Longitudinal Mode-by-Mode Feedback System for The J-PARC Main Ring

Yasuyuki Sugiyama, Masahito Yoshii, KEK/J-PARC
Fumihiko Tamura, JAEA/J-PARC

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Coupled Bunch Instability in J-PARC MR

- Longitudinal Oscillation becomes serious in the J-PARC Main Ring (MR)
  ➡ Coupled Bunch (CB) Instability

- Oscillation appears as sidebands in the spectrum of the beam signal.
  ➡ Control these sidebands with Feedback to suppress the oscillation
  ➡ Requires Sideband filtering

The CB modes spectrum for the J-PARC MR. (h=1: revolution frequency)
Poster

- Overview of J-PARC MR and CB instability

- Detail of Feedback system and its processor.

- Result of the preliminary beam measurement