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To all members of the
Faculty of Physics

Vienna, 01 September 2025

Invitation to the public defense of the doctoral thesis

"Dynamics of Cosmological Fluids in the Critical Regime of Slow Expansion"

by

Maximilian Ofner

Monday, 08 September 2025, 10:00 a.m.
Digital

Homogeneous and isotropic solutions to the relativistic Euler equations are known to be unstable on a Minkowski background. However, for FLRW models with a fast expansion rate, relativistic fluids stabilize. This scenario suggests a transition between stable and unstable behavior, somewhere along a family of spacetimes parametrized by their expansion rate. In this talk, we give a short overview of the results of the present thesis. They comprise a set of theorems regarding the stability properties of solutions to the relativistic Euler equations as well as the Einstein-Euler system near a hypothesized transition line. In particular, the fully coupled problem is analyzed in the regime of linear expansion, while fluids on a fixed background are examined in the decelerated region.

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