

# The Beams and Applications Seminar Series

## Electron Cloud Effects: Past, Present, Future

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**Bldg. 401, Rm. B2100**  
**Friday, March 2, 1:30 pm**  
Host: Yong-Chul Chae, ASD

*Abstract: After more than a decade of intensive study, electron cloud effects and instabilities continues to be an active topic, and the development and implementation of cures remain very important for modern, high-performance accelerators. There are now many experts in the field in the areas of experimental measurements, modeling, surface science, and theory. APS has played a lead role in the development of dedicated electron cloud detectors, which are now the standard. After describing the basic mechanisms of electron cloud generation and multipacting (amplification) processes, I will present the highlights of electron cloud characterization studies at APS. Such measurements at APS and elsewhere have been invaluable in benchmarking numerical codes that model cloud generation and beam interaction. Recently, there have been some exciting new ideas in suppression of the electron cloud in dipoles, quadrupoles, and wigglers, where the nominal cures -- solenoids and low-emissivity coatings -- have not been effective. If these new cures prove to be successful, they can strongly benefit future accelerator projects such as the ILC damping and Super B-factories.*

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