Field-Driven Hysteresis of the d=3 Ising Spin Glass: Hard-Spin Mean-Field Theory BURCU YÜCESOY, Istanbul Technical University and University of Massachusetts, Amherst, A. NIHAT BERKER, Koç University — Hysteresis loops are obtained in the Ising spin-glass phase in $d = 3$, using frustration-conserving hard-spin mean-field theory.[1] The system is driven by a time-dependent random magnetic field $H_Q$ that is conjugate to the spin-glass order $Q$, yielding a field-driven first-order phase transition through the spin-glass phase. The hysteresis loop area $A$ of the $Q - H_Q$ curve scales with respect to the sweep rate $h$ of magnetic field as $A - A_0 \sim h^b$. In the spin-glass and random-bond ferromagnetic phases, the sweep-rate scaling exponent $b$ changes with temperature $T$, but appears not to change with antiferromagnetic bond concentration $p$. By contrast, in the pure ferromagnetic phase, $b$ does not depend on $T$ and has a sharply different value than in the two other phases.