

The Beams and Applications Seminar Series

Multi-Objective Optimization Approach to ILC Damping Ring Design

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Bldg. 401, room A1100
Tuesday, May 31, 1:30 pm
(special location)

Host: K.-J. Kim, ASD

Several detailed lattice designs for a damping ring have been proposed for the International Linear Collider. The design process involves making many decisions on the basic elements of the lattice (such as arc cell type and length, damping wiggler strength, period and total length) in order to obtain certain basic objectives (such as particular values of emittance and damping time). The design process becomes difficult when one is faced with more objectives than variables. The trade-offs between competing objectives must be quantified in some way for the designer to make a final choice between solutions. Multi-objective evolutionary algorithms produce such trade-off relations that are easily visualized. One such algorithm was applied to a damping ring design with FODO arc cells and wigglers with many variables, constraints and objectives. Emphasis will be given on how the multi-objective evolutionary algorithm works in general, and how to interpret the results.

For more information visit

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

Visitors from off-site please contact Chun-xi Wang
(wangcx@aps.anl.gov, 630-252-4968) to arrange for a gate pass.

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