



Einladung zum Oberseminar Wissenschaftliches Rechnen

Julius-Maximilians-Universität Würzburg
Lehrstuhl für Wissenschaftliches Rechnen IX

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Geometric methods for the relativistic Vlasov-Maxwell system

The Vlasov describes the evolution of a plasma in its self-consistent and external electro-magnetic fields. In this talk, we will discuss structure-preserving discretizations for the relativistic Vlasov-Maxwell system.

We will first discuss a particle-in-cell method based on a finite element exterior calculus discretization of the fields and a particle discretization of the distribution function in phase space. We derive the semi-discrete equations of motion from a semi-discrete action principle. For the time-discretization we derive a (almost) energy-conserving semi-implicit method based on a discrete gradient discretization.

Moreover, we discuss how to derive structure-preserving moment models and show first results for a cold plasma model.

Ort: Raum 30.02.003 (Mathematik West, 2.Stock)

Zeit: Donnerstag, 20.11.2025, 10:00 Uhr

Zu diesem Vortrag laden wir Sie herzlich ein.
You are cordially invited to this lecture.

gez. Prof. Dr. Alfio Borzi
gez. Prof. Dr. Frank Werner