

Simulation of Longitudinal Coupled Bunch Instabilities in BESSY-II*, S. KHAN, BESSY-II -

The longitudinal bunch dynamics in the BESSY-II storage ring was studied in view of the planned installation of a bunch-by-bunch feedback system. A detailed simulation of coupled bunch instabilities is presented which includes measured RF cavity higher order modes, a model of the feedback system, beam-loading effects in the presence of a bunch gap as well as transient effects during injection. The purpose of the simulation is to determine feedback parameters such as power, gain, noise and bandwidth required for an effective damping of coupled bunch modes.

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