

Statistical physics II, homework 4

Landau theory with third order term: Consider a system which allows a third order term in the expansion of the free energy density in powers of the order parameter. Show that Landau theory predicts a first order phase transition.

Hint: Sketch the free energy as a function of the order parameter for $T > T_c$, $T = T_c$ and $T < T_c$. Make sure that you explain clearly the condition that determines T_c .

Deadline: October 13, 2016