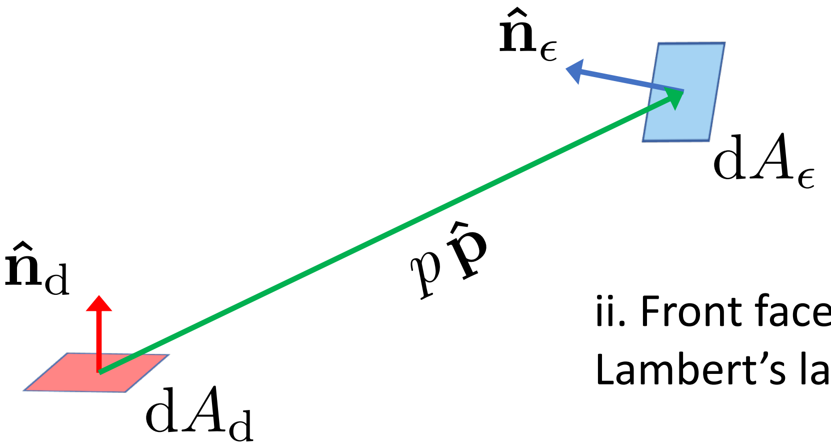

1. From coronal element, solid angle of disk element is:

$$\mathrm{d}\Omega_\mathrm{d} = \hat{\mathbf{n}}_\mathrm{d}.\hat{\mathbf{p}}\frac{\mathrm{d}A_\mathrm{d}}{p^2}$$

2. Corona has area A_cor, uniform surface brightness and is also Lambertian, so fraction of total coronal luminosity reaching disk element from the coronal element:

$$\mathrm{d}f_\epsilon = \frac{1}{\pi}\hat{\mathbf{n}}_\epsilon.\hat{\mathbf{p}}\;\hat{\mathbf{n}}_\mathrm{d}.\hat{\mathbf{p}}\frac{\mathrm{d}A_\mathrm{d}}{p^2}\,\frac{\mathrm{d}A_\epsilon}{A_\mathrm{cor}}$$

3. Sum over all visible coronal elements and rescale area to obtain fraction per unit disk radius at radius r:

$$f_{c\rightarrow d} = \frac{2\pi r}{\pi}\sum_{\hat{\mathbf{n}}_\epsilon.\hat{\mathbf{p}}>0}\hat{\mathbf{n}}_\epsilon.\hat{\mathbf{p}}\;\hat{\mathbf{n}}_\mathrm{d}.\hat{\mathbf{p}}\frac{1}{p^2}\,\frac{\mathrm{d}A_\epsilon}{A_\mathrm{cor}}$$

i. From disk element, solid angle of coronal element is:

$$\mathrm{d}\Omega_\epsilon = \hat{\mathbf{n}}_\epsilon.\hat{\mathbf{p}}\frac{\mathrm{d}A_\epsilon}{p^2}$$

ii. Front face of element must be visible, apply Lambert's law, sum and normalise by π:

$$f_{\mathrm{d}\rightarrow\mathrm{c}} = \frac{1}{\pi}\sum_{\hat{\mathbf{n}}_\epsilon.\hat{\mathbf{p}}>0}\hat{\mathbf{n}}_\mathrm{d}.\hat{\mathbf{p}}\;\hat{\mathbf{n}}_\epsilon.\hat{\mathbf{p}}\frac{\mathrm{d}A_\epsilon}{p^2}$$

$$f_{\mathrm{c}\rightarrow\mathrm{d}} = \frac{2\pi r f_{\mathrm{d}\rightarrow\mathrm{c}}}{A_\mathrm{cor}}$$