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On (110) planar channeling experiments with 500 MeV positrons in silicon single crystals

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Experiments with the 500 MeV positron beam under construction at the Mainz Microtron MAMI will be proposed to study the (110) channeling process in silicon single crystals. Simulation calculations were performed which are based on the double differential cross-section as function of the momentum transfer q and the energy transfer W to a bound electron. In this framework, also the energy deposition of positrons, channeling in a silicon semiconductor detector, can be estimated. The role of strong low energy plasmon excitations will be discussed.

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