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## Exploring the sensitivity of vacuum arc models to anode generated bremsstrahlung radiation with PIC simulations

Modeling vacuum arcs with accuracy depends on coupling multiple physical processes together. Current particle-in-cell (PIC) simulations of vacuum arcs include the effects of collisions, electromagnetic fields, and some surface processes that mediate the evolution of the arc. However, photons generated from energetic electrons hitting the anode are often not included. Such bremsstrahlung generated photons could be a significant source of secondary electrons or cathode surface modification. Here we couple an Empire PIC model of a vacuum arc with a model for bremsstrahlung radiation from the anode to test how sensitive the discharge is to the resultant photoemission from the cathode across a range of applied voltage (and gap sizes) between 1kV and 100kV.

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Modeling and simulations

**Author:** BEVING, Lucas

**Co-authors:** MOORE, Chris; HOPKINS, Matthew

**Presenter:** BEVING, Lucas

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