



Beitrag ID: 62

Typ: **Contributed talk**

A Lattice Boltzmann approach to plasma simulation in the context of wakefield acceleration

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We introduce a novel and efficient methodology for simulating fluid models within the framework of plasma wakefield acceleration (PWFA). Our approach is based on the Lattice Boltzmann Method (LBM), a widely used numerical scheme in computational fluid dynamics, which we couple with a finite difference time domain method to solve the electromagnetic field equations. We outline the key features of the LBM and demonstrate how it can be adapted for the simulation of the fluid equations in the PWFA. Additionally, we highlight the method's core capabilities, including its ability to model warm plasma dynamics using various closure schemes. We further discuss the emergence of closure-dependent thermal spread anisotropies in the plasma, emphasizing the implications for PWFA simulations.

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Sitzung Einordnung: Sessions in Seminar Room 2013/2014

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