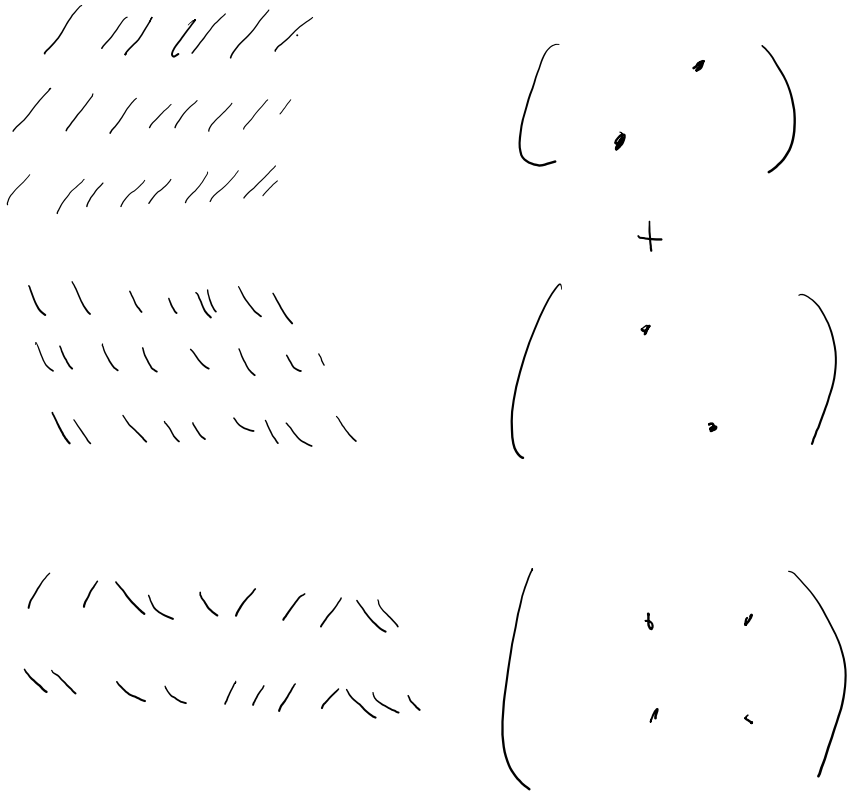

Crystallisation

free energy has two main terms

Volume: $L \cdot V \frac{\Delta T}{T_c} = -L \frac{4\pi}{3} R^3 \frac{\Delta T}{T_c}$

L: Latent heat, V: Volume

Surface tension: $\sigma \cdot A = \sigma 4\pi R^2$

σ: surface tension, A: surface area

$$F = -L \frac{4\pi}{3} R^3 \frac{\Delta T}{T_c} + \sigma 4\pi R^2$$

Peak $\Rightarrow \frac{\partial F}{\partial R} = 0 \rightarrow \frac{\partial F}{\partial R} = -3L \frac{4\pi}{3} R^2 \frac{\Delta T}{T} + 2 \cdot \sigma 4\pi R \doteq 0$

$R_{krit} \Rightarrow \frac{\partial F}{\partial R} = 0 \longrightarrow \frac{\partial F}{\partial R} = -2L \frac{\sigma}{3} R^2 \frac{\Delta T}{T_c} + 2 \cdot \sigma \cdot R \geq 0$

$$\boxed{R_{krit} = \frac{2 T_c \sigma}{\Delta T \cdot L}}$$