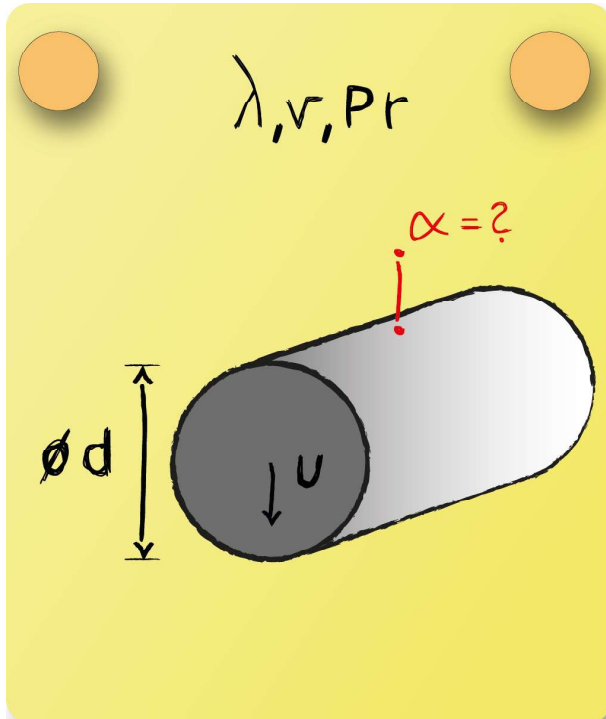


Heat Transfer Correlation 5.3



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

Reynolds number:

$$Re_d = \frac{u \cdot d}{\nu} = 2.94 \cdot 10^4$$



Nusselt number:

$$\overline{Nu}_d = 0.193 \cdot Re_d^{0.618} \cdot Pr^{0.4} = 242.74$$

Heat transfer coefficient:

$$\bar{\alpha} = \frac{\overline{Nu}_d \cdot \lambda_f}{d} = 1238.0 \text{ W/m}^2\text{K}$$