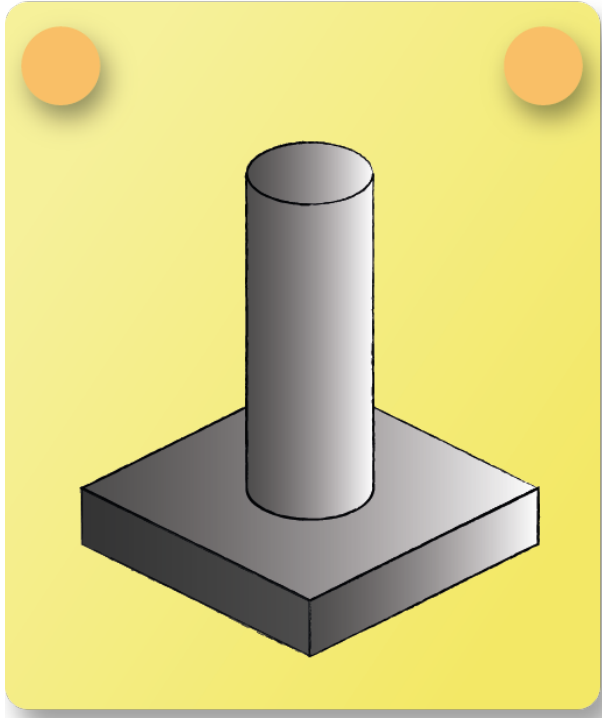


Lecture Conduction Biot Number 2



Specify the parameter's influence on a fin's Biot number.

The Biot Number is defined as the ratio of thermal resistances inside a body and the body's surface:

$$Bi = \frac{W_{\text{conductive}}}{W_{\text{convective}}} = \frac{\alpha L}{\lambda}$$



With L representing a characteristic length of the body. In case of a pin fin the only direction where both mechanisms take part in the heat transfer is radial and hence, the characteristic length is chosen to be the fin's radius. By the definition the primary parameters that influence the Biot number are given. As the heat transfer for example depends on the fluid's velocity, those impacts must also be taken into account.