

What to expect from the injectors during Run 3

G. Rumolo, H. Bartosik, V. Kain, M. Meddahi

During LS2 the LHC injectors will undergo an important upgrade campaign under the LHC Injectors Upgrade (LIU) project. Linac2 will be replaced by Linac4 and additional hardware will be installed in all the synchrotrons of the LHC injectors chain to enable the production of proton beams of double intensity and brightness to be delivered to LHC in the HL-LHC era (i.e. after LS3). The Pb ion beams, which have already shown their potential to fulfil the HL-LHC goal in terms of single bunch parameters at the LHC injection, will see their bunch number roughly doubled in the LHC thanks to momentum slip stacking in the SPS.

The planned evolution of the beam parameter during Run 3 can be summarised as follows. All pre-LS2 proton beams will be recovered by the end of 2021, while intensity and brightness of the LHC beams will be gradually ramped up to the LIU values throughout 2022-2024. The commissioning of momentum slip stacking in the SPS for Pb ions is expected to take place in 2021 to allow delivery of LIU ion beams to LHC for the 2021 Pb-Pb run.