



Contents

Letter from the Chair	2
The History of STS- AIChE (an excerpt)	3
List of 2023 Upcoming Events (venues TBD)	4
September 2023 Dinner meeting	4
Keynote Presentation.....	5
Pre-Dinner Workshop (1 PDH).....	6
Registration.....	7
Announcements	8
2023 Elections - STS AIChE Call for Officers	8
2 nd Climate Solutions Symposium on October 7, 2023	8
STS- AIChE 80 th Anniversary Celebration on October 21, 2023.....	9
ChemE Show featuring STS-AIChE SPTC and TIEPP Energy Forum, November 28-30, 2023	9
STS AIChE Mentorship Program Initiative	10
Recent Engagements	10
2023 Annual STS-AIChE Houston Ship Channel Tour	10

LinkedIn Page for STS- AIChE 13
The STS- AIChE Newsletter Crew 13

Letter from the Chair

Dear members & friends,



The summer months have been a welcome reprieve from a busy spring. We hope our STS members use the time to pause, reflect and relax. We used the pause to do a refreshing Ship Channel tour on June 10th. We also held our mid-year planning meeting on June 3rd to prepare for the 2nd half of 2023 and to assess the progress of our goals. Our

Executive Committee is very engaged and it continues to think of ideas to serve our members. On May 4th, we held one more successful dinner, jointly with the Texas Water Forum. We had a healthy attendance of 60 people and lots of engagement. We thank our distinguished dinner presenter *Dr. José Santiesteban* and the Texas Water Forum speakers for an excellent program.

The next two months have an exciting agenda. More details are listed in this newsletter:

- **September 7th** will bring us the STS dinner at a new STS venue in North Houston to accommodate members in the Woodlands, Humble and surrounding areas. On **October 5th**, we will hold another dinner meeting. Details are listed in the table below. You can use the early bird registration rates to save \$5-10 in the cost.
- The STS **80th Anniversary Celebration** on **October 21st** is taking shape. We have reserved a convenient and spacious pavilion at the Christia Adair Park, less than 30 minutes south from downtown Houston, able to host 200 people. We reserved an award-winning BBQ cook who will prepare the best BBQ Texas has to offer. It is a great time of the year to go outdoors and enjoy food, music, games, and a nice company. Bring your family and friends to enjoy the low cost (STS subsidized) event to mark a big milestone in our history.

Our sincere interest in catering to students & Young Professionals is manifested in our 2023 goals. As part of **Goal 1: Mentorship**, we released a [survey](#) to solicit STS members that want to serve as career mentors or act as mentees. We invite student & Young Professional members to express their interest in being mentored. The deadline is 8/31.

The History of STS- AIChE (an excerpt)

“The South Texas Section began the 80’s decade with an enrollment of 2,462 members. In memory of a devoted Section member who had recently passed away, The R. H. Churchwell Award was established to recognize outstanding service in environmental endeavors. Louis R. Roberts, Al Caselli, William B. Harris, David Himmelblau, and Ms. Patsy Chappelaer were elected Fellows of AIChE in 1980. Patsy was the only female Fellow of the Institute up to that time, as well as the first female Chairman of an AIChE Division (Fuels and Petrochemicals). Another active woman member, Marty Surprise, received the first Robert W. Churchwell Environmental Award during the Critical Issues Committee’s annual Houston Ship Channel inspection trip on the “Sam Houston”. Laura Gimpelson was elected the Section’s first female Chair in 1997. Over the years, the chemical engineering profession has moved from a male dominated profession to one where the female/male breakdown is nearly 50-50. The Section has had several more female Chairs since.”

Best Regards,

Andreas Matzakos, Ph.D.

2023 STS AIChE Chair

Email: sts-chair@aiche.org

List of 2023 Upcoming Events

Date	Event Name	Speaker	Venue
Thursday, September 7	Dinner Meeting: Engineering Inorganic-Organic Composites for Lithium-Ion Batteries	Prof. Lisa Biswal - Rice University ChBE Department	DoubleTree Hotel, JFK Boulevard at IAH
Thursday, October 5	Dinner Meeting: <i>Houston Climate Adaptation Plans</i>	Jane Stricker - Greater Houston Partnership	Houston Marriott Sugarland
Saturday, October 21	80th Anniversary Celebration BBQ	NA	Christia Adair Park
Thursday, November 2	Dinner Meeting: Title TBD	Nathan Levin – Shell Deer Park	San Jacinto College CPET
November 28-30	ChemE Show featuring SPTC	Many	Moody Gardens, Galveston, TX
Saturday, December 2	Holiday Social Event	NA	TBD

September 2023 Dinner meeting

Thursday, September 7, 2023, 5:30-8:30 pm CT

Event format: In-Person / Online

Location: [DoubleTree by Hilton Hotel Houston Intercontinental Airport](#)

15747 John F Kennedy Blvd, Houston, TX 77032

Please join the South Texas Section for our monthly workshop and dinner meeting. The keynote for the STS-AIChE dinner will be delivered by [Dr. Lisa Biswal](#).

5:30PM - 6:00PM: Pre-Dinner Workshop (1 PDH)

6:00PM - 6:45PM: Social/Networking Time

6:45PM - 7:30PM: Dinner & Announcements

7:30PM - 8:30PM: Keynote Presentation by Dr. Lisa Biswal (1 PDH)

Keynote Presentation

Engineering Inorganic-Organic Composites for Lithium-Ion Batteries (1 PDH)

Abstract:

Next-generation electrode materials for high-capacity lithium-ion batteries (LiBs) feature a composite design in which the active ion storage component is embedded in a flexible polymer matrix to accommodate large volume expansions that occur in the active material as the battery is charged. The performance of these electrodes often is hampered by a lack of stability at the interface between the Si active material and the polymer binder, where degradation of the interface compromises electrical contacts and ion transport channels. Degradation of the interface separating these components compromises the structural integrity of the electrode, causing both the loss of electrical contacts and blockages in ion transport channels. Interfacial engineering is essential for developing rational design rules for optimizing these materials. Superior performance is obtained when Si is combined with a pyrolyzed polyacrylonitrile polymer binder (PPAN), which can achieve charge capacities of $\sim 1000 \text{ mAhg}^{-1}$ at standard charge-rates with stable cycle lifetimes of $\sim 500\text{-}1000$ cycles. The extended cycle life and high C-rate electrochemical performance has set this porous Si apart from other Si embodiments in batteries, yet the underlying causes for the superior performance of PPAN are not yet understood. Motivated by these results, I will discuss the key interactions governing the polymer/silicon interfaces to better understand how the structure of the interface is connected to performance.

About the Speaker:

[Dr. Sibani Lisa Biswal](#) is the William M. McCardell Professor in the Department of Chemical and Biomolecular Engineering and Senior Associate Dean in the George R. Brown School of Engineering at Rice University. She leads the [Soft Matter Engineering Laboratory](#), where she aims to connect a fundamental understanding of colloidal and interfacial forces governing soft matter systems to identify new insights and ideas towards

engineering new solutions for a variety of critical technological problems. Prior to Rice, she was a postdoctoral fellow at UC Berkeley. She received her BS in chemical engineering from Caltech (1999) and a PhD in chemical engineering from Stanford University (2004). She is the recipient of an ONR Young Investigator Award and a National Science Foundation CAREER award. She has also received the George R. Brown Award for Superior Teaching, the Rice Alumni Professional Progress Award, and the South Texas Section AIChE Best Applied Paper Award.

Pre-Dinner Workshop (1 PDH)

Opportunities in Leveraging Earlier Technologies and Developing New Technologies to Produce Future Renewable Fuels

Abstract

The energy mixture presently used to fuel the transport sector is predominantly of fossil origin and leads to significant net carbon dioxide emissions. As a result, there is an urgent need to transition the existing energy mixture into one which consists of renewable sources and has minimal fossil origin. After giving a brief overview of the history of previous energy transitions and the vast amount of knowledge generated while working through these transitions, this talk will focus on future renewable fuels proposed for the transport sector and the technologies required to produce these renewable fuels. A summary of examples where knowledge gained during earlier transitions can be leveraged and where new technologies need to be developed will be reviewed. Enormous opportunities exist for chemical engineers in improving earlier technologies as well as developing new technologies for successfully achieving the goals of future renewable fuels production.

About the Speaker

[Shyamal Bej](#), *Senior Principal Science Expert – Process Development, Shell*

Shyamal Bej is a Senior Principal Science Expert in the Process Development Group of Shell and currently supporting several projects related to renewable fuels, waste plastic

to chemicals, and carbon dioxide abatement. Before joining Shell in 2012, he worked for the Indian Institute of Petroleum, the University of Michigan, ConocoPhillips, and BP in the areas of petroleum refining, petrochemicals and specialty chemicals. Shyamal has a total experience of about 32 years in fundamentals of catalysis and reaction engineering, catalyst and process development, technology due diligence and de-risking, support to commercialization and trouble shooting in commercial plants. He was heavily involved in developing, commercializing, and improving several technologies. Shyamal received his PhD in Chemical Engineering from the Indian Institute of Technology, Kanpur, India and did his postdoctoral research in Catalysis from the University of Michigan, Ann Arbor, USA.

Registration

Workshop Registration (free to attend)

- In Person Registration - TBD
- Online (via Zoom) - TBD

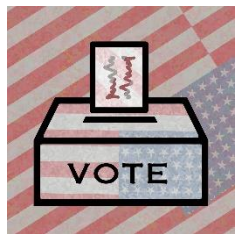
AIChE Dinner Registration Early Bird Registration lasts through August 7th

- In Person Registration (Early Bird Rates below) - TBD
 - STS Members -\$45 (increases to \$50 on 8/8)
 - STS YP Members - \$40 (increases to \$45)
 - STS Student Members - \$35 (increases to \$40)
 - Non-members - \$50 (increases to \$60)
- Online (via Microsoft Teams) - TBD
 - Members - \$5
 - Non-members - \$15

We would also encourage to RSVP for the [LinkedIn event](#) to promote networking.

Announcements

2023 Elections – STS- AIChE Call for Officers



The STS Nominating Committee is seeking volunteers for officers. The elections will be held later in the fall. If you are interested in learning about responsibilities of our 2024 officer positions, please reach out to *Julie D. White*, STS Past Chair and Nominating Committee Chair (sts-pastchair@aiche.org). The 2024 offices open for election will be:

- Chair-Elect
- Secretary
- Position 2 (Outreach; for ChE faculty)
- Position 4 (Human Resources)

2nd Climate Solutions Symposium on October 7, 2023

- [Climate Solutions Symposium](#) will be held at the University of Houston Student Theater Center between 1-4 pm.
- It features three important climate solution initiatives, the [Sustainable Energy Corps](#), *Let's Make Texas More Reliable and Cleaner*, and [Global Solutions and Outreach Programs](#).
- Registration is 10 \$ (in-person or livestreaming). Student registration is free.
- For more details regarding the event, reach out to Symposium Chair, [Dr. Thomas E. Rehm](#).

STS- AIChE 80th Anniversary Celebration on October 21, 2023



- To be held on **October 21**, between 3:30 pm – 7:00 pm at [Christia Adair Park, 15107 Cullen Blvd, Houston, 77047](#).
- Fun games for young and old, enjoy time with your families.
- BBQ provided by [Gettin' Sauced, 2022 Houston Rodeo BBQ Champion](#) between 4:30-6:00 pm. Complimentary refreshments provided – bottled water, soft drinks, iced tea, and alcoholic beverages.
- Between 6:00-7:00 pm, join 2023 Chair [Dr. Andreas Matzakos](#), 2023 AIChE President [Dr. Billy Bardin](#), and many other prominent South Texas Section members for a look back at the history of our section.

Registration is \$10 per person. Mark your calendars, a registration page will soon be set up.

ChemE Show featuring STS-AIChE SPTC and TIEPP Energy Forum, November 28-30, 2023

- The [Southwest Process Technology Conference \(SPTC\)](#) is the flagship conference of the Southwest Region organized by the STS- AIChE section. This year STS-AIChE is collaborating with Hydrocarbon Processing to organize SPTC as part of the [ChemE Show](#).
- Excellent opportunity for our community to grow their network and connect with colleagues in several industries, including fertilizer, agrichemical, refining/petrochemical, pharmaceutical, and adhesives.

- The SPTC Sessions will be held between November 29-30 at the Moody Gardens in Galveston, TX. The ChemE Show offers a [discounted hotel room rate](#) of \$165/per night plus applicable taxes.
- The early bird registration fee for AIChE members is \$200 and it lasts till October 1st, with an extra 10% off for STS members (code sent by email to STS members).
- Please contact Bill Shaw (sts-chairelect@aiche.org) for sponsorships and exhibit sales and Virginia Sommer (Virginia.Sommer@fluor.com) for technical programming.

STS- AIChE Mentorship Program Initiative



- STS- AIChE has worked diligently to launch its own mentorship program.
- A team of STS- AIChE officers and committee chairs will make their best efforts to match mentors and mentees based upon the received data and inform mentors and mentees accordingly.
- Please fill this survey [form](#) no later than **August 31, 2023** if you are interested to become a mentee or mentor. For questions about the program, please contact *Mona Setoodeh*, at mona.setoodeh@gmail.com.

Recent Engagements

2023 Annual STS-AIChE Houston Ship Channel Tour

- Held on **Saturday, June 10**, between 3:30 pm – 5:00 pm. About 40 people attended and enjoyed snacks and refreshments. We thank *Dennis Griffith* for his faithful service organizing it every year with the Port of Houston.
- We journeyed down the Houston Ship Channel which has the largest concentration of chemical industry in the United States with more than 50 chemical processing facilities located along either side.
- The tour has been happening continuously for the last ~50 years (barring the few years during COVID-19).

- Here are some pictures from the event:



Event organizer Dennis Griffith and STS Chair Andreas Matzakos enjoy the Ship Channel Tour.



Numerous STS members and spouses joined from far distances to enjoy the tour. Pictured among others are Prof. Emmanuel Dada, and David Mitchell.



STS members Norman Carnahan and Lirio Quintero enjoy the Ship Channel Tour.

LinkedIn Page for STS- AIChE

Follow our [LinkedIn page](#) for updates and RSVP for the monthly meeting event created on our LinkedIn page. Don't forget to tag the page in posts related to STS- AIChE section.

The STS- AIChE Newsletter Crew

Contact STS-AIChE Newsletter Editor, [Dr. Harsh Agarwal](#) at aiche.sts.newsletter@gmail.com with feedback, questions, and ideas for the next newsletter.