BEM 2D: EELS of rectangular waveguide for a parallel trajectory
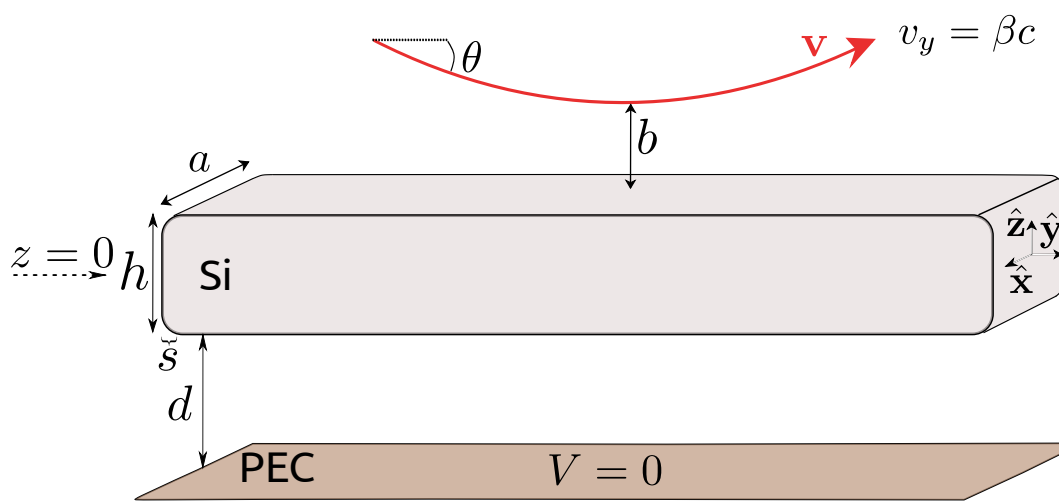

$h/a = 0.25$

$a = 400$ nm, $h = 100$ nm, $s = 20$ nm, $b = 50$ nm, $E_e = 200$ keV

$h/a = 0.5$

$a = 400$ nm, $h = 200$ nm, $s = 20$ nm, $b = 50$ nm, $E_e = 200$ keV

$h/a = 0.75$

$a = 400$ nm, $h = 300$ nm, $s = 20$ nm, $b = 50$ nm, $E_e = 200$ keV

$\hbar\omega_1 = 0.703$ eV
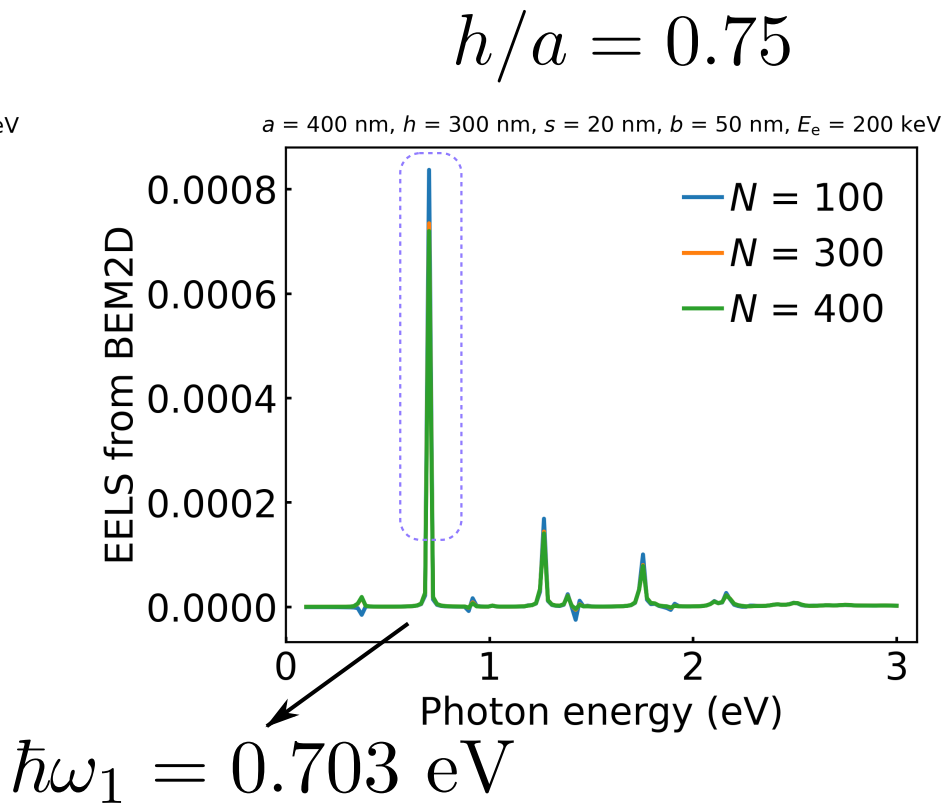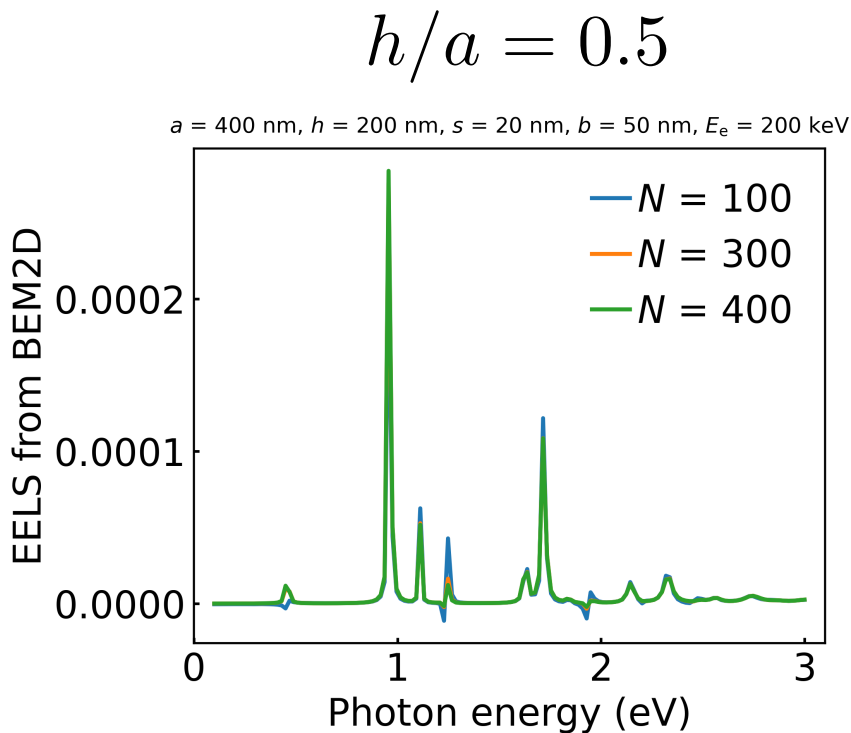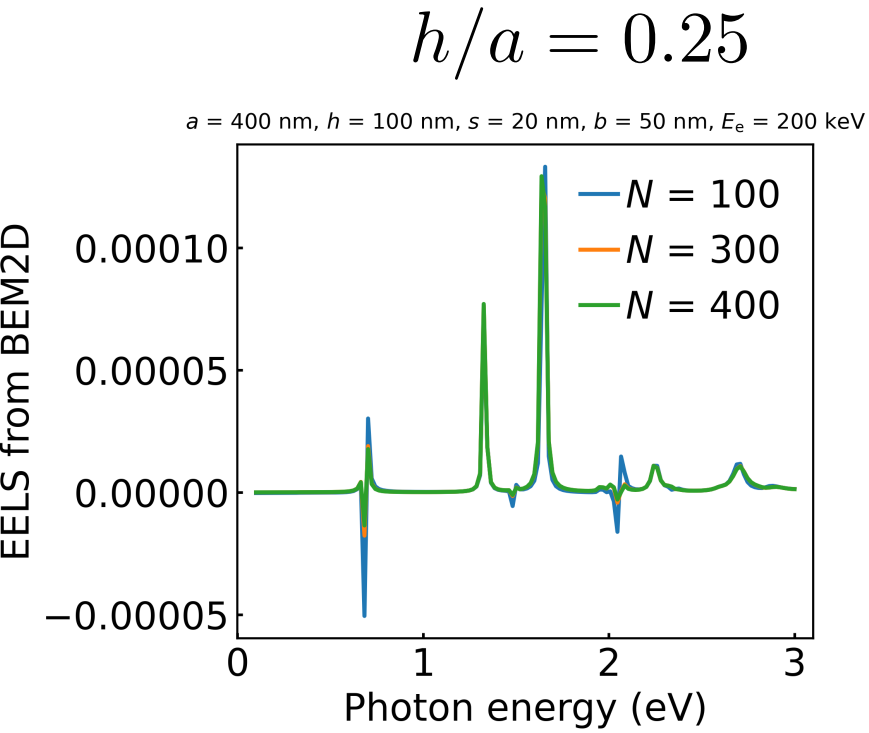
$d/a = 500 \quad s/a = 0.1$

$E_e = 200$ keV

$$P(\omega) = 2 \int_{z_{\min}}^{\infty} \frac{\beta \, \mathrm{d}z}{\sqrt{\beta^2 \sin^2 \theta + \frac{2eV(z)}{m_e c^2 \gamma_e}}} \frac{\mathrm{d}\Gamma_{\mathrm{EELS}}(z, \omega)}{\mathrm{d}y}$$

from h/2   from bem2D

$a = 400$ nm, $h = 300$ nm, $s = 20$ nm, $E_e = 200$ keV
$V_0 = 5$ eV, $\theta = 2$ mrad

$\hbar\omega_1 = 0.703$ eV