

The Beams and Applications Seminar Series

High-intensity beam dynamics in the SNS linac

**Dong-O Jeon
(SNS, Oak Ridge)**

**Bldg. 401, Room B2100
Friday, July 25, 1:30 PM**

Host: Peter Ostroumov

Being a 1.44 MW machine, the beam loss requirement on the SNS linac is less than 1W/m and controlling halo particle generation is of great importance. Beam dynamics aspects of the SNS linac design are presented considering various halo generation mechanisms including matching between different Linac sections and space charge coupling resonances. A new halo generation mechanism in the non-periodic lattices such as the SNS linac MEBT (Medium-Energy Beam-Transport) between RFQ and DTL is presented. We find that the nonlinear space charge force resulting from large transverse beam eccentricity $\sim 2:1$ in the ~ 1.6 -m-long MEBT chopper section is responsible for halo formation. The proposed mitigation measures are presented. The transient beam behavior of the LEBT and MEBT choppers is also studied for the fate of partially chopped beams.

For more information visit

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

Visitors from off-site please contact John Power
(jp@anl.gov, 630-252-3191) to arrange for a gate pass.

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