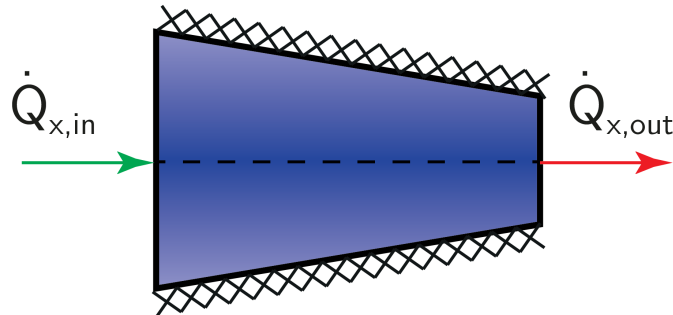# EB - Cond. - Body 2

Set up the energy balance for the truncated cone to determine its temperature T_{w}. Assume steady-state heat transfer without source/sink inside.

Energy balance:

$$\dot{Q}_{x,in} - \dot{Q}_{x,out} = 0$$

The sum of the in- and outgoing heat fluxes of the control volume should equal zero, because of steady-state conditions.

Heat fluxes:

$$\dot{Q}_{x,in} = \dot{q}'' \pi R^4$$

$$\dot{Q}_{x,out} = \alpha \pi R^2 \left(T_w - T_\infty \right)$$