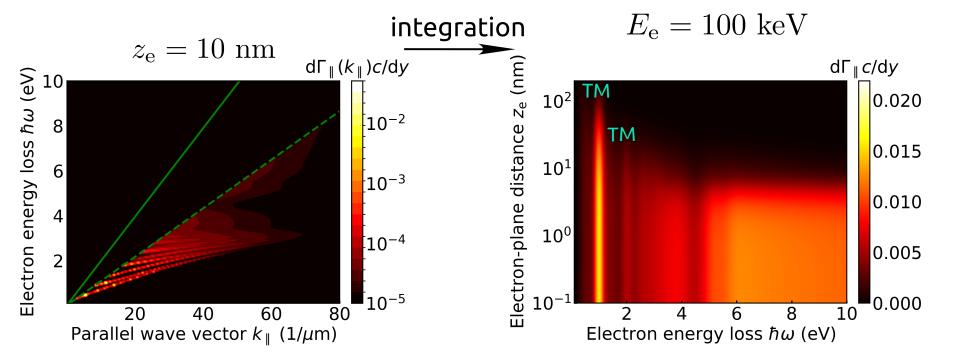
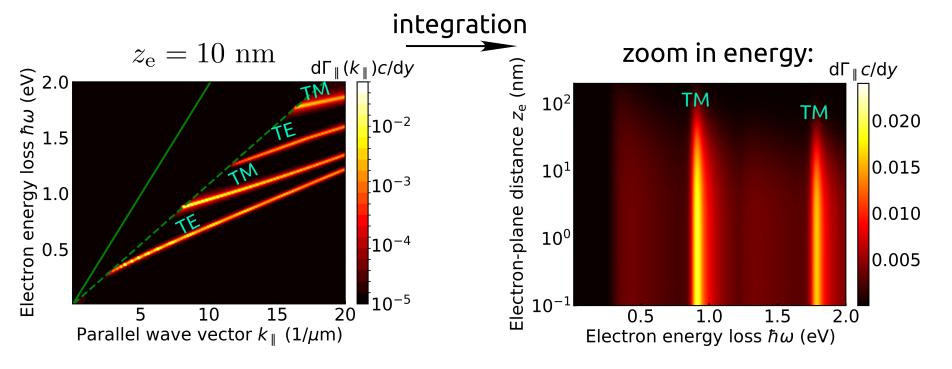
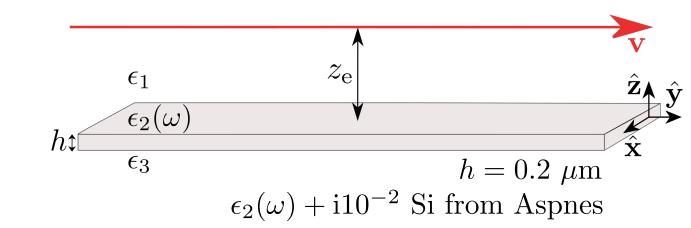
Integration over the waveguide modes

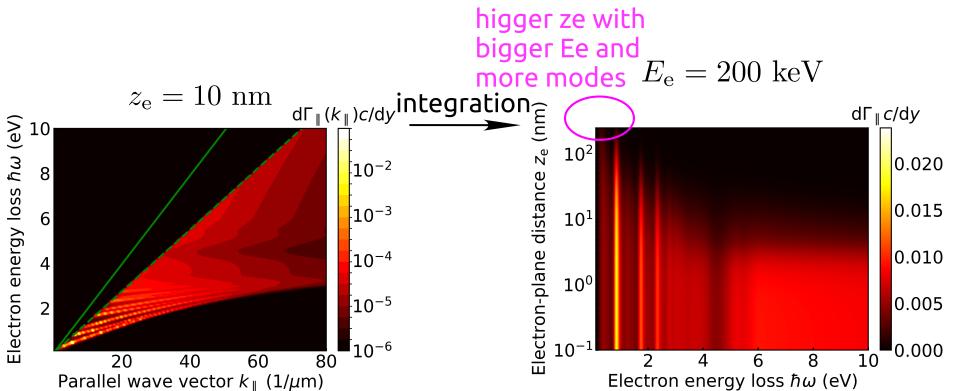
$$\frac{d\Gamma}{dy}(\mathbf{r},\omega) = \frac{2e^2}{\pi\hbar v^2} \int_0^\infty \frac{\mathrm{d}k_x}{k_{\parallel}^2} \mathrm{Re} \left\{ k_{z1} \mathrm{e}^{2\mathrm{i}k_{z1}z_{\mathrm{e}}(\mathbf{r})} \left[\left(\frac{k_x v}{k_{z1}c} \right)^2 r_{123}^{\mathrm{s}}(k_{\parallel}) - \frac{1}{\epsilon_1} r_{123}^{\mathrm{p}}(k_{\parallel}) \right] \right\}, \text{ \#paper149 Eq. (25)}$$

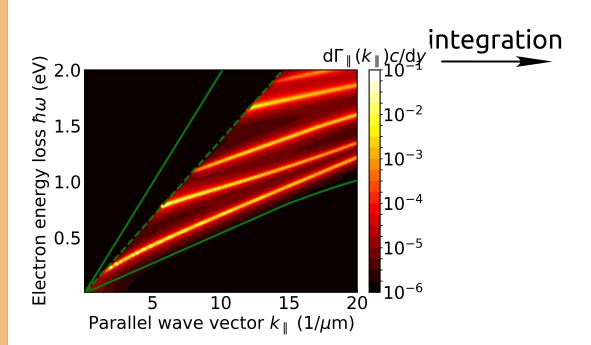
$$r_{123}^{\nu} = r_{12}^{\nu} + \frac{t_{12}^{\nu} t_{21}^{\nu} r_{23}^{\nu} e^{2ik_{z2}h}}{1 - r_{21}^{\nu} r_{23}^{\nu} e^{2ik_{z2}h}},$$











zoom in energy: