

Abstract Submitted
for the MAR12 Meeting of
The American Physical Society

Spinglass Dynamics of Amorphous Ferromagnetic Ge:Mn¹
SAMARESH GUCHHAIT, SANJAY BANERJEE, RAYMOND ORBACH, The University of Texas at Austin — Ge_{0.84}Mn_{0.16} is an amorphous ferromagnetic semiconductor with a Curie temperature of about 160 K (measured at 1000 Oe). Magnetic field-cooled and zero-field-cooled experiments show existence of a spinglass phase well below the Curie temperature. The spinglass temperature is about 23 K at a 50 Oe field. The spinglass temperature scales monotonically with applied magnetic field. Magnetic hysteresis experiments show a non-zero coercive field below the spinglass temperature, and a very small coercive field or a superparamagnetic phase above it. Under a rapid quench, thermoremanent magnetization (TRM) decay experiments (at 14 K) exhibit a very large effective waiting time. This is associated with a slow rate of cooling, allowing communication between phase space states before the measuring temperature is reached, leading to an effective reduction in the attempt frequency. This is consistent with experiments on other more typical spin glass systems.

¹This work was supported by SWAN-NRI, NSF DMR 0605828, and Welch Foundation F-1191.

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Date submitted: 11 Nov 2011

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