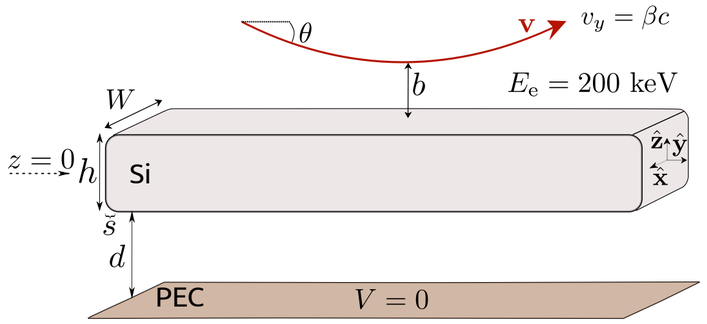
Electron-coupling-to-waveguide

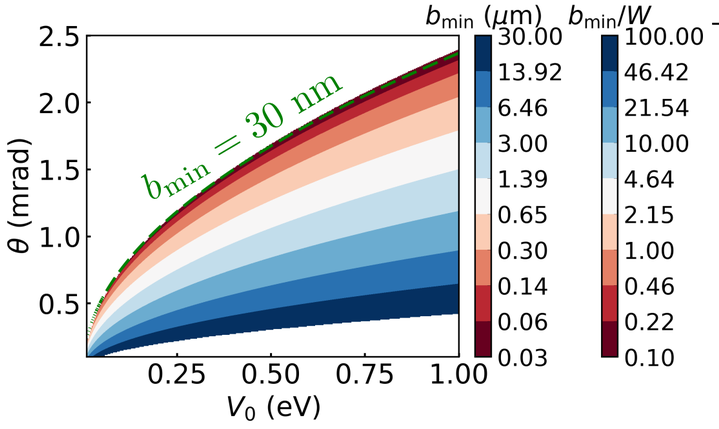
Correction of the trajectory and integration

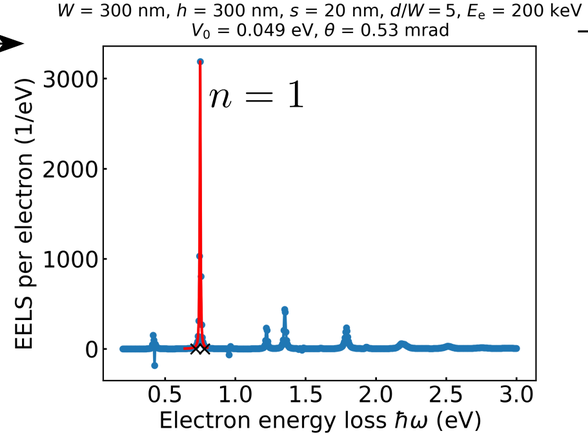
$$\Gamma_{\mathrm{EELS}}(\omega) = 2\int_{z_{\min}}^{\infty} \frac{v\,\mathrm{d}z}{\sqrt{\left|c^2\beta^2\sin^2\theta + \frac{2eV(z)}{m_{\mathrm{e}}\gamma_{\mathrm{e}}}\right|}} \frac{\mathrm{d}\Gamma_{\mathrm{EELS}}(\omega,z)}{\mathrm{d}y}$$

$$d = 1.5\,\mu\mathrm{m}$$
$$h = 300\ \mathrm{nm}$$

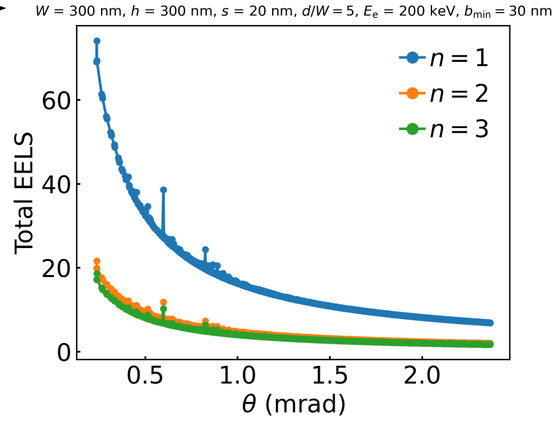


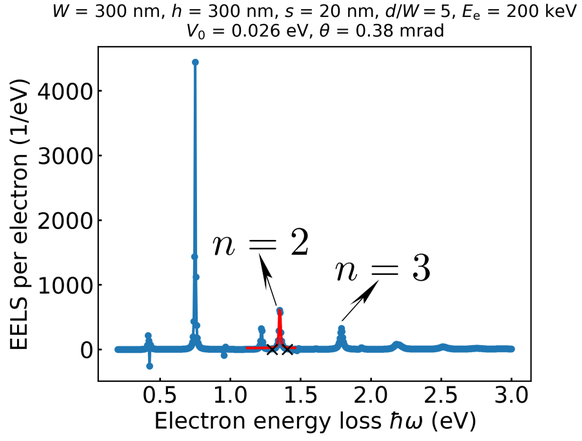
$$0 = \frac{V(z_{\min})}{V_0} + \frac{m_{\mathrm{e}}c^2\gamma_{\mathrm{e}}}{2e}\frac{\beta^2\sin^2\theta}{V_0}$$





EELS integrated for different modes





EELS integrated for different b