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Ferromagnetic Transition in Heusler Alloys ANKE HUSMANN, Toshiba Research Europe Ltd, MARK C. HICKEY[1], University of Cambridge, MINHYEA LEE, Princeton University, TOSHIBA RESEARCH EUROPE LTD COLLABORATION, UNIVERSITY OF CAMBRIDGE COLLABORATION, PRINCETON UNIVERSITY COLLABORATION — The transition from a magnetically disordered (paramagnetic) to a magnetically ordered (ferromagnetic) state at finite temperature in zero magnetic field has long been regarded as one of *the* text book examples for a second order phase transition. However, this mean field Weiss model leaves out some of the physics that can become crucial for itinerant magnets when approaching the transition temperature. Co_2TiSn and Co_2CrAl are two Heusler alloys with Curie temperatures just above room temperature. Theoretical band structure calculations, ours as well as by others, predict them to be close to half metals. Magnetisation data as a function of temperature and magnetic field show deviations from the mean field Weiss model which we argue are due to band structure properties.

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