Contribution ID: **47** Type: **Contributed talk**

Modeling of intrabeam scattering in electron injectors

Friday, 4 October 2024 11:30 (20 minutes)

We will discuss the modeling and simulation of intrabeam scattering (IBS) in single pass electron injectors. This effect is well known and thoroughly investigated for circular machines and storage rings. Recently, however, concerns have been raised regarding the IBS induced growth of uncorrelated energy spread in electron linacs for coherent light sources. In particular, the IBS effect in the electron injector difficult to describe due to the complicated beam dynamics in this section. In the presentation, we will introduce the basic IBS theory, modeling techniques and describe beam dynamics simulations including the IBS effect for the injector sections of the European XFEL and that of the SwissFEL.

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Session Classification: Sessions in Living Room 1+2

Track Classification: B-1 Light Sources and FELs