Physics opportunities for a fixed-target programme in the ALICE experiment

A fixed-target programme in the ALICE experiment using the LHC proton and lead beams offers many physics opportunities related to the parton content of the nucleon and nucleus at high-x, the nucleon spin and the Quark-Gluon Plasma. We investigate two solutions that would allow ALICE to run in a fixed-target mode: the internal solid target coupled to a bent crystal and the internal gas target. The feasibility of these solutions are being studied for a possible installation at the LHC interaction point IP2 during the Long Shutdown 3.

Primary author(s): GALLUCCIO, Francesca (Universita e sezione INFN di Napoli (IT)); HADJIDAKIS, Cynthia (Centre National de la Recherche Scientifique (FR)); KIKOLA, Daniel (Warsaw University of Technology (PL)); KUREPIN, Alexei (Russian Academy of Sciences (RU)); MASSACRIER, Laure Marie (Centre National de la Recherche Scientifique (FR)); PORTEBOEUF, Sarah (Université Clermont Auvergne (FR)); PRESSARD, Kevin (Centre National de la Recherche Scientifique (FR)); SCANDALE, Walter (CERN); TOPILSKAYA, Natalia (Russian Academy of Sciences (RU)); TRZECIAK, Barbara Antonina (Utrecht University); URAS, Antonio (Centre National de la Recherche Scientifique (FR))

Track Classification: Strong interactions (perturbative and non-perturbative QCD, DIS, heavy ions)