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## Measurements of multiple scattering of high energy protons in bent silicon crystals

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The ordered positions of atoms in crystals give a reason to study multiple scattering of high energy charged particles within them. In addition, the accurate representation of multiple scattering of high-energy protons in a bent crystal is important for studies of crystal assisted collimation at the SPS and the LHC. Multiple scattering of 400 GeV/c protons in bent silicon crystals was measured for orientations far from the directions of main crystallographic planes and axes in conditions excluding channeling of protons. The observed RMS deflections are a little larger than those obtained from the Moliere theory. Simulation of multiple scattering in a model of binary collisions with the crystal atoms shows about 3.5% decrease of the RMS deflection with respect to the model of a sequence of random collisions. This is a possible indication on a reduction of multiple scattering of protons in a crystal in comparison with its amorphous state. The experimental results reported were obtained in the frame of UA9 experiment in CERN.

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