

Optics Measurements, Corrections and Modeling for High-Performance Storage Rings



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High intensity challenges

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High intensity rings such as those found at the Oak Ridge and J-PARC spallation neutron sources have unique challenges compared to other types of rings. Examples include the importance of low beam loss throughout the entire cycle (including injection); and the effects of fringe fields and magnetic field overlap caused by large aperture, low-aspect-ratio, closely packed magnets. Of course high intensity rings also share many challenges with other types of rings, including collective effects such as instabilities and space charge tune shift, and the need for more accurate simulations. This presentation will discuss the challenges facing high intensity rings, and also suggest areas that could benefit from further development.

Presenter: PLUM, Michael

Session Classification: Motivation for HE machines, colliders, HI machines, light sources and damping rings