

THE IMPEDANCE DATABASE COMPUTATION AND PREDICTION OF SINGLE BUNCH INSTABILITIES

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Abstract

The Impedance Database is a standardized 3D computation of the wake potential generated by a high-intensity beam. The database concept is described and compared to analytical and model-based approaches. The talk will address the computational challenges introduced by tapers, collimators, and very short bunches. Finally, single-bunch instabilities are predicted through tracking and compared to measurements at the Advanced Photon Source and other accelerators.

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