## AIChE Chicago Section October Newsletter

Chicago Section

www.aiche.org/Chicago

October 2022



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## AIChE October 2022 Meeting

Speaker:	Francesco Coletti, PhD, MSc Chief Executive Officer Hexxcell Ltd., London, UK		
Topic:	Predictive Maintenance of Heat Exchangers: Mitigating Fouling Using Digital Technology		
Date/ Registration Deadline:	Thursday, October 20, 2022 5:15-7:00 PM		
Program:	5:15 – 5:30 PM: Announcements and Introduction 5:30 – 6:30 PM: Main Presentation 6:30 – 7:00 PM: Networking		
Where:	Virtual Zoom Meeting		
Click to View Event Summary and Register			

Free Cost:

(To donate or learn about the local section student's scholarship program, please go to this page.)

## Biography:



Dr. Francesco Coletti is the CEO of Hexxcell Ltd., a London based technology company providing predictive analytics and prescriptive maintenance solutions for industrial heat transfer systems to major international oil&gas and petrochemical companies.

Francesco has a track-record of developing industrial digital solutions from ideation to deployment in the field, with particular focus on hybrid AI-deterministic models for monitoring. optimization and predictive maintenance of process and energy systems. Prior to Hexxcell, Francesco worked as a Development Specialist

at Praxair Technology Center (now Linde) in Buffalo, NY, where he focused on mathematical optimization of cryogenic multistream heat exchangers and air separation units Page 3

## Chair's Corner

Welcome to October (Happy Fall Everyone)!

Thank you and congratulations to all the board and committee members, volunteers, and attendees for a fantastic start of the year with September meeting. We welcomed over twenty-five members back after the summer break and officially marked the beginning of this year activities. It was very exciting to see everyone coming together in-person and enjoy our first meeting.





meet Sustainability Goals for the Future". The talk was very interesting and showcased how BP is using simulations to optimize operations, reduce operational risk, and design new energy assets on its way to becoming the integrated energy company of the future. It was very well received with high audience engagement. It was great to see everyone engaged and we will continue to work on bringing our members a diverse slate of monthly presentations in the upcoming months.

For October meeting, we are pleased to host a virtual meeting on October 20, 2022 featuring Dr. Francesco Coletti (CEO, Hexxcell, Ltd) who will present on "Predictive Maintenance of Heat Exchangers: Mitigating Fouling Using Digital Technology". The meeting will be free to the public, and PDHs will be awarded for attendance of the technical presentation so please plan to join the meeting as well as take this opportunity to invite your friends to give them exposure to our monthly meetings.

As mentioned in the September newsletter, planning for 2023 Midwest Regional Conference (MRC-15) is in full swing. Please keep an eye out for the announcement and Call for Abstracts in your mailbox in the next few weeks. The conference, hosted by the Chicago Section every year, provides a platform for our professionals to exchange technical knowledge, network, and build a local community of chemical engineers. It takes a team of dedicated volunteers to organize an event of such scale, and we always welcome more help and contribution. Please reach out to this year conference chair, Dr. Jessica Morris, at <a href="mailto:jmorris@exponent.com">jmorris@exponent.com</a> if you would like to take part of the conference planning committee.

Once again, I am requesting your support and ideas to help us do better and share your perspective on what would you like us to do more. Please reach out to us on <u>aichechicago@gmail.com</u> with your ideas/suggestions/comments/questions- everything is welcome.

#### Sarika Goel

AIChE Chicago Section Chair

AIChE Senior Member

## Cont. from Page 1 October Speaker Information

He has co-edited a monograph dedicated to Crude Oil Fouling, published over 70 journal articles and conference proceedings and is the Executive Editor of Heat Exchanger Design Handbook. Since 2015 is one of the two elected representatives for the UK serving on the Scientific Committee of the International Heat Transfer Conferences, the top global conference in the field held every four years. He was elected to the UK National Heat Transfer Committee in 2014, and subsequently appointed as its Secretary in 2016. Since 2019 is a Director of the AIChE Fuels&Petrochemical Division. Francesco is also a part-time Associate Professor at Brunel University London where he contributed to the launch of a new Chemical Engineering Department and was visiting academic at Imperial College London (2016-2017).



**Dr. Francesco Coletti** 

He holds a Laurea degree in Chemical Engineering from Padova University, Italy, an MSc in Process Systems Engineering and a PhD in Chemical Engineering from Imperial College London, UK. He was awarded the

Newitt Prize for best Computational PhD thesis in Chemical Engineering and the Townend prize for excellence in research in the area of fuel production.

#### Abstract:

With almost 60% of global refining and petrochemical GHG emissions due to heating and cooling it is clear that energy efficiency of thermal processes plays a major role in meeting ambitious net zero targets. However, very often industrial thermal systems (such as heat exchangers and their networks) are affected by fouling which reduces heat transfer efficiency and generates significant additional environmental emissions, fuel consumption and production losses. Fortunately, it has been proven that using digital technology for advanced monitoring and predictive maintenance of heat exchangers helps managing and mitigating the impact of fouling and results in bottom-line savings estimated in the millions of dollars and thousands of tons of CO2 per year in a single refining or petrochemical plant.

In this presentation, we will discuss how hybrid-AI models that combine the power of Artificial Intelligence with the accuracy of high-fidelity deterministic predictions are used by oil refineries and petrochemical plants to quantify, diagnose, predict and mitigate fouling in heat exchangers.

Using a case study from the Crude Distillation Unit of a European refinery, we will discuss and quantify the bottom-line difference between reactive, preventative and predictive maintenance. We will also show, with plant data, that traditional KPIs used to monitor heat transfer equipment may be misleading for plant operators, ultimately resulting in sub-optimal decisions being made. In the case study presented, the traditional approach used by the refinery is analysed and the cost and environmental impact of inefficiencies accumulated over four years of operations assessed.

Registration: https://cvent.me/7mo8al

## SAVE THE DATE



2023 AIChE Midwest Regional Conference
Chicago, IL – *April 11-12, 2023*Hosted by University of Illinois @ Chicago, UIC
Organized by Chicago Local Section of AIChE

## If you are interested in:

- Presenting and submitting a paper
- Being a session chair or co-chair,
- Get involve and volunteer;

Please send an email to Jessica Morris (Conference Chair):

<u>imorris@exponent.com</u>

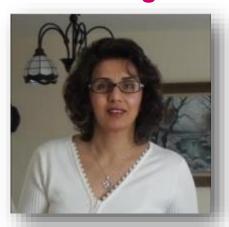
## September Meeting Photos

Remember to check out our Facebook page for more photos and news!





# Congratulations to Newly Elected AIChE Fellows from the AIChE Chicago Section!



Azita Ahmadzadeh

Azita Ahmadzadeh received her PhD in Chemical Engineering from IIT in Chicago and is working as a CFD modeling specialist at UOP, Honeywell Company. Prior joining UOP, Honeywell Company, Azita worked at Simutech Group for 5 years.

She is involved in AIChE national as session chair/co-chair at annual and Spring meetings. She was the Program Chair of 2013 PDS which was held in June in Oak Brook, IL.

Azita was the chair of AIChE Chicago section (2014-2015) and Chicago local section newsletter editor from 2008-2020. She is also the fundraising committee chair for the Midwest Regional Conferences since 2007 and was the chair of 2015 Midwest Regional Conference.

Azita is an active member of Fuel & Petrochemical Division, she was the newsletter editor, communication director, secretary and currently the division director. Azita was also a member of Executive Board of Programming Committee (EBPC).

Azita is also a member of Particle Technology Forum and Women in chemical Engineering. She is elected to be a member of CEOC (Continuing Education Operating Council).

She is the 2010 recipient of the AIChE Shining Star Award for outstanding volunteerism.

# Congratulations to Newly Elected AIChE Fellows from the AIChE Chicago Section!



Saadet Ulas Acikgoz

Saadet has been working for Honeywell UOP since 2007 in the areas of process modeling, optimization, process development and scale-up, experimental efficiency and techno-economic analysis as part of the research and development organization. She is currently the Senior Manager of Process Modeling and Optimization group at UOP R&D. This group is responsible for creating useful kinetic and process models, and the simulation and design tools for engineering and other groups for use in commercial applications. Her group recently developed enhanced commercial data cleansing and robustness capabilities used in data analytics tools across UOP. Previously, she worked as the Manager of UOP's Process Design and Development group. This group is critical to moving R&D programs into commercial offerings for the Refining, Petrochemical and Gas Processing industry. Several novel UOP process technologies were developed and commercialized with her leadership.

Saadet has a PhD in Bio Engineering and a M.S. degree in Chemical Engineering from University of Illinois at Chicago. She received her Bachelor's degree in Chemical Engineering is from Middle East Technical University (METU) in 2002.

Saadet is the 2022 AIChE Fuels and Petrochemical Division Distinguished Service award winner. This comes from over 10 years of dedicated service to the division as: Chair, Director, Treasurer, Programming Chair, Session Chair, and Session Co-Chair. Saadet continues to provide service to the chemical engineering community with her on-going roles at AIChE as part of the CEP (Chemical Engineering Progress) editorial advisory board, and executive board of the AIChE Program Committee.

# Congratulations to Newly Elected AIChE Fellows from the AIChE Chicago Section!



**Jeffrey Zalc** 

Jeffrey Zalc has over 17 years experience at BP working on the development and implementation of detailed refining process models, in addition to training many chemical engineers in all facets of chemical process simulation. He has worked extensively with many engineers around the world to support the use of process models in optimization, troubleshooting, debottlenecking, crude and feedstock selection, and capital investment decisions. At BP, Jeff has also been involved in many STEM-related outreach activities for middle and high school students.

Since 2015, Jeffrey has also been an adjunct professor at Illinois Tech, teaching courses in chemical process design, chemical process simulation, and energy, economics, and environment. He loves teaching, mentoring, and fostering the career trajectories of young engineers. Jeffrey was recently awarded the Hamid Arastoopour Excellence in Teaching Award by the department of Chemical and Biological Engineering at Illinois Tech.

In the Chicago Section of AlChE, Jeff has held the roles of Treasurer (twice), Chair-Elect, Chair, and Past-Chair. He has also been active in the AlChE Midwest Regional Conference, serving as a conference chair, chair or co-chair of several technical programming sessions, and participant in panel discussions.

Jeffrey completed a two-year postdoctoral position at UC Berkeley, a Ph.D. in chemical engineering at Rutgers University, and is a licensed professional engineer in Illinois.

## National Chemistry Week



OCTOBER 16-22, 2022 · #NCW



National Chemistry Week (NCW) is a public awareness campaign that promotes the value of chemistry in everyday life. ACS members and chemistry enthusiasts celebrate NCW by coordinating events and communicating the importance of chemistry. Read more about NCW.

Celebrate National Chemistry Week 2022 the week of October 16–22, 2022 with the theme, "Fabulous Fibers: The Chemistry of Fabrics."





## 2022 AIChE Annual Meeting:

### Powering the Future

The AIChE Annual Meeting is the premier educational forum for chemical engineers interested in innovation and professional growth. Academic and industry experts will cover a wide range of topics relevant to cutting-edge research, new technologies, and emerging growth areas in chemical engineering.

#### Links:

Conference Website Technical Program

Register Meeting FAQ





Phoenix Convention Center

Phoenix, AZ

#### Meet AIChE's 2022 Election Candidates

In April, AIChE's Nominating Committee announced the slate of candidates for president-elect, secretary, and directors for the Institute's 2022 election.

Voting by paper and electronic proxy ballot will begin on **September 12 and end on October 18.** The election results will be announced at the Annual Business Meeting



2022 Election Timeline

September 12 – Election commences

October 18 – Ballot receipt deadline

November 14 – Election results announced at the AIChE Annual Meeting in Phoenix, AZ

## 2022-2023 AIChE Chicago Committee Members

#### Logistics Committee: Lance Baird



Lance Baird is the owner of Lance Baird, LLC specializing in Renewable Energy and is a co-founder of RenewAgility, LLC. Lance retired from Honeywell UOP after 37 years of service, including 15 years on worldwide technical service assignments and 22 years in various roles in technology development. He holds 21 patents with 16 applications pending and is a 6-sigma black belt. Lance graduated from Washington State University with a BS in Chemical Engineering. He is currently serving AIChE Chicago as the House Committee Chair.

#### Logistics Committee: Kashif Uddin

Kashif Uddin received his Bachelor of Science in Chemical Engineering from Illinois Institute of Technology in 2017. Since then, he has been working as a Chemical Engineer for over 5 years now in various industries ranging from silicone foam/estomerics high performance materials, biopharma, and agrochem. He's held various positions ranging from Process to Project engineering to his most current role of R&D Process Engineer at Hazel Technologies Inc. He currently lives in Chicago with his wife and two cats. He enjoys playing basketball, soccer, and tennis, cooking, and reading. Kashif is currently a member of the AIChE Chicago Young Professionals and a member of the House Committee.



## 2022-2023 AIChE Chicago Committee Members

### Publicity Committee: Sanaz Taghvaii Arabi



Sanaz Taghvaii is currently working as Technical Service Specialist in Aromatics Technologies at Honeywell UOP where she supports customers in troubleshooting, data review and unit monitoring. She earned a B.S. in Chemical Engineering from University of Massachusetts Amherst. She served as AIChE Education Chair UMass Chapter during her undergraduate. After graduation she continued volunteering with AIChE Houston Chapter in social media and with AIChE Chicago Section since 2019.

#### Newsletter Editor: Yechan Won



Yechan Won is a senior staff professional at Geosyntec Consultants. Yechan Won earned his B.S. in chemical engineering from Worcester Polytechnic Institute and M.S./Ph.D. in environmental engineering from Northwestern University. He focused on the synthesis and application of various materials, including TiO2 based composites and polyelectrolyte complexes. At Geosyntec Consultants, his work involves conducting mass balance calculations for industrial facilities and developing capital and O&M cost estimates for major industrial wastewater treatment plants. Yechan also has experience trouble-shooting and developing equipment and operational upgrade recommendations for industrial wastewater treatment plants.

## 2022 Meeting Schedule and Speakers

Month	Date	Speaker	Affiliation	Topic
Oct	Thurs 20th	Francesco Coletti	Hexxcell, Ltd.	Predictive Maintenance of Heat Exchangers: Mitigating Fouling Using Digital Technology
Nov	Thurs 17th	Yoon Il Chang	Argonne National Laboratory	Nuclear Energy Option to Achieve Carbon Neutrality

## **Upcoming AIChE Conferences, Meetings and Webinars**

AIChE Conferences		
Oct 11-12, 2022	<u>2022 Global Conference on Process Safety and Big Data,</u> DECHEMA House, Frankfurt am Main, Germany	
Oct 17-19, 2022	2022 DIERS Fall Meeting, Hilton Garden Inn, 3201 Sage Rd, Houston, TX	
Oct 18-20, 2022	9th CCPS Latin American Conference on Process Safety, Prodigy Santos Dumont Hotel, Rio de Janeiro, Brazil	
Oct 26-28, 2022	4th Battery and Energy Storage Conference, The City College of New York, 160 Convent Ave, New York, NY	
Oct 27-29, 2022	6th International Conference on Epigenetics and Bioengineering, BRC Rice University, 6500 Main St, Houston, TX	
Oct 31 - Nov 2, 2022	5th International Conference on CRISPR Technologies, UC Berkeley, Berkeley, CA	

AIChE Webinars		
Oct 12, 2022	Are You Accurately Identifying Your Non-PSM/RMP Covered Equipment?	
Oct 17, 2022	Design and manufacturing of a low-cost vaccine candidate for COVID-19	
Oct 18, 2022	Roadmapping Workshop #1: Existing Programs and Best Practices for Technician and Operator Training	
Oct 19, 2022	Hydrogen: The Importance of Collaboration for a Safe and Sustainable Future	
Oct 26, 2022	The Safe Transport/Delivery of Hydrogen: A Global Perspective	

## **Attention Students and Parents!**

If you are an undergraduate chemical engineering student or have a son or daughter that plans to study chemical engineering you may be interested in the Chicago Section's scholar-

ship program.

Applications are due **March 1st**.

Please <u>click here</u> to read rules and eligibility.

For a Link to the Electronic Version of the AIChE Chicago Scholarship Application Form, Click on the Link Below:

http://form.jotform.us/form/42814483647159



## 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, 2023*.

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.

To nominate, please contact: Jeffrey Zalc

bp Solutions, P&O

phone: 630.881.5478; email: jeffrey.zalc@bp.com

More information about this award and the past winners:

https://www.aiche.org/community/sites/chicago-local-section/ernest-w-thiele-award https://www.aiche.org/community/sites/local-sections/chicago/thiele-award-past-winners

#### 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.

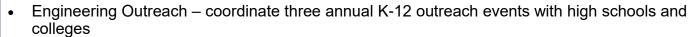


## Volunteers Needed for Chicago Local Section

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 professional 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.

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



- 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 <u>aichechicago@gmail.com</u>.



### 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 Educations 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**

## **AIChE Volunteer and Meeting Attendee Conduct Guidelines**

AIChE's volunteers are the core of the Institute and make all of its programs, conferences and educational efforts possible. These offerings provide excellent opportunities for AIChE members and meeting attendees to gain greater technical expertise, grow their networks, and enhance their careers. AIChE events provide engineers, scientists, and students a platform to present, discuss, publish and exhibit their discoveries and technical advances.

At all times, volunteers and meeting attendees should act in accordance with AIChE's Code of Ethics, upholding and advancing the integrity, honor and dignity of the chemical engineering profession. AIChE's Board of Directors has developed these guidelines to foster a positive environment of trust, respect, open communications, and ethical behavior. These guidelines apply to meetings, conferences, workshops, courses and other events organized by AIChE or any of its entities and also to volunteers who conduct other business and affairs on behalf of AIChE.

### Specifically

- 1. Volunteers and meeting attendees should understand and support AIChE's Code of Ethics.
- Volunteers and meeting attendees should contribute to a collegial, inclusive, positive and respectful environment for fellow volunteers and attendees, and other stakeholders,

including AIChE staff.

- 3. Volunteers and meeting attendees should avoid making inappropriate statements or taking inappropriate action based on race, gender, age, religion, ethnicity, nationality, sexual orientation, gender expression, gender identity, marital status, political affiliation, presence of disabilities, or educational background. We should show consistent respect for colleagues, regardless of discipline, employment status, and organizations for which they work, whether industry, academia, or government.
- 4. Disruptive, harassing or other inappropriate statements or behavior toward other volunteers, members, and other stakeholders, including AIChE staff, is unacceptable.
- 5. Volunteers and meeting attendees should obey all applicable laws and regulations of the relevant governmental authorities while volunteering or attending meetings. Volunteers and meeting attendees taking part in any AIChE event, including the ChemECar Competition<sup>TM</sup>, should also comply with all applicable safety guidelines.

Violations of this conduct policy should be reported promptly to the AIChE President or Executive Director.

Read AIChE's Code of Ethics

#### AICHE CHICAGO SECTION

AIChE Chicago Section 13964 Doral Lane Homer Glen, IL 60491 aichechicago@gmail.com

https://www.facebook.com/AIChEChicagoSection
https://www.linkedin.com/groups/4538581
https://www.aiche.org/community/sites/local-sections/chicago



#### Officers and Committee Members

Sarika Goel
McKay Rytting
Ha Dinh
Belma Demirel
Aida Amini Rankouhi
Jeffrey Zalc
Rishabh Jain
Jarad Champion
Janet Werner
Robert Tsai
Lance Baird
Kashif Uddin
Sanaz Taghvaii Arabi
Ruben Barajas
Yechan Won
Robert Tsai

### We want you for AIChE-Chicago!

AIChE is committed to promoting a fair, just, and equitable profession and society. AIChE believes that all who wish to be a part of the chemical engineering community should have equal opportunity to pursue and achieve success. We work toward a better future for all — through our technical expertise; through how we inspire, engage, retain, and advance future talent; and through how we treat each other within and beyond the profession.

AIChE Equity, Diversity, and Inclusion Statement | AIChE

## 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

http://www.aiche.org/community/sites/localsections/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 <u>aichechicago@gmail.com</u> with "newsletter article" as a subject line.