



TECHNISCHE UNIVERSITÄT
IN DER KULTURHAUPTSTADT EUROPAS
CHEMNITZ

Institut für Physik

Theoretische Physik

Simulation naturwissenschaftlicher Prozesse

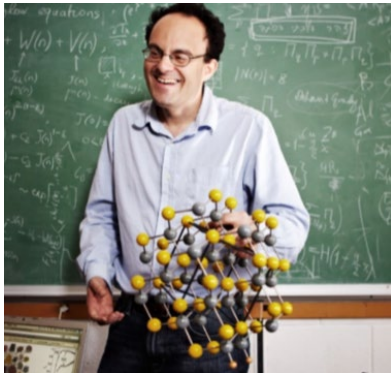
Im Rahmen des Arbeitsgruppenseminars

"THEORIE, MODELLIERUNG, SIMULATION"

spricht am

Mittwoch, 21.06.2023, 9:15 Uhr

MAIN, Seminarraum C50.001-002 & BBB: <https://webroom.hrz.tu-chemnitz.de/gl/joe-peh-qck>



Prof. Dr. Zohar Nussinov

Washington University, St. Louis, U.S.A.

and University of Oxford, Großbritannien

"Thermalization bounds and a universal collapse of the viscosities of glass forming liquids"

We will derive bounds on the equilibration times in many body thermal systems. We will find that these times cannot, typically, be shorter than Planck's constant divided by the temperature; a more general (and accurate) relation involving the heat capacities will be explained. This relation will allow us to derive bounds on speeds, accelerations, Lyapunov exponents, and transport coefficients in general systems (which will be compared with the viscosities and diffusion constants in systems such as water and various metallic fluids and solids). Time permitting, we will then analyze supercooled liquids and glasses to predict their relaxation times. These predictions will be compared to the viscosities and dielectric relaxation times of glass formers of all known types. The comparison shows that the viscosities/relaxation times of all known supercooled liquids collapse onto a universal curve over 16 decades. The collapsed form predicted by theory has only one (nearly constant) liquid dependent parameter.

Informationen zum Vortrag erteilt:

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