Transverse feedback

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LHC Transverse feedback system (ADT) undergoes a major upgrade during LS1. In an effort to further reduce the noise floor of the system, the total number of pickups was doubled. New beam position electronics is being designed using current, state of the art components. Upgrade of the digital signal processing system accomodates all extra functionality, which has been introduced during the LHC run I. Use of a most recent FPGAs will allow more sophisticated signal processing algorithms to be deployed for run II.

The upgraded ADT will also feature multiple, fully dedicated signal paths with independent gain and bandwidth control for treatment of witness bunches, the abort/injection gap cleaning pulses and for the main feedback. The cleaning process will be fully automated.

Additional, alternative data processing algorithm can detect anti-symmetric intra-bunch oscillations. An instability trigger network is being deployed in point 4 to interconnect systems and instruments which can detect instability and those which can provide observation buffer data. Feasibility of an external “observation box” to record transverse and longitudinal data from the RF and ADT systems was demonstrated and work started on its implementation.

Current status, readiness for restart and beam commissioning plans will be also presented.