HARVARD CCB

DEPARTMENT OF CHEMISTRY AND CHEMICAL BIOLOGY

2023 UNDERGRADUATE SYMPOSIUM

Schedule of Events

May 2nd, 2023
9:00 am - 4:00 pm
12 Oxford Street, Cambridge, MA 02138

8:00 am-9:00 am	**Registration & Breakfast**	Department Center
9:00 am-9:10 am	**Welcome & Opening Remarks** Professor Theodore Betley, *Department Chair, Erving Professor of Chemistry*	Pfizer Lecture Hall
9:10 am-9:40 am	**Keynote Speaker** Professor Daniel G. Nocera, *Patterson Rockwood Professor of Energy*	Pfizer Lecture Hall
9:45 am-12:00 pm	**Independent Research Oral Presentations**	Pfizer Lecture Hall
11:00 am-12:00 pm	**Poster Session**	Department Center
12:00 pm-1:15 pm	**Lunch**	Department Center
1:15 pm-1:30 pm	**Symposium Group Photo**	CCB Library
1:30 pm-3:00 pm	**Independent Research Oral Presentations**	Pfizer Lecture Hall
2:15 pm-3:00 pm	**Round Table Discussions with Harvard Alumni in PhD, MD & MD/PhD Programs**	CCB Library
3:00 pm-3:30 pm	**Award Ceremony & Concluding Remarks**	Department Center

Morning Oral Presentations

Pfizer Lecture Hall

Session Chairs: Dr. Gregg Tucci and Dr. Sirinya Matchacheep

9:45 am **Impact of Common Pharmaceuticals on the Development of cutaneous Squamous Cell Carcinoma**
Sammer Marzouk, Mandinova Group

10:00 am **The Case of the Missing Meleagris: Diet and Animal Management at Copán, Honduras**
Nour Khachemoune, Warinner Group

10:15 am **Platinum Nanoparticle-Decorated Silicalite-1 Electrocatalysts for Enhanced Mass Transport**
Jing-Jing Shen, Nocera Group

10:30 am **Design and Synthesis of a Chemical Inducers of Proximity DNA-Encoded Library for the Discovery of Cereblon-Recruiting Molecular Glues**
Sunny Tang, Schreiber Group

10:45 am **Development of an Enantioselective Propargylic Substitution Reaction with Alkene Nucleophiles using Hydrogen-Bond Donor/Transition Metal Co-Catalysis**
Jolade Adebekun, Jacobsen Group

11:00 am **Small Molecules Suppressing Aggregation: Investigating Myo-Inositol and Human γD Crystallin**
Constance Kraay, Shakhnovich Group

11:15 am **Synthesis and Characterization of 5,10,15,20-Tetrakis(4-fluoro,2-6-dimeythylphenyl)porphyrinatoiron(III)**
Hannah Lamport, Jenny Lu, Tina Chen, Chem 145, Advised by Dr.Dilek Dogutan Kiper

11:30 am **Synthesis and Characterization of 5,10,15,20-Tetrakis(4-fluoro, 2-6-dimeythylphenyl)porphyrinatomagnesium(II)**
Dani Kranchalk, Colin Le, Giovan McKnight, Chem 145, Advised by Dr.Dilek Dogutan Kiper

11:45 am **Synthesis and Characterization of 5,10,15,20-tetrakis(4-fluoro-2,6-dimethylphenyl)-18-hydroxyporphine**
Nikhil Seshadri, Chem 145, Advised by Dr.Dilek Dogutan Kiper

12:00 pm **Lunch Break**

1:15 pm **Symposium Group Photo (CCB Library)**

Afternoon Oral Presentations

Pfizer Lecture Hall

Session Chairs: Dr. Heidi Vollmer-Snarr and Dr.Dilek Dogutan Kiper

1:30 pm **Investigating the Negamycin Biosynthetic Pathway**
Pallas Chou, Balskus Group

1:45 pm **Design and Synthesis of a selective PET tracer for Ataxia Telangiectasia**
Azra Haseki, Hooker Group

2:00 pm **RNA in a Haystack: Studying Prebiotic RNA Assembly Using Selection and Sequencing**
Zoe Weiss, Szostak Group

2:15 pm **PET imaging with [18F]3F4AP to investigate changes in traumatic brain injury-induced demyelination in mouse models**
Lauren Zhang, Brugarolas Group

2:30 pm **Measurement of Sodium D-2 Transitions Using MTS Spectroscopy**
Brayant Garcia, Ni Group

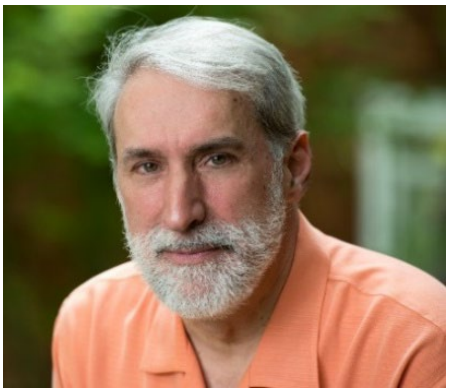
2:45 pm **Medical Agents of Social Change: Chemicals and Characters in Middlemarch and The Moonstone**
Brammy Rajakumar, Advised by Dr. Heidi Vollmer-Snarr, Deidre Lynch, Zach Zinsli, Shalisa James & Professor Christina Woo

Sponsored by the Department of Chemistry and Chemical Biology and the FAS Community Renewal Fund

Keynote Speaker

Professor Daniel G. Nocera

Patterson Rockwood Professor of Energy



Daniel G. Nocera is the Patterson Rockwood Professor of Energy at Harvard University. Widely recognized in the world as a leading researcher in renewable energy, he is the inventor of the artificial leaf and bionic leaf. Nocera has accomplished the solar fuels process of photosynthesis – the splitting of water to hydrogen and oxygen using light from neutral water, at atmospheric pressure and room temperature. He has performed this solar process at efficiencies of greater than 10%. The artificial leaf was named by Time magazine as Innovation of the Year for 2011. He has since elaborated this invention to accomplish a complete artificial photosynthetic cycle. To do so, he created the bionic leaf, which is a bio-engineered bacterium that uses the hydrogen from that artificial leaf and carbon dioxide from air to make biomass and liquid fuels. The bionic leaf, which was named by the World Economic Forum as the Breakthrough Technology for 2017, performs artificial photosynthesis that is ten times more efficient than natural photosynthesis. Extending this approach, Nocera has achieved a renewable and distributed synthesis of ammonia (and fertilizer) at ambient conditions by coupling solar-based water splitting to a nitrogen fixing bioorganism, which is powered by the hydrogen produced from water splitting.

Nocera's research contributions in renewable energy have been recognized by several awards, some of which include the Leigh Ann Conn Prize for Renewable Energy, Eni Prize, IAPS Award, Burghausen Prize, and the United Nation's Science and Technology Award and from the American Chemical Society the Inorganic Chemistry, Harrison Howe. Kosolapoff and Remsen Awards. He is a member of the American Academy of Arts and Sciences, the U.S. National Academy of Sciences and the Indian Academy of Sciences. He was named as 100 Most Influential People in the World by Time Magazine and was 11th on the New Statesman's list on the same topic, and he is a frequent guest on TV and radio and is regularly featured in print.

Before joining Harvard, Nocera began his career at Michigan State University, where he was a University Distinguished Professor and then in 1997 joined the faculty of MIT where he was the Henry Dreyfus Professor of Energy. He earned his B.S. degree at Rutgers University and his Ph.D. at Caltech. Nocera has mentored 160 Ph.D. graduate and postdoctoral students, published over 450 papers, given over 950 invited talks and 125 named lectureships. In 2008, Nocera founded Sun Catalytix, a company committed to developing energy storage for the wide-spread implementation of renewable energy. In August 2014, Lockheed Martin purchased the assets of Sun Catalytix, and now Sun Catalytix technology is being commercialized under the venture, Lockheed Martin GridStar™ Flow.