

The Beams and Applications Seminar Series

Accelerator Physics Challenges in the Spallation Neutron Source Ring

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Bldg. 401, rm B2100

Friday, October 28, 1:30 pm

Host: Rod Gerig, ASD

The Spallation Neutron Source accelerator will deliver a 1.44 MW proton beam to a liquid mercury neutron spallation target. The ring portion of the accelerator will accumulate 1.5×10^{14} , 1 GeV protons from a 1 ms long linac beam train and compress the pulse to just under 1 μ s before delivery to the target. Operating at this beam intensity will require unprecedented control of beam loss in the ring to minimize residual radiation and to allow hands-on maintenance of accelerator components. These concerns were a central focus during the design of the ring, and the hardware and operating parameters in the ring were optimized to meet the beam loss challenge. Another, more immediate challenge will be to successfully complete the ring commissioning within a very limited time frame and with a limited suite of diagnostic equipment. In this talk, the design philosophy of the ring is reviewed, and the challenges of the forthcoming commissioning are discussed. Additionally, the anticipated challenges of full intensity beam operation will be highlighted, and plans for the ring upgrade to 3 MW operation will be presented.

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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