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KEKB RF System

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The KEK B-Factory (KEKB) is a high-luminosity asymmetric energy electron-positron collider to support physics research programs on CP-violation and other topics in B-meson decays. The RF system for KEKB was designed to cope with difficulties arising from high current stored beam. It has two types of innovative heavily damped cavities for stabilizing coupled-bunch instabilities due to higher-order modes and the accelerating mode. Several feedback loops are implemented including the direct RF feedback and the zero and -1 mode longitudinal coupled-bunch oscillation dampers. To protect the Belle detector and beam-line hardware components from unstable beams caused by RF trips, a fast beam abort triggering and monitoring system has been developed.

New RF stations are being constructed for the crab cavities to be installed next year for further increase of the luminosity. We describe the design features, operating status and future plans of the KEKB RF system.

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