

The Transverse Damping System with DSP PLL Tune Measurement for HERA p, D. HEINS, J. KLUTE, R.D. KOHAUPT, K.H. MATTHIESEN, S. PÄTZOLD, J. RÜMMLER, DESY - A new transverse feedback system has been installed and tested in the HERA proton ring. The system is an advanced version of the multibunch feedback systems in the DORIS, PETRA, and HERA electron rings. A new low-noise type of oscillation detector has been developed in order to provide better quality beam signals. Signal processing is performed through a three tap FIR-filter with 12 bit resolution at 10.4 MHz. The environment of the system is well suited to include a continuous PLL tune measurement. (Detector, Kicker A/D and D/A converters) The possibility of processing a single bunch in parallel to the feedback path was added. In order to gain a narrow band beam transfer function, the feedback loop gain for this bunch can be reduced. The advantage of this method is that a pilot bunch can be used to measure the tune while damping the rest of the beam.