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【289】Beam dynamics studies of performance reach of future ion species in the CERN accelerator complex

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The current ion physics programme at CERN is mainly based on lead (Pb) ion beams. Untested lighter ion species have been requested as a possible way to reach higher nucleon-nucleon luminosities. In order to identify the ion species with the highest luminosity performance in the Large Hadron Collider (LHC), a series of beam dynamics studies have been performed to characterize beam loss mechanisms caused by space charge and intra-beam scattering. Here we present benchmarking studies for the Super Proton Synchrotron (SPS), which will be used to develop an accurate model of the beam degradation mechanisms for future ion species.

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