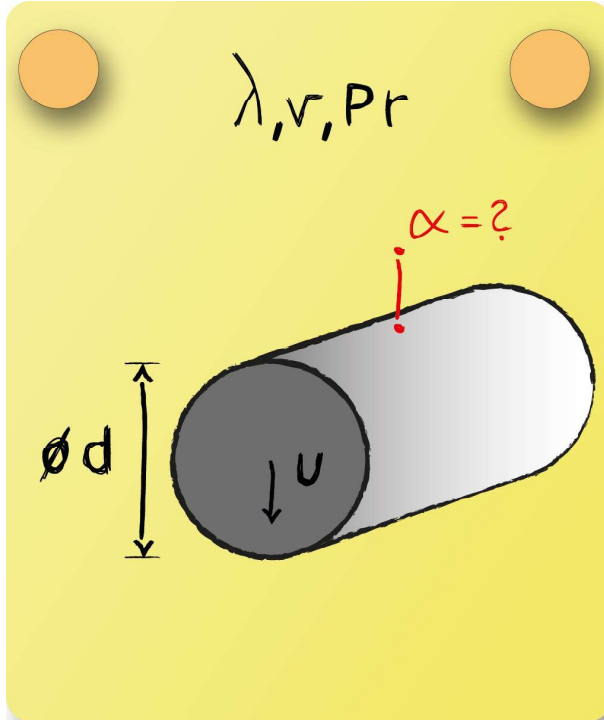


Heat Transfer Correlation 5.4



A cylinder falls through a non-moving fluid. Calculate the mean heat transfer coefficient $\bar{\alpha}$.

Reynolds number:

$$Re_d = \frac{u \cdot d}{\nu} = 5.56$$



Nusselt number:

$$\overline{Nu}_d = 0.911 \cdot Re_d^{0.385} \cdot Pr^{0.4} = 6.39$$

Heat transfer coefficient:

$$\bar{\alpha} = \frac{\overline{Nu}_d \cdot \lambda_f}{d} = 70.27 \text{ W/m}^2\text{K}$$