

Instabilities, Impedance, LR Beam-beam

Monday, 25 January 2016 17:55 (25 minutes)

20' + 5'

<P> With the LHC operation at 6.5 TeV and with 25 ns bunch spacing after LS1, the understanding and control of beam instabilities in 2015 has become at least as challenging as during Run 1 and a crucial point to be followed to guarantee a smooth intensity ramp up. As expected, electron cloud appeared to be the dominant instability driver during the early phases of Run 2 with multi-bunch operation. The instabilities caused by electron cloud at injection limited the speed of scrubbing and also prevented the efficient use of doublets. Later on, at a more advanced stage of machine scrubbing, beam coupling impedance and beam-beam effects also started to play a role, as well as their interplay with the residual electron cloud. In this talk the main observations of beam instabilities in the LHC during 2015 will be reviewed, highlighting the key tools used for their monitoring and control. Based on our present understanding, we will then propose settings and operational procedures for operation in 2016 as well as the required diagnostics for an improved detection of potential instabilities. Finally, an outlook on open studies and future potential mitigation measures will be provided. </P>

Presenter: LI, Kevin Shing Bruce

Session Classification: Session 2: Key Challenges for Operation

Track Classification: Session 2: Key Challenges for Operation