

GET A  
**CHARGE**  
OUT OF CHEMISTRY

Hosted by the Southern Illinois Section  
of the American Chemical Society

**Date:** Thursday, *April 25*

**Locations:** (1) Southeast Missouri State University,  
Cape Girardeau. **Rhodes Hall 121**  
(2) University of Southern Illinois,  
Carbondale. **Necker 240**

**Agenda:** 5:00 pm SEMO Demonstrations  
5:45 pm **Pizza**  
6:00 pm Dr. Craig Gorin



[Link to attend 6pm  
presentation on Zoom](#)

## “Novel Materials and Chemistry to Mitigate Electric Vehicle Battery Fires”

**Speaker:** Dr. Craig F. Gorin, Dow Performance Silicones

Due to the need for reduction in pollution and greenhouse gas emissions, there is a major global shift to electric vehicles, with huge investments announced by all the automotive companies. However, battery safety remains a concern, especially with the increasingly large amount of energy stored in a battery pack for a marketable range per charge. This talk will first highlight the potential hazards present from battery thermal runaway events, which can lead to the electrical vehicle fires or explosions sometimes seen in the news. Next, we'll present an overview of material solutions that can provide protection from these extreme electrical or thermal conditions. In particular, Dow has developed new silicone-based materials in the forms of coatings, foams, and molded or extruded form factors that are leveraged throughout the entirety of a battery pack, providing beneficial properties in normal use and importantly, during and after a thermal event. Finally, new high temperature testing capabilities and analytical techniques will be discussed, required for enabling the development and evaluation of materials for this critical application.

Craig Gorin is an R&D Scientist with Dow Performance Silicones, leading the global technical platform developing improved silicone battery fire-protection materials. Craig's prior work at Dow has led to the commercialization of multiple award-winning products in the areas of polymer recycling and additive manufacturing (R&D 100 Award, Edison Award). Prior to joining Dow in 2014, he obtained an A.B. in Chemistry at Harvard University, and a PhD in Chemistry at Stanford University.



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