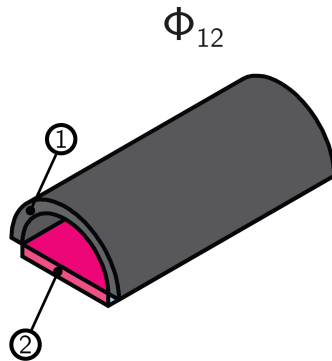# View Factor 03

A long semi-circular body has a flat plate inside. Determine the view factor Φ_{12}:

$$\Phi_{12}$$

A flat plate can never see itself and therefore:

$$\Phi_{22} = 0$$

From the sum rule $(\Phi_{21} + \Phi_{22} = 1)$, one finds that:

$$\Phi_{21} = 1 - \Phi_{22} = 1$$

Using the reciprocity rule $(\Phi_{21} A_2 = \Phi_{12} A_1)$ and rewriting yields:

$$\Phi_{12} = \Phi_{21} \frac{A_2}{A_1} = \frac{DL}{\frac{1}{2}\pi DL} = \frac{2}{\pi}$$