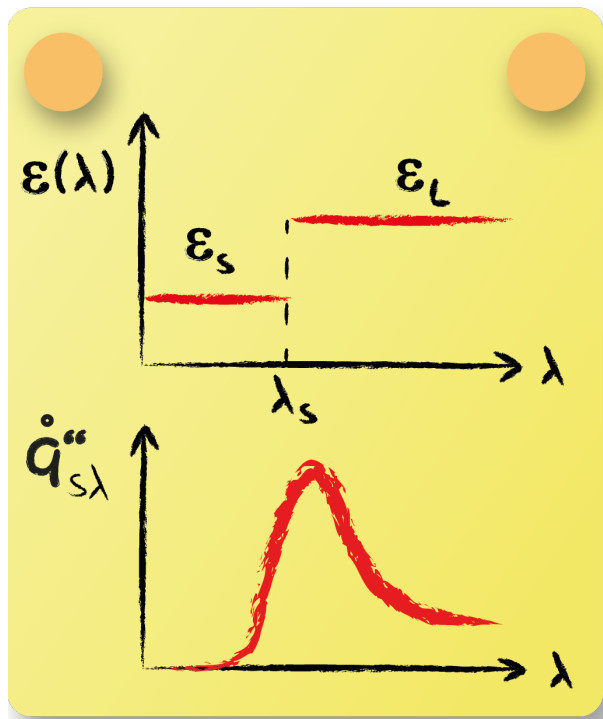


Surface Brightness: Task 31



The emissivity of a body is dependent on wavelength. The diagram shows the emissivity for a certain body, which is given by ϵ_s for wavelength shorter and ϵ_L for wavelength longer than λ_s .

1



$$\bar{\epsilon} = \epsilon_s F_{0 \rightarrow \lambda_s} + \epsilon_L (1 - F_{0 \rightarrow \lambda_s})$$

2



The averaged emissivity is obtained from $\bar{\epsilon} = \frac{\int_0^\infty \dot{q}''_{\lambda\epsilon} d\lambda}{\int_0^\infty \dot{q}''_{\lambda b} d\lambda}$. Since ϵ is constant in certain intervals, the integral can be expressed by the Function $F_{0 \rightarrow \lambda}$, which gives the fraction of black body radiation up to wavelength λ .