New Frontiers and Opportunities for Chemistry

Presidential ACS Webinar Series: "Frontier Fridays"
Virtual Presidential/COMSCI Symposium ACS 2021 Fall National Meeting

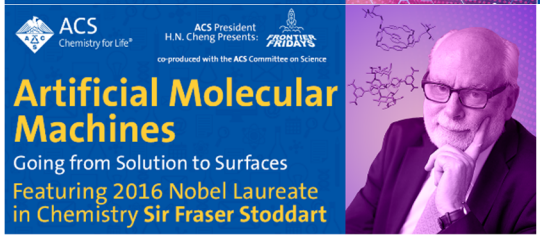
Coordinated by:
ACS President H.N. Cheng
ACS Committee on Science:

- Young-Shin Jun: Chair, Science and Technology Subcommittee
- Michael Morello: Division Representative
- Martin Kociolek: Chair

The goal of this Presidential – Committee on Science Webinar Series and Symposium is to gather the leading researchers in the promising growth areas for chemistry, to network and exchange ideas, and to instruct our younger colleagues and students as to the future directions of chemistry. As we know, chemistry is an exciting field, and it is becoming increasingly multidisciplinary and multi-faceted. There are many new or expanded areas where future chemists and chemical engineers can find increasing opportunities to apply their chemical knowledge. This symposium will highlight some of these areas and will also show how being adaptable, collaborative, and entrepreneurial will help chemists and chemical engineers succeed in the future.

ACS "Frontier Fridays" Webinar Series

- **5/28/2021: Zhenan Bao**, Stanford University, Skin-Inspired Organic Electronics (1 PM EDT) https://www.acs.org/content/acs/en/acs-webinars/technology-innovation/organic-electronics.html
- **6/11/2021: Amy Prieto**, Colorado State University and Founder of Prieto Battery, Inc., Lithium-ion Batteries: The Road to Sustainable Energy Storage (1 PM EDT) https://www.acs.org/content/acs/en/acs-webinars/technology-innovation/lithium-ion-sustainability.html
- **6/25/2021: Sir Fraser Stoddart**, Northwestern University, Molecular Machines: Featuring Nobel Laureate in Chemistry Sir Fraser Stoddart (2 PM EDT) https://www.acs.org/content/acs/en/acs-webinars/technology-innovation/molecular-machine.html



"New Frontier and Opportunities" Symposium in August ACS National Meeting, 2021

Sponsored by ComSci and PRES. Cosponsored by YCC, AGFD, CATL, ENVR, GEOC, MEDI, POLY
The symposium is organized by topics, and the order of the topics and the speakers within a given topic is random.

Control ID	Abstract Title	Speaker	Affiliation	Date/Time (all EDT)
COMSCI003A: Materials			Sunday	August 22
3594527	Getting in Front of the Additive Manufacturing Revolution: Sustainability Needs and Opportunities	Joseph DeSimone	Stanford U.	2:00-2:30 PM
3586374	Placing 3D Bioprinting in the Context of Tissue Fabrication	Y Shrike Zhang	Harvard Med School	2:30-3:00 PM
3599197	It's about I: Invention, Innovation, Inspiration, and Inclusivity	Kathryn E. Uhrich	UC Riverside	3:00-3:30 PM
3588508	Materials Opportunities in a Post Moore Era	Rudy Wojtecki	IBM	3:30-4:00 PM

COMSCI0B: Nanotechnology & Reticular Chemistry			Sunday	August 22
3600423	MegaLibraries: Tools for Exploring and Expanding the Materials Genome with Big Data and AI	Chad Mirkin	Northwestern U.	4:30-5:00 PM
3585376	Discovery and commercialization of nanostructured zeolites: An example of chemistry entrepreneurship that creates value and reduces CO_2 emissions	Javier Garcia Martinez	U. Alacant, Spain	5:00-5:30 PM
3584860	Multivariate Reticular Chemistry	Omar Yaghi	UC Berkeley	5:30-6:00 PM
3589006	Smart and Programmable Sponges from Basic Science to Implementation and Commercialization	Omar Farha	Northwestern U.	6:00-6:30 PM

COMSCI0C: Catalysis			Sunday	August 22
3595800	Solar photoelectrochemical and photocatalytic systems for sustainable environment	Wonyong Choi	Postech, South Korea	7:00-7:30 PM
3597130	Catalyzing chemical transformations for global sustainability	Thomas Jaramillo	Stanford U.	7:30-8:00 PM
3598804	Towards a Sustainable Chemical Industry: Opportunities and Challenges	Bala Subramaniam	U. Kansas	8:00-8:30 PM

3593714	Applications of Plasmonic Catalysis to Organic Transformations	Audrey Moores	McGill U.	8:30-9:00 PM

COMSCI0D: Therapeutics and Diagnostics			Monday	August 23
3598195	Kidney Dialysis: A Multidisciplinary Nexus for Chemistry, Physics, Engineering, Biology and Medicine	Buddy Ratner	U. Washington, Seattle	10:30-11:00 AM
3591611	Environment-sensitive molecules as next-generation biomarkers for point-of-care diagnostics	Mireille Kamariza	Harvard U.	11:00-11:30 AM
3600143	Mass spectrometry, molecular data, and cancer diagnosis: Advances and challenges towards clinical use	Livia Eberlin	U. Texas, Austin	11:30-12:00 AM
3587103	Translating Nature's Chemical Repertoire: Opportunities for Chemists and Chemical Engineers	Kerry McPhail; Nicholas Oberlies	Oregon State; UNC Greensboro	12:00-12:30 AM

COMSCI0E: Biotechnology and Biomaterials			Monday	August 23
	Welcome	Thomas M. Connelly	ACS	2:00-2:05 PM
	Introductory Remarks	H.N. Cheng	ACS	2:05-2:10 PM
3602081	**Keynote Lecture** - The Chemistry of CRISPR for Genome Editing and Detection	Jennifer A. Doudna	UC Berkeley	2:10-2:55 PM
3597667	Biosystem Design by Directed Evolution	Huimin Zhao	U. Illinois, Urbana-Champaign	2:55-3:25 PM
3597409	Crafting 3D cellular microenvironments from the bottom-up using supramolecular chemistry	Roxanne Kieltyka	Leiden U., The Netherlands	3:25-3:55 PM

COMSCI0F: Computing and Modeling			Monday	August 23
3597490	What to do with a near-term quantum computer?	Alán Aspuru-Guzik	U. Toronto	4:30-5:00 PM
3590333	Machine Biology for Infectious Diseases	Cesar de la Fuente	U. Pennsylvania	5:00-5:30 PM
3596195	Importance of multidisciplinary and collaborative teams	Julia Rice	IBM	5:30-6:00 PM
3621770	Frontiers in Computational Chemistry	Angela K. Wilson	Michigan State U.	6:00 – 6:30 PM

COMSCI0G: Food and Geo Chemistry			Tuesday	August 24
3593713	Health Beneficial effects of Jiaogulan and the molecular mechanism behind	Liangli Yu	U. Maryland, College Park	10:30-11:00 AM
3595957	Translational Taste Research: Discovery of Molecular Targets for Flavor Innovations	Corinna Dawid	Tech. U. Munich, Germany	11:00-11:30 AM
3584650	Environmental interfacial chemistry	Vicki Grassian	UC San Diego	11:30-12:00 AM
3584775	Organic-mineral interactions at the molecular level: Impacts and research needs	James Kubicki	U. Texas at El Paso	12:00-12:30 AM

COMSCI0H: Environmental Chemistry and Engineering			Tuesday	August 24
3586316	Addressing environmental and climate challenges with abundant reactive minerals	Martin Schoonen	Brookhaven Nat. Lab	2:00-2:30 PM
3596561	Environmental chemistry as a catalyst for innovation	Desiree Plata	MIT	2:30-3:00 PM
3597768	Toward Single Atom Catalysis for Environmental Application	Jaehong Kim	Yale U.	3:00-3:30 PM
3595720	Roles of advanced oxidation and reduction processes in eliminating contaminants of emerging concern in water and wastewater	Dionysios Dionysiou	U. Cincinnati	3:30-4:00 PM

COMSCI0I: Sustainability			Tuesday	August 24
3584637	Re-Imagining the Periodic Table: Addressing Sustainability Challenges in the 21st Century with Earth-Abundant Metal Catalysis	Paul Chirik	Princeton U.	4:30-5:00 PM
3584724	Developing advanced chemical recycling and redesign strategies to enable plastics circularity	Gregg Beckham	Nat. Renewable Energy Lab	5:00-5:30 PM
3584767	Environmentally Responsible Synthetic Organic Chemistry: When Chemo-catalysis meets Bio-catalysis, in Water	Bruce Lipshutz	UC Santa Barbara	5:30-6:00 PM
3595273	Recent advances in CO_2-switchable solvents	Philip Jessop	Queen's U.	6:00-6:30 PM