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Low frequency magnetic AC susceptibility and magnetization measurements of GaMnAs dilute semiconductors STEFAN MAAT, BRUCE GURNEY, Hitachi Global Storage Technologies, KEVIN EDMONDS, R.P. CAMPION, C.T. FOXON, B.A. GALLAGHER, University of Nottingham — We measured the magnetization and low frequency magnetic AC susceptibility of as-deposited and low temperature annealed (190 °C for 100 hrs) GaMnAs samples. The annealed sample exhibits a higher Curie temperature (Tc=123.5 K) than the as-deposited sample (Tc=81.5 K) due to improved crystalline order which is reflected in higher Mn-core hole exchange constants derived from fits of the remnant magnetization curves to a mean filed model. Hysteresis loop measurements reveal an antiferromagnetically coupled soft and hard magnetic phase after annealing. Low frequency magnetic AC susceptibility measurements close to Tc show that both irreversible and magnetization reversible processes are present and are equally important.

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