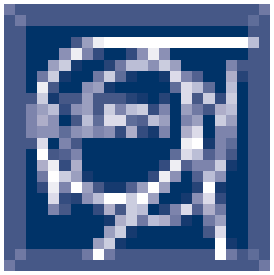

Contribution ID: **23** Type: **invited**

Bunch Lengthening in Tevatron due to RF noise

Tuesday, 11 October 2005 12:00 (20 minutes)

If not suppressed the RF system noise can significantly affect the luminosity of hadron collider. It causes the bunch lengthening with consecutive decrease of the beam intensity. Presently, the RF noise is the second leading reason of bunch lengthening in Tevatron yielding to the intrabeam scattering at the store beginning. The noise is mainly created by microphonics in RF cavities and is strongly suppressed by local feedback system. The report discusses the beam-based and direct measurements of the RF noise in Tevatron. The beam measurements are based on observing particle diffusion in satellite bunches to the center of the distribution. Such choice allows one to reduce effects of the intrabeam scattering and the beam-beam-effects. The measurements yielded the spectral density of RF phase of about 4e-11 radˆ2/Hz. The report also discusses the theory of bunch lengthening required to compare the direct and beam-based measurements.

Primary author: Mr LEBEDEV, Valeri (FNAL)

Presenter: Mr LEBEDEV, Valeri (FNAL)

Session Classification: Talks Session 2