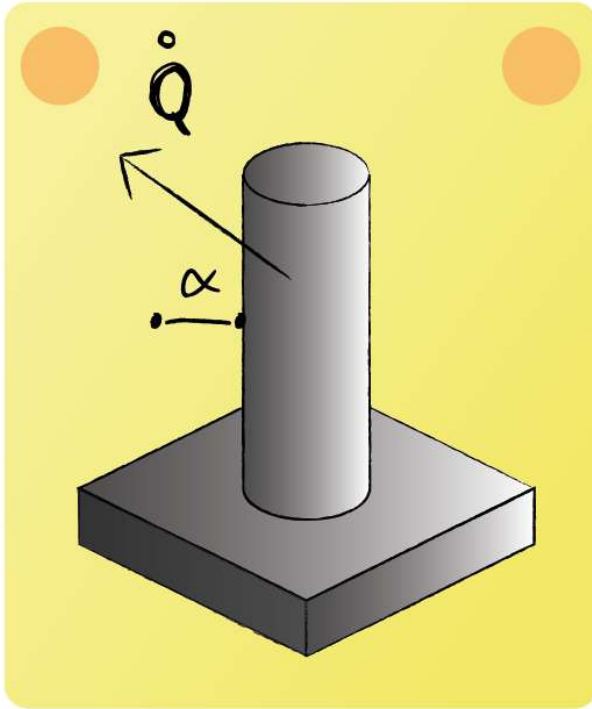


Lecture 9 - Question 2



Consider a fin exchanging heat with a fluid. When performing calculations regarding this heat exchange, which types of heat exchange are of relevance when using the fin differential equation?

$$\lambda \cdot A_c \cdot \frac{\partial^2 T}{\partial x^2} = \alpha \cdot U \cdot (T(x) - T_A)$$

In the study of heat transfer, fins are surfaces that extend from an object to increase the rate of heat transfer to or from the environment by convection. The heat that is transferred by convection is first conducted from the base to the fin. For the derivation of the fin differential equation by use of the energy balance only heat fluxes entering and leaving due to conduction and convection are considered.

