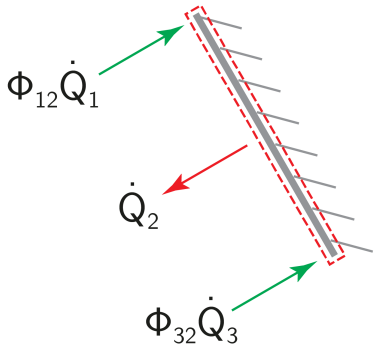
EB - Rad. - Outer 01

Write the outer energy balance for object 2 being in thermal equilibrium. Use view factors and surface brightness whenever possible.



Energy balance:

$$\cancel{\frac{\partial U}{\partial t}}^{0} = \sum \dot{Q}_{\text{in}} - \sum \dot{Q}_{\text{out}}$$

$$0 = \Phi_{12}\dot{Q}_1 + \Phi_{32}\dot{Q}_3 - \dot{Q}_2$$

Heat fluxes:

The surface brightnesses of bodies 1, 2, and 3 will be determined in a separate task and can be stated as $\dot{Q}_1$, $\dot{Q}_2$ and $\dot{Q}_3$ respectively.

Substituting and rewriting:

$$0 = \Phi_{12}\dot{Q}_1 + \Phi_{32}\dot{Q}_3 - \dot{Q}_2$$