Ideal Bose-Einstein gas: phase diagram
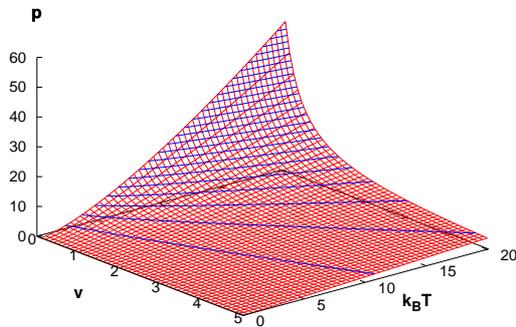
$$\mathcal{D} = 1 \qquad\qquad\qquad \mathcal{D} = 3$$
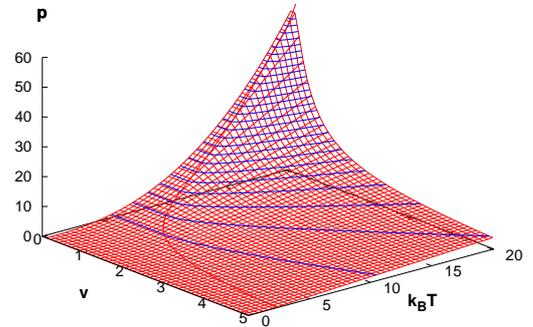
$$\mathcal{D} = \infty$$
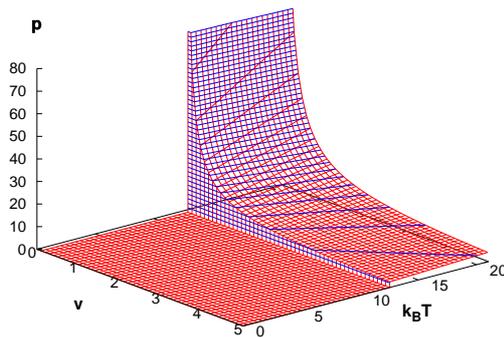
$$pv = \begin{cases} k_B T, & T > T_c \\ 0, & T < T_c \end{cases}$$

$$k_B T_c = \Lambda \doteq \frac{h^2}{2\pi m}.$$

- $\mathcal{D} = 1$: Transition at $T \geq 0$ and $v = 0$ (transition line = isochore).
- $\mathcal{D} = 3$: Transition at $T > 0$ and $v > 0$.
- $\mathcal{D} = \infty$: Transition at $T > 0$ and $v > 0$ (transition line = isotherm).