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Contact Information

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Message from the Chair:

Here we are still in February, getting a jump on our March mailing! Our next meeting will be held on March 8, 2022, and will take place in Clemson, SC. Dr. Alba-Rubio will be presenting on catalysis.

On February 15, we had a successful meeting, in downtown Greenville, SC with 8 Clemson representatives and several local chapter members in attendance. Ruth Albright gave a synopsis of the situation regarding potential new regulations related to PFAS - Polyfluorinated Alkylated Substances. She did an excellent job of relaying the complexity of issues regarding this class of chemicals with an upbeat and positive outlook for the future.

At this meeting we announced our scholarship winners - 1st place Julia Wood and 2nd place Ashley Reichard. All applicants in attendance were given a check to cover their expenses and offer encouragement for their continued dedication to the chemical engineering program.

Please check out our next speaker information (in less than 2 weeks) and RSVP if you plan on attending in person. Links can be found on the website www.aiche.org/WSC. Or, you may send an RSVP email to sec@wscaiche.org. This meeting will also be held in hybrid form with a ZOOM link.

On April 12, 2022, we have engaged William Bartlett, PE, of WGB Engineering to speak at the Innovate building in Greenville, SC. He will address the timely topic of "The Physics of Air: Understanding Everything from the Science of Masks to Climate."

We are still targeting the Solvay tour for April or May, at 4:30 PM on a Thursday. Please stay tuned and check our website for periodic updates.

We look forward to seeing you again soon!

Conny Marlene Walker, Chair, 2021-2022 WSC LS AIChE

March 8 Meeting— Catalysts Can Be Good at Multi-tasking

Homogeneous and heterogeneous catalysis are fields that have been historically separated. Poly(styrenesulfonic acid) (PSSA) combines the advantages of both homogeneous and heterogeneous catalysis. PSSA is soluble in polar solvents; therefore, all acidic groups are readily accessible. In addition, the catalyst cannot be deactivated through coking because there is no surface for the carbonaceous species to be deposited. At the same time, PSSA, due to its high molecular weight, can be easily recovered by ultrafiltration for further utilization. PSSA has shown promising activity in reactions that require Brønsted acid sites, such as the hydrolysis of PET, dehydration of xylose to furfural, or biodiesel production from vegetable oils. We have recently added a second functionality to this polymer catalyst by the incorporation of AlCl_3 , and this led to a soluble and reusable catalyst with both Brønsted and Lewis acid sites (PSSA- AlCl_3). This superacid catalyst was able to catalyze all the reactions involved in the one-pot synthesis of hydroxymethylfurfural (HMF) from glucose. HMF is a valuable platform chemical, and there is an enormous market for some of its derivatives, such as furandicarboxylic acid (FDCA) and adipic acid. This talk will also address the synthesis of inverse metal oxide-metal catalysts for the hydrogenation of CO_2 and the addition of a sorbent component for the development of dual-function materials (CO_2 capture & conversion). This one-pot approach could eliminate current energy-intensive and corrosive CO_2 capture and storage processes while producing important commodity chemicals and fuels.

Dr. Ana C. Alba-Rubio is an associate professor in the Department of Chemical & Biomolecular Engineering at Clemson University. She received her B.S. in chemical engineering from the University of Malaga, Spain, in 2007. She then moved to the Institute of Catalysis and Petrochemistry (CSIC) in Madrid, Spain, to pursue her doctoral studies. After receiving her Ph.D., Dr. Alba-Rubio joined the Department of Chemical and Biological Engineering at the University of Wisconsin-Madison. In 2015, she joined the faculty at the University of Toledo, and recently, she moved to Clemson University as an associate professor. Her current research interests involve the rational design and synthesis of heterogeneous catalysts to provide fuels and materials sustainably and the development of nanomaterials for sensing applications. She has received numerous awards and currently serves as a director of the AIChE Catalysis and Reaction Engineering Division (CRE).

March Meeting Information

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|------------------------------------|---|
| TITLE: | Catalysts Can Be Good at Multi-tasking |
| SPEAKER: | Dr. Ana C. Alba-Rubio |
| DATE: | Tuesday, March 8, 2022 |
| EVENT TIMING: | 6:00 PM Social 6:30 PM Dinner/ZOOM Room opens 6:45 PM Section Business Meeting 7:00 PM Presentation (in-person or virtual) |
| LOCATION (in-person event): | Clemson University, Earle Hall -In-person attendance is limited; RSVP for dinner -Masks required inside campus buildings -Parking passes will be distributed upon arrival; easy parking in lot E-04 at the corner of Williamson Dr & S Palmetto Blvd -those interested in carpooling, please contact Jacob Lindler at vchair@wscaiche.org |
| LOCATION (virtual event): | ZOOM Connect via link on the WSC AIChE website (registration in advance is recommended) |
| COST: | No charge for persons who RSVP for this meeting. |
| RSVP | by 5:00 PM Sunday, March 6, 2022 click here for RSVP form |

Contact Secretary (sec@wscaiche.org) if you have trouble with the RSVP form.

2021-2022 Officers and Executive Committee

| POSITION | NAME | COMPANY | E-MAIL |
|---------------------|------------------|-----------------|--|
| Chair | Conny Walker | Independent | chair@wscaiche.org |
| Vice-Chair | Jacob Lindler | aeSolutions | vchair@wscaiche.com |
| Secretary | Tasso Ghionis | Omega Chemicals | sec@wscaiche.org |
| Treasurer (Interim) | Anil Wagle | Retired | treasurer@wscaiche.org |
| Former Chair | Anil Wagle | Retired | Anilwagle123@gmail.com |
| Newsletter | Bonnie McCourtie | Jacobs | Bonnie.mccourtie@jacobs.com |

| | | | |
|---------------------|---------------------------------|------------|--|
| Webmaster | (open) | | |
| Historian | (open) | | |
| Executive Committee | Karl McCaleb | Mitsubishi | kmccaleb2@bellsouth.net |
| | Donald P Gurney, Jr., ScD, P.E. | Consultant | degurney@charter.net |
| | Bill Thompson | Ortec | bthompson@ortecinc.com |
| | Devon Clymer | Jacobs | Devon.clymer@jacobs.com |

Finance and Outreach Committees

The WSC AIChE Section is looking for members to join two committees to better serve our membership and our community.

The **Finance Committee** oversees the section's investment and banking accounts. The committee also prepares an annual budget and makes recommendations for scholarship amounts, speaker expenses/honorariums, and the like. Austin Crooks, Anastase (Tasso) Ghionis and Anil Wagle are current members. Email treasurer@wscaiche.org for more information or to volunteer your time.

The **Outreach Committee** will explore opportunities to support local schools and to make ourselves known in the broader community. Please contact Tasso Ghionis at sec@wscaiche.org if you have suggestions on what we might become involved with or if you would be willing to serve on this committee

2021-2022 Calendar of Events

| DATE | LOCATION | TOPIC |
|----------------|--|--|
| March 8, 2022 | Earle Hall, Clemson | Catalysis Dr. Ana Alba-Rubio |
| April 12, 2022 | Synterra/Innovate 148 River Road, Greenville 29601 | William G Bartlett The Physics of Air: Understanding Everything from the Science of Masks to Climate |
| TBD | Piedmont, SC | Solvay Plant Tour |
| May 2022 | TBD | WSC LS AIChE May Social |