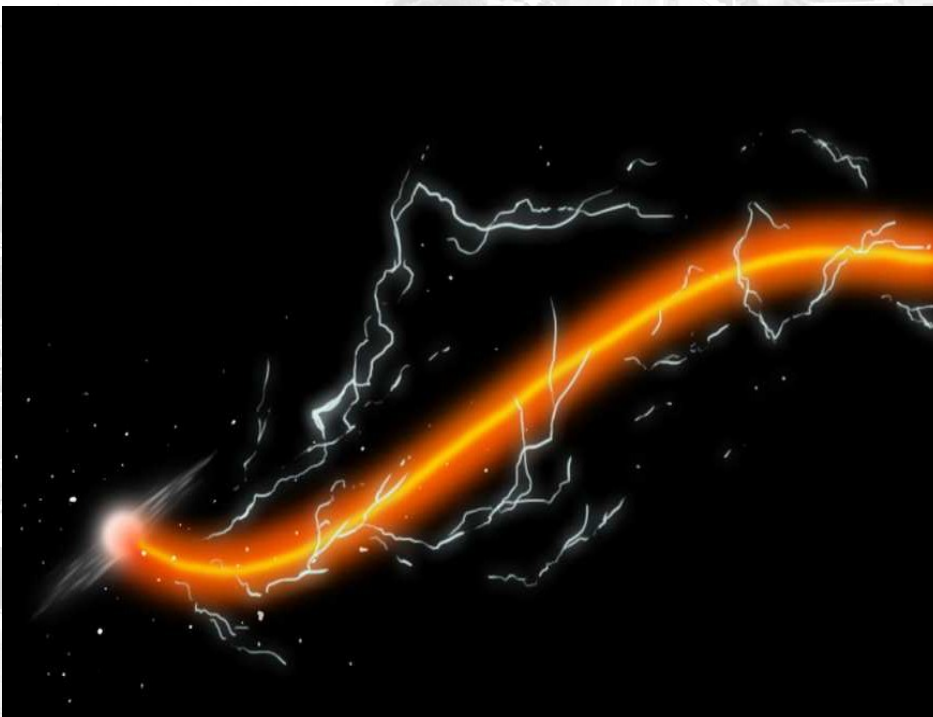


GFA & SwissFEL Accelerator Seminar

Beam dynamics study for high intensity proton synchrotrons by PTC-ORBIT

Monday, 22 October 2012, 16.00 h , WBGB/019

Dr. Alexander Molodozhentsev, KEK, Japan



Beam dynamics in high intensity synchrotrons has become very relevant for a number of new machines, which are under operation with high beam power (for example, SNS in USA and JPARC in Japan) and for future upgrade of machines to increase the beam brightness (LHC injector complex, CERN). To minimize the halo formation and uncontrolled beam losses due to the combined effect of the space-charge-induced and the machine resonances it is important to investigate the dynamics of the space-charge dominated

beams in the self-consistent way, taking into consideration a realistic machine imperfection and time-dependent space charge effects. For this purpose the combination of two different codes has been performed, PTC (KEK) and ORBIT (SNS), has been performed successfully. In frame of this presentation main features of the combined PTC-ORBIT code will be described. Main results, obtained during the JPARC machine development (predictions and observations) will be presented. In addition, basic results for the LHC Injectors Upgrade Project will be discussed.

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