

# The Beams and Applications Seminar Series

## Advances in Electromagnetic Modeling with ACE3P

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**Bldg. 401, Room A-1100**

**Wednesday Feb. 9, 10:30 am**

Host: John Power

Abstract:

Under the support of the SLAC accelerator research program and the DOE SciDAC computing initiative, ACE3P, a comprehensive set of parallel electromagnetic codes based on the finite-element method has been developed aimed at tackling computationally challenging problems in accelerator R&D. These powerful tools have enabled large-scale simulations of complex systems to be performed with unprecedented detail and accuracy. Significant progress has been made in cavity prototyping and optimization, the calculation of wakefields for ultra-short bunches, and multipacting simulations that can reliably predict problems in a machine design. The impact of these capabilities on projects such as the LHC Upgrade, CLIC, Project X, FRIB, CEBAF 12-GeV Upgrade, and PEP-X will be described.

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