

Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Free energy landscape theory of glass transition TAKASHI ODAGAKI, Tokyo Denki University — I first present a free energy landscape (FEL) description of statistical mechanics, which is an exact reformulation of statistical mechanics and can be applied to non-equilibrium systems. Then, I discuss thermodynamic and dynamic properties of the vitrification process on the basis of the FEL formalism. I show that thermodynamic and dynamic anomalies at the glass transition, including the cooling rate dependence, can be understood in a unified manner which has not been achieved by any other theories of the glass transition. Namely, I show that the vitrification is a transition from annealed to quenched averages in the FEL and that the fast beta, the JG and the slow alpha relaxations are attributed to stochastic dynamics within a basin of FEL, jumping motion among locally connected basins and diffusive dynamics over barriers of the FEL.

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Date submitted: 17 Nov 2009

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