

## On the phase diagram of $\text{UGe}_2$

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The phase diagram of several itinerant ferromagnets reveals the common feature. The phase transition temperature decreases with pressure increase and reaches zero value at some critical pressure  $P_c$  such that at low enough temperatures one can expect critical behavior specific for quantum phase transition. It is not the case, however. Being the second order at ambient pressure the transition from paramagnetic to ferromagnetic state at high pressures - low temperatures is transformed to the discontinuous jump. We discuss the magneto-elastic mechanism of development of the first order type instability at the phase transition to the ferromagnet state in strongly anisotropic ferromagnet  $\text{UGe}_2$ . The particular property of this material is the precipitous drop of the critical temperature at pressure increase near 14-15 kbar that drastically increases the temperature of the first order instability in respect to the critical temperature. This effect is also determined by the specific heat increase in the temperature interval of the development of critical fluctuations. Using the parameters characterizing the properties of  $\text{UGe}_2$  we argue the effectiveness of this mechanism transforming the very weak first order type transition to the really observable one.