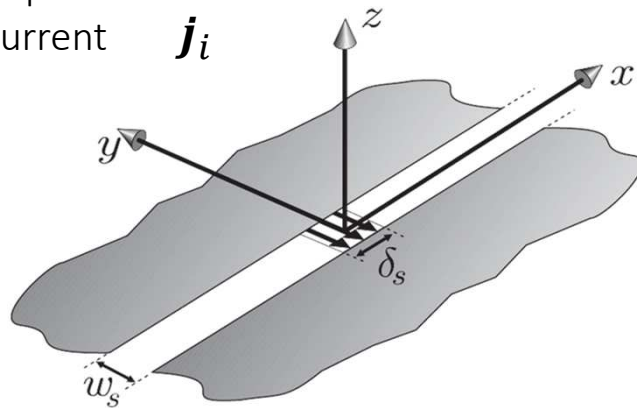# Home Assignment

Impressed current $\boldsymbol{j}_i$

$$j_{\mathrm{inc},y}(x = 0, y) = I_0 \frac{\mathrm{rect}_{\delta_s}(x)}{\delta_s}$$

Derive expressions for

1. The spectral Green's function of the slot $D_{\mathrm{slot}}(k_x)$

2. The spectrum of the voltage on the slot $V(k_x)$

3. The spatial voltage on the slot $v(x)$

4. The input impedance $Z_{in,\mathrm{slot}}$