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# State-of-the-art bent silicon crystals for high-energy charged particle beam collimation

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Techniques used at the Sensor and Semiconductor Laboratory of Ferrara for producing strip crystals exploiting anticlastic curvature were recently enhanced by introducing the Magnetorheological Finishing to obtain crystals with ultraflat surface and miscut very close to zero. New materials were employed to realize the holders to fulfill compatibility constraints with the ultra-high vacuum of the LHC pipe.
Characterization methods were also improved introducing a high resolution X-rays diffractometer coupled with a custom made autocollimator, and a new infrared light interferometer. One of the realized crystals allowed to observe channeling for the first time with 6.5 TeV proton beam in the LHC.

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