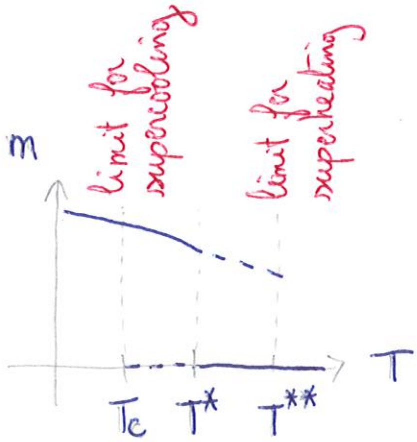

$$\boxed{\mathcal{R}(m) = \frac{a_2}{2} m^2 + \frac{a_4}{4} m^4 + \frac{a_6}{6} m^6}$$

$a_4 < 0$

$a_6 > 0$

$\partial_m R = 0 \Rightarrow a_2 m + a_4 m^3 + a_6 m^5 = 0 \Rightarrow m = 0$ always

or $a_2 + a_4 m^2 + a_6 m^4 = 0$ $(\square)$

Discriminant $\geq 0 \Leftrightarrow a_4^2 \geq 4 a_2 a_6 = 4 \tilde{a}_2 a_6 (T - T_c)$

$$\Leftrightarrow T \leq \boxed{T_c + \frac{a_4^2}{4 \tilde{a}_2 a_6} \equiv T^{**}}$$

For $T < T^{**}$, if $a_2 > 0$, then two roots are admissible, case 

if $a_2 < 0$ then only > 0 root ", case 

T^*? $\begin{cases} R(m) = R(0) \\ \dfrac{\partial R}{\partial m} = 0 \end{cases} \Rightarrow \begin{cases} \dfrac{a_2}{2} m^2 + \dfrac{a_4}{4} m^4 + \dfrac{a_6}{6} m^6 = 0 \text{ i.e. } \dfrac{a_2}{2} + \dfrac{a_4}{4} m^2 + \dfrac{a_6}{6} m^4 = 0 \\ a_2 + a_4 m^2 + a_6 m^4 = 0 \end{cases}$

$$\Rightarrow \frac{a_4}{2} m^2 + \frac{a_6}{3} m^4 = a_4 m^2 + a_6 m^4 \Rightarrow m^2 = -\frac{3}{4} \frac{a_4}{a_6} > 0$$

But in g^{al}, m obeys $(\square)$, and we have to consider $(\square)$'s largest root 

$$m = \left(-a_4 + \sqrt{a_4^2 - 4 a_2 a_6}\right) \frac{1}{2 a_6} = -\frac{3}{4} \frac{a_4}{a_6} \quad , \quad a_2 = \tilde{a}_2 (T - T_c)$$

$$\Rightarrow a_4^2 - 4 a_2 a_6 = \left(-\frac{3}{2} a_4 + a_4\right)^2 \Rightarrow 4 a_2 a_6 = \frac{3}{4} a_4^2 \; ; \; T^* = T_c + \frac{3 a_4^2}{16 \tilde{a}_2 a_6}$$