Glassy Dynamics and Flow Properties of Soft Colloidal Pastes

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(Received 27 August 2002; published 13 February 2003)

The local dynamics and the nonlinear rheology of soft colloidal pastes are shown to exhibit a remarkable universal behavior in terms of a unique microscopic time scale. This variable is associated with structural relaxation under the combined action of local frictional forces and elastic driving forces. These results establish a link between the local dynamics of pastes and their nonlinear flow behavior and provide a unified description of paste rheology.

DOI: 10.1103/PhysRevLett.90.068303 PACS numbers: 82.70.Kj, 64.70.Pf, 83.60.Df