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The linear and non-linear magnetic susceptibility of URu_2Si_2 in hydrostatic pressure G.J. MACDOUGALL, G.M. LUKE, McMaster University, T. GOKO, TRIUMF, J.D. GARRETT, McMaster University — The heavy-fermion material URu_2Si_2 has long been a topic of interest due to the mysterious 'hidden order' transition at T_0=17.5K. Though the exact nature of this order is still a matter of great debate, the transition has strong signatures in heat capacity, restivity and linear and non-linear magnetic susceptibility. Interest in the material has increased in recent years, as high-pressure measurements have revealed a first-order quantum phase transition to an antiferromagnetically ordered state. However, the fate of the hidden-order with pressure and how it relates to the anti-ferromagnetism is still unknown. With this in mind, we have measured the linear and nonlinear magnetic susceptibility of single-crystalline URu_2Si_2 under hydrostatic pressure. We will report the results of these measurements, with particular emphasis placed on the signatures of hidden-order and how they evolve as the system is driven into the antiferromagnetic state.

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