



Physikalisches Kolloquium Einladung

Physics Colloquium Invitation

Monday, 21 January 2019, Lecture Hall N24/H13, 16:15
Coffee and cookies will be served in front of the lecture hall from 16:00

Supercomputer insights into the messy physics of galaxy formation

Prof. Dr. Volker Springel

Max-Planck-Institut für Astrophysik
Garching



Hydrodynamical simulations of galaxy formation have now reached sufficient physical fidelity to allow detailed predictions for their formation and evolution over cosmic time. I review the foundations of this methodology and describe results from recent efforts to construct a new generation of cosmic structure formation models. These numerical simulations need to tackle a complex multi-scale, multi-physics problem. They now succeed in making accurate predictions for matter clustering on cosmologically relevant scales, while at the same time computing detailed galaxy morphologies, the enrichment of gas with heavy elements, or the amplification of magnetic fields during structure growth. They also show that supermassive black holes are crucial for setting the final life stages of galaxies.

