

“Luminosity and Lifetime modeling & optimization”

During Run II, the continuous monitoring of the luminosity evolution has revealed the existence of lifetime degradation sources, beyond burn-off. By employing a bunch-by-bunch analysis, beam-beam effects but also electron cloud have been identified as significant contributors to these additional losses. In order to mitigate these effects and improve performance, multi-parametric Dynamic Aperture (DA) simulations, have been used as a guide to establish the optimum machine parameters during operation. The impact of the reduction of chromaticity and octupole current, as well as the crossing angle anti-leveling and levelling techniques of 2018 are further detailed.