

Abstract Submitted
for the MAR08 Meeting of
The American Physical Society

Nonequilibrium Relaxations and Aging Effects near a Metal-Insulator Transition in Two Dimensions¹ DRAGANA POPOVIĆ, JAN JAROSZYŃSKI, NHMFL/FSU — The relaxations of conductivity $\sigma(t)$ have been studied in the glassy regime of a strongly disordered two-dimensional (2D) electron system in Si after a temporary change of carrier density n_s during the waiting time t_w . Two types of response have been observed [1]: (a) monotonic, where relaxations exhibit aging, *i.e.* dependence on history, determined by t_w and temperature; (b) nonmonotonic, where a memory of the sample history is lost. The conditions that separate the two regimes have been determined. A detailed study of the aging regime [2] reveals an abrupt change in the nature of the glassy phase at the metal-insulator transition (MIT) before it vanishes entirely at a higher density n_g . Our results provide further support to theories describing the 2D MIT as the melting of a Coulomb glass, and put constraints on the models of glassy freezing.

[1] J. Jaroszyński and D. Popović, Phys. Rev. Lett. **99**, 046405 (2007).

[2] J. Jaroszyński and D. Popović, Phys. Rev. Lett. **99**, 216401 (2007).

¹Supported by NSF Grant DMR-0403491 and NHMFL via NSF No. DMR-0084173.

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Date submitted: 27 Nov 2007

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