Crystal Channeling for Large Colliders: Machine and Physics Applications



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Theory and simulations

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Efficiency limitation for volume reflection of particles in a bent crystal due to the concurrent process of volume capture of particles into channelling states is discussed. The probability estimate for a fast stage of volume capture is suggested. The sequence of short bent crystals for deflection of 7-TeV protons and its optimization by increasing the bend angles of the sequence crystals is considered. Possibility to decrease a non-reflected beam fraction using a crystal with increasing curvature was shown.

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