

The Beams and Applications Seminar Series

Exploring the Physics of Charged Particle Beams with Green's Functions

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Bldg. 401, rm B2100

Friday, June 24, 1:30 pm

Host: Wei Gai, HEP

The physics of beams in which space charge forces are important has been the subject of great interest. In accelerators, beam space charge forces can play a significant role in the low energy injector section. These forces are also very important in high-current beam applications, such as high-power klystrons and other microwave sources. Each of these beam devices also has metallic boundaries such as vacuum walls, irises, etc., which define its' electromagnetic properties. Hence, understanding the effects of induced image charges and image currents which are generated by the beam's self-fields within these devices can be vital. One method for self-consistently calculating the effects of the metallic boundaries on the beam is with Green's function methods. In this talk, we present a variety of important recent results in beam physics, including klystron space charge limits and the development of a three dimensional electromagnetic photocathode gun simulator code, which have all utilized Green's function methods.

For more information visit

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

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(wangcx@aps.anl.gov, 630-252-4968) to arrange for a gate pass.

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