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Future proof-of-principle experiment on crystal-based extraction of electrons from the DESY II Booster Synchrotron

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Crystal-based extraction using a bent crystal has been already applied at several high-energy hadron accelerators, but has never been applied for electrons. However, this technique can be very promising for synchrotron light sources and for existing and future lepton collider projects as well for nuclear and particle physics detectors and generic detector R&D and in many projects in high-energy physics.

We propose and simulate the first detailed design of a proof-of-principle experiment on the crystal-based extraction of 6 GeV electrons from the DESY II Booster Synchrotron using a bent crystal.

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