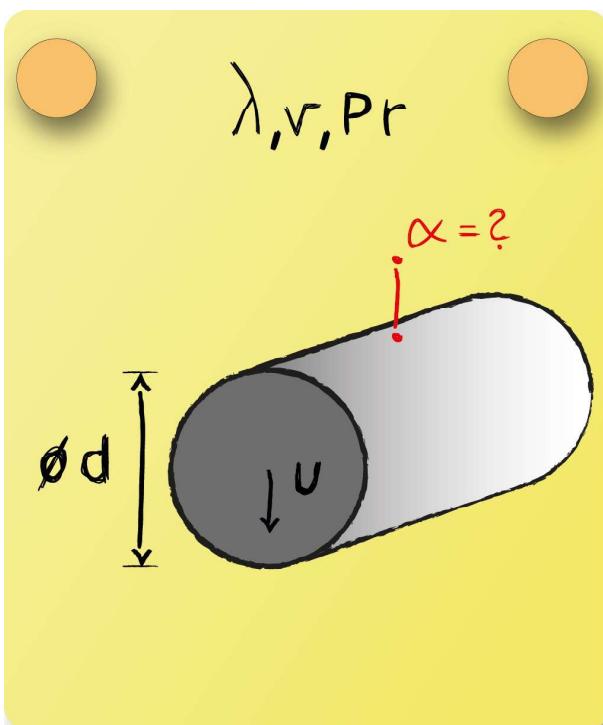


Heat Transfer Correlation 5.2



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

Reynolds number:

$$\text{Re}_d = \frac{u \cdot d}{\nu} = 3.33 \cdot 10^3$$



Nusselt number:

$$\text{Nu}_d = 0.683 \cdot \text{Re}_d^{0.466} \cdot \text{Pr}^{0.4} = 28.95$$

Heat transfer coefficient:

$$\bar{\alpha} = \frac{\text{Nu}_d \cdot \lambda_f}{d} = 156.31 \text{ W/m}^2\text{K}$$