

## Northeast Region



National Organization for the  
Professional Advancement of Black  
Chemists and Chemical Engineers

## Joint NENOBCCChE-NESACS Meeting February 2021

## Northeastern Section



American Chemical Society

## Henry Hill Lecture and Award Recognition

Thursday – February 11<sup>th</sup>, 2021

Zoom (see registration link below)

- 4:30 pm – 5:30 pm NESACS Board Meeting
- 5:30 pm – 6:30 pm Break for Dinner
- 6:30 pm – 7:00 pm Virtual Networking
- 7:00 pm – 8:30 pm Monthly Meeting Featuring:  
the Henry A Hill Award for Outstanding Service to **Dr. Katherine Lee**  
and Henry A Hill Lecture by **Professor Fikile Brushett**,  
Cecil and Ida Green Career Development Chair,  
Associate Professor of Chemical Engineering  
Massachusetts Institute of Technology

The information for registration is available at the following link:

<https://american-chemical-society.zoom.com/meeting/register/tZ0qcOyrgD0rG9ZkqBx60ALnsJyPwEsl9RuJ>

If you have any questions or require additional information, contact the Administrative Coordinator, Anna Singer, via email at [secretary@nesacs.org](mailto:secretary@nesacs.org).

### ***Professor Fikile Brushett's Abstract and Biography:***

**TITLE: Pathways to sustainability through electrochemical technologies**

**ABSTRACT:** Energy is essential to modern society and the abundance, availability, and affordability of liquid fossil fuels has been a key driver of the past century's progress. However, with continued growth in energy demand worldwide, there is an increasingly urgent need to decouple carbon emissions from economic activity without stifling development. Electrochemical processes are poised to play a pivotal role in the evolving global power system as the efficient interconversion of electrical and chemical energy can enable the deployment of sustainable technologies that support the decarbonization of the electric grid, power the automotive fleet, and offer new opportunities in chemical manufacturing. Meeting these emerging needs will require significant advances in technology as the stringent performance, cost, and scale requirements cannot be met by many of today's systems. Using grid energy storage as an example, I will discuss the use of techno-economic modeling to inform research approaches in fundamental and applied electrochemistry with a particular emphasis on connecting system targets to materials property sets and on leveraging this knowledge to guide the exploration of new chemistries and reactor designs. Ultimately, I aim to describe an

emerging opportunity space for electrochemical technologies and, hopefully, to inspire new ideas for future products and processes.

#### Biographical Sketch -

**Prof. Fikile Brushett**  
**Cecil and Ida Green Career Development Chair,**  
**Associate Professor of Chemical Engineering**  
**Massachusetts Institute of Technology**



Fikile Brushett is an Associate Professor in the Department of Chemical Engineering at the Massachusetts Institute of Technology (MIT) where he holds the Cecil and Ida Green Career Development Chair. He received his B.S.E. in Chemical & Biomolecular Engineering from the University of Pennsylvania in 2006 and his Ph.D. in Chemical Engineering from the University of Illinois at Urbana-Champaign in 2010 under the supervision of Professor Paul J. A. Kenis. From 2010-2012, he was a Director's Postdoctoral Fellow in the Electrochemical Energy Storage Group at Argonne National Laboratory under the supervision of Dr. John T. Vaughey. In 2012, he started his independent career at MIT where his research group seeks to advance the science and engineering of electrochemical technologies that enable a sustainable energy economy. Brushett is especially interested in the fundamental processes that define the

performance, cost, and lifetime of present day and future electrochemical systems. His group currently works on redox flow batteries for grid storage and electrochemical processing of carbon dioxide and biomass. He also serves as the Research Integration co-Lead for the Joint Center for Energy Storage Research, a DOE-funded Energy Innovation Hub.

***Dr. Katherine Lee's Biography:***  
**Senior Director and Head of Project Planning and Operations**  
**Inflammation and Immunology**  
**Pfizer**



Katherine Lee obtained her B.S., *summa cum laude*, with Distinction in Chemistry from Yale University and her Ph.D. in Organic Chemistry from MIT with Professor Rick Danheiser. Katherine then did postdoctoral studies at the University of Texas at Austin with Professor Stephen Martin before joining Mitotix, Inc. (now Agennix) as a medicinal chemist. Katherine moved to Wyeth Research (now Pfizer) in 2000 and in 2009 joined Pfizer. Katherine is an expert in medicinal chemistry, with research interests including fragment-based drug design, structure-based drug design, and optimization of ADME and safety properties. Katherine is a co-inventor of several clinical compounds, including a first-in-class IRAK4 inhibitor in Phase 2 and two cPLA<sub>2</sub> $\alpha$  inhibitors that achieved Phase 2 Proof of Concept. In 2019, Katherine joined Pfizer's Inflammation and Immunology Research Unit as Senior Director and Head of Scientific Planning and Operations.

Katherine was the 2015 Chair of NESACS and a NESACS Councilor from 2012-2014 and 2016-2018. Katherine served on the ACS Committee on Economic and Professional Affairs (CEPA) in 2013-2014 and 2017-2018. Currently, Katherine chairs the NESACS Board of Publications and is a member of the 2021 NESACS Nominating Committee. Katherine was recognized as an ACS Fellow in 2017. Katherine was the 2018 Chair of the ACS Division of Organic Chemistry (ORGN). In 2019, she joined the ACS Board of Directors as the District I Director.