The Beams and Applications Seminar Series

Explicit Symplectic Integrators for 3D Static Magnetic Fields and Dynamic Aperture Studies with Wigglers

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Friday, Nov 21, 1:30 PM
Bldg. 401, Room B2100

Host: Kwang-Je Kim

In this talk, we report our recent work on developing explicit symplectic integrators for the charged particle motion in 3D static magnetic fields. This work extends the successful element-by-element tracking method for studying single particle nonlinear dynamics to a new set of s-dependent magnetic elements. Important applications of this work include the studies of the charged particle dynamics in a storage ring with various insertion devices, super-conducting magnets, large aperture magnets with significant fringe fields, and solenoid magnets in the interaction region. As a first application, we have developed a generic wiggler symplectic integrator. This integrator has been used to study dynamics impacts of various FEL wigglers in the Duke storage ring.

For more information visit

http://www.aps.anl.gov/asd/physics/seminar.html

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