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## Vacuum Insulator Flashover

*Tuesday 20 September 2022 10:00 (30 minutes)*

In this presentation we describe a new effort at Sandia National Laboratories and Texas Tech University to better understand the key physics involved in vacuum insulator flashover. In many pulsed power applications, the transmission lines from the capacitor bank to the target load move from a region of water insulation (separation) to vacuum insulation (separation). In this transition region an insulator stack is utilized to separate the two stages. The undesired breakdown across an insulator, i.e., flashover, during the rising time of a pulse is a key failure mode. Although field emission and secondary electron cascade processes, which account for breakdown initiated at the cathode triple junction, have detailed explanations, the processes involved for anode-initiated breakdown are much less understood. Here we will describe modeling and experimental efforts to investigate the hypothesized mechanisms.

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### **Topic**

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**Author:** HOPKINS, Matthew

**Presenter:** HOPKINS, Matthew

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