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Influence of space charge effect on dynamics of charged particles trapped in laser channels

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Charged particles channeling in laser channels could be used for particle beams cooling, steering and shaping and has some benefits comparing to e.g. crystal channeling.

As charged particle beams become more intense, influence of space charge effect on their dynamics is increasing and needs to be taken into account.

To examine this phenomena numerically a simulation code taking into account particle-particle interaction was created. Results of its verification and application for simulation of dynamics of charged particles trapped in laser channel will be presented.

Summary

In the report we cover our latest numerical simulation results for relativistic charged particle beams dynamics trapped in laser channels.

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