



# Einladung zum Oberseminar Wissenschaftliches Rechnen

Julius-Maximilians-Universität Würzburg  
Lehrstuhl für Wissenschaftliches Rechnen IX

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## **Numerical stability analysis for the Einstein-Vlasov system**

We numerically study the stability of collisionless equilibria in the context of general relativity. More precisely, we consider the spherically symmetric, asymptotically flat Einstein-Vlasov system in Schwarzschild and in maximal areal coordinates. Our results provide strong evidence against the well-known binding energy hypothesis which states that the first local maximum of the binding energy along a sequence of isotropic steady states signals the onset of instability. We do however confirm the conjecture that steady states are stable at least up to the first local maximum of the binding energy. For the first time, we observe multiple stability changes for certain models. The equations of state used are piecewise linear functions of the particle energy and provide a rich variety of different equilibria.

This is joint work with Gerhard Rein and Christopher Straub.

Ort: Raum BSZ S0.101 (Bibliotheks- und Seminarzentrum) Zeit: Montag, 27.09.2021, 14:00 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*