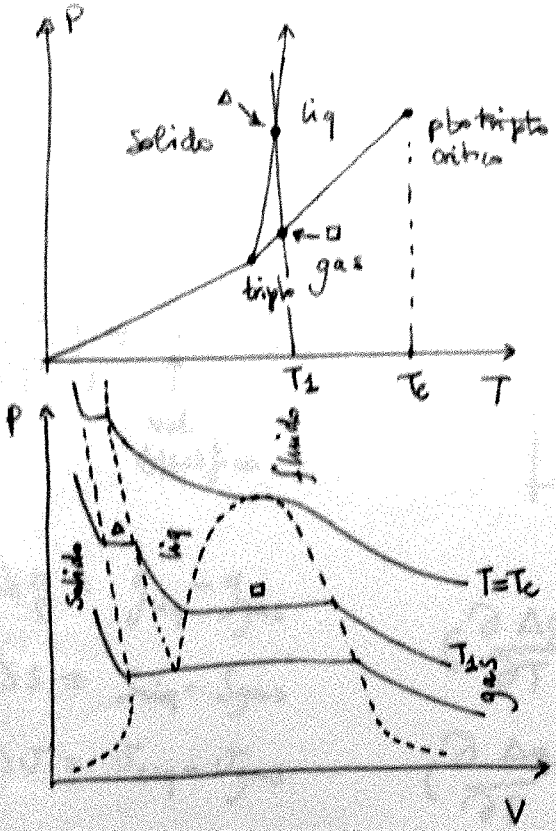
Equazione di Clapeyron & transizioni



← H_2O importante eccezione

curve di coesistenza

Coex ⟷ $g_{liq} = g_{gas}$

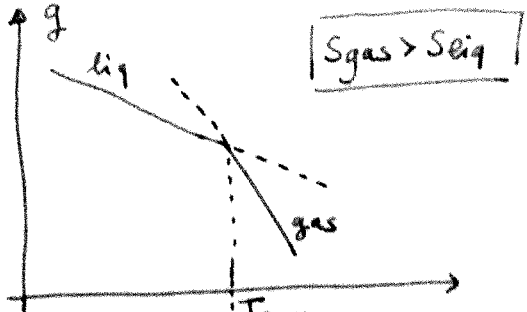
Alla coex solo scambio di materia a P, T cost fra liq & gas

dove $g = \frac{G_T}{N}$ = potenziale chimico

(b)

$$\left(\frac{\partial g}{\partial T}\right)_P = -s < 0$$

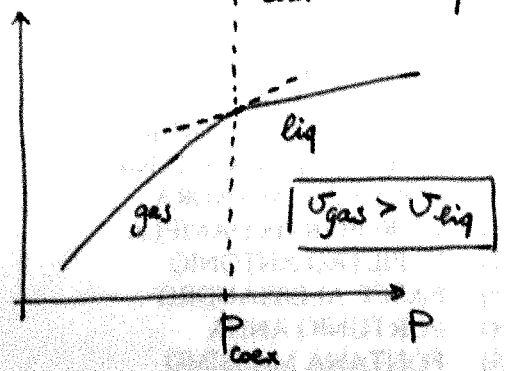
s ↑ entropia específica



$s_{gas} > s_{liq}$

$$\left(\frac{\partial g}{\partial P}\right)_T = v > 0$$

v ↑ vol específico



$v_{gas} > v_{liq}$

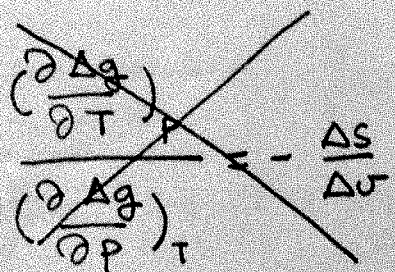
$$\Delta g = g_{liq} - g_{gas}$$

$$\Delta s = s_{liq} - s_{gas}$$

$$\Delta v = v_{liq} - v_{gas}$$

$$\left(\frac{\partial \Delta g}{\partial T}\right)_P = -\Delta s$$

$$\left(\frac{\partial \Delta g}{\partial P}\right)_T = \Delta v$$



$$\Delta g = (v_e - v_g)\,dP - (s_e - s_g)\,dT$$

se adesso consideriamo che alla coesistenza $\Delta g = 0$

$$\left(\frac{dP}{dT}\right)_{coex} = \frac{\Delta s}{\Delta v} = \frac{C_{lat}}{T_{coex}\,\Delta v}$$ ← clapeyron

per la transizione ghiaccio acqua $\Delta V < 0$

per cui $\frac{dP}{dT} < 0$