

Beam extraction with crystal at CERN, the CRYSBREAM project

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“A new generation of parasitic beam extraction of high energy particles from an accelerator is proposed in CRYSBREAM. CRYSBREAM received an ERC Consolidator Grant of the FP7-IDEAS European programme. Instead of massive magnetic kickers, bent thin crystals trapping particles within the crystal lattice planes are used. The first goal of the proposal is to demonstrate that bent crystals can be used to efficiently extract beam halo from the SPS. After this, one should aim at proposing a scenario for halo extraction in the LHC. Several TeV energy protons or ions should be deflected towards a chosen target by the bent lattice planes only when the lattice planes are parallel to the incoming particles direction. This type of beam manipulation could open new fields of investigation of fundamental interactions between particles, and of coherent interactions between particles and matter. An experiment in connection to Ultra High Energy Cosmic Rays study is now also proposed in the framework of CRYSBREAM.”

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