

4.5: Mean Specific Intensity

Look around you again from your position somewhere in the middle of a stellar atmosphere. The specific intensity around you is not isotropic. It is quite large in the sky above you, but is much greater if you look towards the hell at your feet. The *mean specific intensity* J around the complete 4π steradians around you is

$$J = \frac{1}{4\pi} \int_0^{2\pi} \int_0^\pi I(\theta) \sin \theta \, d\theta d\phi \quad (4.5.1)$$

or, for short

$$J = \frac{1}{4\pi} \int I d\omega. \quad (4.5.2)$$

At the centre of the star, where the specific intensity is isotropic, $J = I$.

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