Surface Science.



### Registration and Information

<https://www.cvent.com/d/x7q5tg/4W>

### Abstract:

Advanced functional materials are at the heart of nearly any solution to challenges in clean energy, health, national security or human welfare in general. Unfortunately, their discovery often happens “by accident” in repeated trial-and-error experimentation. Through the Materials Genome Initiative (MGI) launched in the U.S. in 2011 large scale efforts were made to discover, manufacture and deploy advanced materials twice as fast, at a fraction of the cost ([www.mgi.gov](http://www.mgi.gov)). Most of the funded research under the MGI, as well as many other parallel efforts, exploited computational and data-science approaches to increase the rate of materials discovery with variable success. In our group we use a combination of predictive ab initio simulations coupled to statistical analysis tools to guide the discovery and development of new functional solid-state materials. For the design of heterogeneous catalysts used in the treatment of diesel exhaust emissions, we have used density functional theory (DFT) simulations to calculate reaction pathways and identify reactivity descriptors that allow rapid screening of the binary metal alloy space. Through our computational study we discovered a new metal alloy that shows great promise to meet the U.S. Department of Energy 150°C challenge for diesel oxidation catalysis, and the results were confirmed in bench scale reaction experiments. In contrast, we bypass physical insights in our attempts to discover solid-state electrolytes to be used as ion conductors in all solid-state Li-ion batteries. Instead, we rely on statistical models and jump directly from the crystal or electronic structure

of the material to the macroscopically observable conductivity. Finally, we combine a physical model for the stability of dilute surface alloys with an error correction term, that is trained using black box machine learning methods. The results are encouraging in that the model can extrapolate to new materials with reasonable

accuracy and predictive power. Overall, these examples demonstrate that computational materials design has many merits, but there are many limitations and challenges that still need to be addressed for a successful implementation of artificial intelligence in the design of advanced materials.

### **2020-2021 Meeting Schedule and Speakers**

<b>Month</b>	<b>Date</b>	<b>Speaker</b>	<b>Affiliation</b>	<b>Topic</b>
<b>November</b>	Thursday 12 <sup>th</sup>	Prof. Lars Grabow	Houston	Computational Catalysis
<b>January</b>	Thursday 14 <sup>th</sup>		Joint with Chicago ACS	
<b>February</b>	Wednesday 7 <sup>th</sup>	Assoc. Prof. Ah-Hyung (Alissa) Park	Columbia	Energy Conversion / CO <sub>2</sub> sequestration
<b>March</b>	Week of 15 <sup>th</sup>	Prof. Sohail Murad	IIT	Process Synthesis; joint with MRC
<b>April</b>	Tuesday 13 <sup>th</sup>	Dr. Ted Krause	Argonne	H <sub>2</sub> generation and utilization
<b>May</b>			TBD	

## ***Volunteers Needed for Chicago Local Section***

How many opportunities can you find to learn project management, delegation and leadership skills for free? Volunteering with the Chicago Section of AIChE is such an opportunity. While you're learning new skills, your local network grows.

Volunteers are needed to help with:

- Programming – arrange speakers for monthly meetings, and arrange catering and venues
- Logistics – arrange catering and venues
- Newsletter Editor – prepare and publish ten monthly newsletters
- Newsletter Contributions – write meeting summaries, contribute photos, and more
- Engineering Outreach – coordinate three annual K-12 outreach events with high schools and colleges
- Professional Development and Sponsorship – arrange companies to sponsor pre-meeting talks to help fund student dinners
- Awards and Scholarship Committees – Review applications for local Section award and scholarships
- Midwest Regional Conference – many opportunities including programming, logistics, website, advertising, sponsorship, high school outreach, poster session and more!
- Young Professionals – plan socials and programming for young professionals (under 35)

If you are interested in any of these positions, please contact us [aichechicago@gmail.com](mailto:aichechicago@gmail.com).

### **Why Renew Your AIChE Membership?**

**Renew your membership now to keep learning and growing.**

Renew Membership



**Stay Connected to 40,000+ international members who take advantage of:**

- Subscription to AIChE's flagship publication: CEP\*
- Education—Access to e-learning courses and instructor-led training, offering Continuing Education Units and PDHs
- Access to CareerEngineer—a comprehensive job site tailored to chemical engineers
- Access to the AIChE eLibrary—a wealth of information from Knovel Life Sciences and the McGraw-Hill AccessEngineering Library collections

**[View COMPLETE benefits](#)**

### **[Connect with members & participate in discussions on Engage!](#)**

Check out AIChE's member benefit, AIChE Engage. Use the robust directory search to find and connect with members. Participate in technical, career, and academic discussions about chemical engineering.

# ON ZOOM!

## How to Combat Zoom Fatigue

By Liz Fosslie and Mollie West Duffy

Why do we find video calls so draining? In part, it's because they force us to focus more intently on conversations in order to absorb information. They also require us to stare directly at a screen for minutes at a time without any visual or mental break, which is tiring. To make video calls less exhausting for yourself, try using a few research-based tips.

<https://hbr.org/2020/04/how-to-combat-zoom-fatigue>



## Zoom tips: 7 ways to improve on-screen body language

By Kate Yuan

Body language plays a key role in effective communication. What messages are you sending? Consider these tips for more impactful and engaging Zoom meetings

Researcher Albert Mehrabian's famous 7-38-55 rule states that spoken words, tone of voice, and body language respectively account for 7, 38, and 55 percent of the meaning we communicate to others.



<https://enterpriseproject.com/article/2020/8/zoom-tips-body-language>

## AICHE CHICAGO SECTION

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**13964 Doral Lane**  
**Homer Glen, IL 60491**  
[aichechicago@gmail.com](mailto:aichechicago@gmail.com)

<https://www.facebook.com/AICHEChicagoSection>

<https://www.linkedin.com/groups/4538581>

<https://www.aiche.org/community/sites/local-sections/chicago>

**Virtual**

### Officers and Contact Information

Chair	Jeff Zalc
Chair Elect	Ha Dinh
Chair Programming	Christopher Nicholas
Secretary	Ignasi Palou-Rivera
Social Media	Sanaz Taghvaei
Treasurer	McKay Rytting
Directors at Large	Robert Tsai
	Pat Shannon
	Olha Zvarych
House Committee	Paolo Palmas
	Lance Baird
Newsletter Editors	Reza Mostofi <a href="mailto:rnostmoh@gmail.com">rnostmoh@gmail.com</a>
	Azita Ahmadzadeh <a href="mailto:azita.ad@gmail.com">azita.ad@gmail.com</a>

**We want you for AICHE-Chicago!**

**We need your help!**

How many opportunities can you find to learn project management, delegation and leadership skills for free? Becoming an officer in the Chicago Section of AICHE is such an opportunity. While you're learning new skills, your local network grows. Just about all of us are either undergoing a career change, contemplating a career change, or are wondering if our career will be changed for us. Volunteering with AICHE is a way to add skills and accomplishments to your resume.

[aichechicago@gmail.com](mailto:aichechicago@gmail.com)

<http://www.aiche.org/community/sites/local-sections/chicago/announcements/volunteerism>

## Submitting Articles to AICHE Columns

We welcome email submissions for our monthly newsletter. Commercial announcements are subject to the fee schedule below. News stories, editorials, technical or career related non-commercial contributions are always welcome with no charge. We consider job postings, announcements of for-fee training courses, expositions, conferences as commercial. Categorization of announcements is at the sole discretion of the Chicago AICHE Board of Directors. Chicago AICHE may publicize activities of interest to our members by cooperating professional societies and other non-profits without charge.

Please submit your material to [aichechicago@gmail.com](mailto:aichechicago@gmail.com) with "newsletter article" as a subject line.

