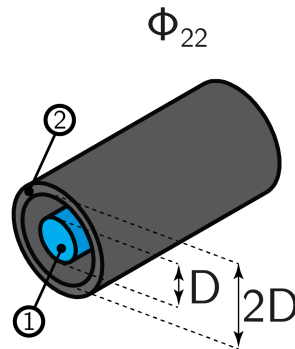


View Factor 08

A long hollow cylinder has a smaller long cylinder inside. Determine the view factor Φ_{22} :



A solid cylinder can never see itself and therefore:

$$\Phi_{11} = 0$$

From the sum rule ($\Phi_{11} + \Phi_{12} = 1$), one finds that:

$$\Phi_{12} = 1 - \Phi_{11} = 1$$

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

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

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

$$\Phi_{22} = 1 - \Phi_{21} = \frac{1}{2}$$