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Quantum and Classical Glass Transitions in $LiHo_xY_{1-x}F_4$ D. M. SILEVITCH, C. ANCONA-TORRES, James Franck Institute/University of Chicago, G. AEPPLI, London Centre for Nanotechnology and Department of Physics and Astronomy, UCL, London, T. F. ROSENBAUM, James Franck Institute/University of Chicago — When performed in the proper low field, low frequency limits, measurements of the dynamics and the nonlinear susceptibility in the model Ising magnet in transverse field, $LiHo_xY_{1-x}F_4$, prove the existence of a spin glass transition in both the classical and quantum limits for x = 0.167 and 0.198. The classical behavior tracks for the two concentrations, but the quantum glasses differ because of the competing effects of entangled spins and local random fields.

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