

“What you get” - Beam size measurements
F. Roncarolo

Abstract

The transverse beam emittances of the LHC proton and ion beams can be inferred by measuring the beam sizes with Wire Scanner (WS), Synchrotron Radiation (BSRT) and Beam Gas Ionization (BGI) monitors.

The Abort Gap Monitor (AGM) and the Longitudinal Density Monitor (LDM) are instead used to characterize the longitudinal distributions. The presentation covers at first all aspects related to the use of such devices in 2012. This includes achieved performances, reliability and operational limitations, like system failures due to high intensity beams or aging. The second part of the talk will address the systems' upgrades that are planned for improving accuracy and robustness, while coping with both the already reached limits and the LHC energy and intensity upgrades after LS1. A particular emphasis will be given to the impact of the 25 ns bunch spacing on the bunch per bunch measurements and the need for resolving smaller beam sizes at 6.5 TeV.