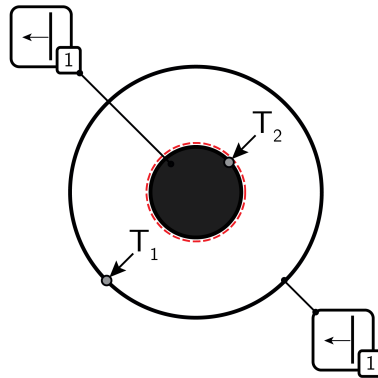# Surface Brightness 13

Determine the surface brightness $\dot{Q}_2$. Use view factors and other surface brightnesses whenever possible.

Definition of the surface brightness:

$$\dot{Q}_2 = \dot{Q}_{2,\epsilon} + \cancelto{0}{\dot{Q}_{2,\rho}} + \cancelto{0}{\dot{Q}_{2,\tau}}$$

Defining the emitted, reflected and transmitted radiation:

The emitted radiation of a black body radiator can be stated as:

$$\dot{Q}_{2,\epsilon} = \cancelto{1}{\epsilon_2}\sigma A_2 T_2^4$$

Inserting and rewriting:

$$\Rightarrow \dot{Q}_2 = \sigma A_2 T_2^4$$