Beams and Applications Seminar Series

This ANL seminar series 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
Friday, November 22
1:30 PM

Massimo Ferrario
INFN-LNF

Emittance Compensation in High Brightness RF Photoinjectors: An Introduction

Host: Kwang-Je Kim

The success of high brightness photoinjectors as drivers of SASE FEL experiments has raised again the interest in the beam dynamics associated with intense, quasi-laminar, space charge dominated electron beams: the relevant phenomena observed in such a regime of beam physics are presented and discussed in this talk. Most of the emphasis is focused on the analysis of the so called emittance correction technique, which is applied in the operation of RF guns in order to enhance the performances of these devices in terms of the attainable beam brightness, i.e. minimising the beam emittance in high peak current beams. A theoretical introduction of this process is presented, based on an envelope equation approach, which leads to the concept of invariant envelope. The implications of such a concept are discussed and specific examples are given to compare the analytical predictions to the results of numerical simulations made with code HOMDYN.

For more information visit

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

Visitors from off-site please contact
Debra Briddick (briddick@anl.gov, 630-252-6620)
to arrange for a gate pass.