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Solution of local field equations for self-generated glasses SANGWOOK WU, JOERG SCHMALIAN, Department of Physics and Astronomy and Ames Laboratory, Iowa State University, Ames, Iowa 50011, USA, GABRIEL KOTLIAR, Serin Physics Laboratory, Rutgers University, 136 Freylinghuysen Road, Piscataway, New Jersey 08854, USA, PETER WOLYNES, Department of Chemistry and Biochemistry and Department of Physics, University of California, San Diego, La Jolla, California 92093, USA — We present a self-consistent local approach to self-generated glassiness that is based on the concept of the dynamical mean field theory to many body system. Using a replica approach to a self-generated glassiness, we map the problem onto an effective local problem that can be solved exactly. Applying the approach to the Brazovskii-model, relevant to a large class of systems with frustrated micro-phase separation, we are able to solve the self-consistent local theory without using additional approximations. We demonstrate that a glassy state found earlier in this model is generic and does not arise from the use of perturbative approximations. In addition we demonstrate that the glassy state is further stabilized by an additional asymmetry in the interaction.

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