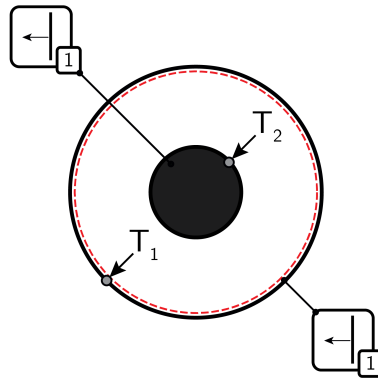


Surface Brightness 12

Determine the surface brightness \dot{Q}_1 . Use view factors and other surface brightnesses whenever possible.



Definition of the surface brightness:

$$\dot{Q}_1 = \dot{Q}_{1,\epsilon} + \cancel{\dot{Q}_{1,\rho}^0} + \cancel{\dot{Q}_{1,\tau}^0}$$

Defining the emitted, reflected and transmitted radiation:

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

$$\dot{Q}_{1,\epsilon} = \cancel{\epsilon_1} \sigma^1 A_1 T_1^4$$

Inserting and rewriting:

$$\Rightarrow \dot{Q}_1 = \sigma A_1 T_1^4$$