

MAR08-2007-000751

Abstract for an Invited Paper
for the MAR08 Meeting of
the American Physical Society

Dynamic phase transitions in model glass formers¹

FRÉDÉRIC VAN WIJLAND, Laboratoire Matière et Systèmes Complexes, Université Denis Diderot - Paris VII

Glassy dynamics is identified through a series of signatures, such as aging, slow relaxation and the presence of dynamical heterogeneities. Basing our considerations on kinetically constrained glass formers, we argue that these phenomena are the byproduct of an intrinsically dynamic phase transition. The latter can be unravelled by performing, in the spirit of Ruelle, a Gibbs-like statistical mechanics over the set of time realizations of the systems' evolution, rather than over the conventional set of phase space configurations.

¹Work done in collaboration with J.P. Garrahan, R.L. Jack, V. Lecomte, E. Pitard and K. van Duijvendijk