

ACCELERATOR SEMINAR

“Novel Features of Computational Electromagnetics and Particle-in-Cell Simulations”

Shahid Ahmed

Radio frequency (RF) electromagnetic wave plays an important role for fast acceleration of charged particles in an accelerator. Therefore, the sound knowledge of electromagnetics and particle dynamics are important. The novel features of finite-difference time-domain (FDTD) and singular value decomposition (SVD) methods in determining the details of electromagnetic modes for an electromagnetic structure and designing mode suppressor for suppressing higher-order modes (HOM) will be demonstrated. The generation of wakefield and the excitation of plasma waves in the process of muon ionization cooling obtained by XOOPIC (particle-in-cell method) simulations will be described. Moreover, the progress in space charge physics modeling using G4beamline, the GEANT4 based accelerator design tool and its validation with XOOPIC computer code will be discussed.

Monday, January 4, 2010
3:30 p.m. – 4:30 p.m.
CEBAF Center, Room F113

Coffee before Seminar
starting at 3:00 p.m.



For further info, please contact Alex Bogacz at x5784 or
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