

Simulations of field emitters and multipacting in PIP-II Single Spoke Resonator Type-2

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It has been found in benchmark tests that some Single Spoke Resonator Type-2 (SSR2) cavities have early field emission onset as well as strong multipacting barriers. A longstanding hypothesis is that field-emitted electrons in the high electric field accelerating gap can migrate and ignite multipacting bands in the low electric field regions of the cavity periphery. In this study, we use simulation techniques to examine multipacting behavior in SSR2 cavities from electrons seeded in common field emitter locations. Additionally, we investigated seed locations for areas in SSR2 cavities which may have poor coverage during high pressure water rinsing and compared the multipacting behavior.

Footnotes

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Primary author: BROWN, Jacob (Facility for Rare Isotope Beams, Michigan State University)

Co-authors: SUKHANOV, Alexander (Fermi National Accelerator Laboratory); PASSARELLI, Donato (Fermi National Accelerator Laboratory); ROMANOV, Gennady (Fermi National Accelerator Laboratory); XU, Ting (Facility for Rare Isotope Beams)

Presenter: BROWN, Jacob (Facility for Rare Isotope Beams, Michigan State University)

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