

Contribution ID: 25

Type: not specified

Intrabeam Scattering

Friday 20 June 2025 08:30 (1 hour)

Intrabeam scattering refers to the effects of the Coulomb interaction acting between pairs of charged particles within a bunch in an accelerator. One of the main consequences of intrabeam scattering is a change in the emittances of a bunch: in some circumstances (in particular, in hadron storage rings operating above transition), the transverse and longitudinal emittances may grow over time without limit. This may restrict the performance of machines for which maintaining low beam emittance is an important requirement. In this lecture, we will look at some of the models used to analyse the effects of intrabeam scattering and consider in particular the Piwinski formulae for the emittance growth rates. Predicted changes in emittance will be compared with measurements in a number of machines operating in different parameter regimes.

Presenter: Prof. WOLSKI, Andrzej (University of Liverpool)