

# Beams and Applications Seminar Series

This ANL seminar series is a CARA activity and focuses on the physics, technology and applications of particle and photon beams. It is sponsored jointly by the ASD Division, the AWA group of the HEP Division, and the ATLAS group of the PHY Division.

**Bldg. 401, Room B2100**  
**Monday, November 4 1:30 PM**  
**(note special day)**

**Anatoly Zelenski (BNL)**  
*Optically-Pumped Polarized H<sup>-</sup> Ion Source for the RHIC Spin Physics*

Host: Petr Ostroumov

A new Optically-Pumped Polarized H<sup>-</sup> Ion Source (OPPIS) was developed for the RHIC polarization program and successfully used for the polarized beam commissioning at RHIC in 2000-2002 runs. The OPPIS met the RHIC requirements for the beam intensity with the reliable delivery of about 500  $\mu\text{A}$  polarized H<sup>-</sup> ion current (maximum current is 1.6 mA) in 400  $\mu\text{s}$  pulse duration. The beam is accelerated to 200 MeV with an RFQ and linac for strip-injection to the Booster. About 50% of the OPPIS beam intensity can be accelerated to 200 MeV. The beam intensity after the linac at 200 MeV was  $(5-6)\times 10^{11}$  H<sup>-</sup>/pulse, which is sufficient to obtain the required  $2\times 10^{11}$  polarized protons per bunch in RHIC. A 29 GHz ECR primary proton source development, laser system for the optical pumping of rubidium vapor and a new sodium -jet ionizer cell will be described. The sodium-jet ionizer cell is biased to -32 kV to produce a 35 keV polarized beam ready for injection to the RFQ. The polarimeter upgrade will be also discussed, which includes the high-current polarization measurements and continues polarization monitoring (by interleaving beam pulses injected to Booster with the pulses transported to polarimeter).

A short introduction to the RHIC polarization facilities will be also presented.

**For more information visit**

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

Visitors from off-site please contact the Accelerator System Division office (konopa@aps.anl.gov, 630-252-3115) to arrange for a gate pass.