



Contribution ID: 383 Contribution code: MOZG2

Type: **Invited Oral Presentation**

Predicting collective dynamics and instabilities in storage ring light sources

Monday, 8 May 2023 15:00 (30 minutes)

Next generation storage ring light sources will dramatically increase the electron beam brightness, thereby significantly increasing the X-ray brightness for science. Such intense electron beams exhibit numerous collective effects that potentially drive instabilities. Advanced numerical simulation methods are compared with theory and experimental measurements at different machines. One important issue is longitudinal collective beam dynamics with very low synchrotron frequency when higher-harmonic rf systems are used to lengthen the bunch and beam lifetime. Ion effects are also discussed in these very low emittance machines. This paper gives an overview of these and other collective physics, and discusses efforts to predict and mitigate any potentially deleterious effects.

Funding Agency

Footnotes

I have read and accept the Privacy Policy Statement

Primary author: LINDBERG, Ryan (Argonne National Laboratory)

Presenter: LINDBERG, Ryan (Argonne National Laboratory)

Session Classification: MC05.1 - Beam Dynamics and Electromagnetic Fields (Invited)