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Beam Break-Up in a Standing Wave FEL/TBA

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Beam Break-Up In A Standing Wave FEL/TBA*, J.S. KIM and A.M. SESSLER, LBL, D. WHITTUM, KEK, and T. HOUCK, LLNL—Beam Break Up (BBU) characteristics of different cavity geometries are being studied in the Standing Wave Two-Beam Accelerator (TBA/SWFEL). The wakefields which cause BBU can be obtained directly, in a given cavity geometry, by a time domain simulation (e.g. ABCI or TBCI). The wakefields can also be obtained, via the impedance, from the resonance frequencies of the given geometry. These two methods of obtaining the wakefields are compared. The wakefields are then used in a BBU code to study the beam dynamics of a Gaussian multi-bunch beam in a SWFEL.

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