

Eugene Wigner Colloquium

event of SFB 910



Joerg Rottler

Dept. of Physics and Astronomy and Quantum Matter Institute, University of British Columbia, Vancouver

“The nonequilibrium physics of driven amorphous soft matter: plasticity and collective effects”

This talk will describe the yielding transition in disordered solids, a nonequilibrium phase transition between arrested and flowing states of matter. We use computer simulations at the particle scale to characterize the elementary shear transformations responsible for plastic flow, determine how they interact elastically and illustrate the resulting scale dependent shear strain correlations in (active and passive) amorphous packings. We then show how the statistics of the intermittent stick-slip motion that is typically observed macroscopically in these materials at slow mechanical driving can be related to the microscopic distribution of residual stresses that we measure in the simulations. Despite strong correlations, the statistical properties of steady state flow can be then be captured by a mean field description that takes into account the broadly distributed mechanical excitations.

Thursday, 30.01.20 · 16:15h · EW 202

Technische Universität Berlin · Institut für Theoretische Physik · Hardenbergstraße 36 · 10623 Berlin

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