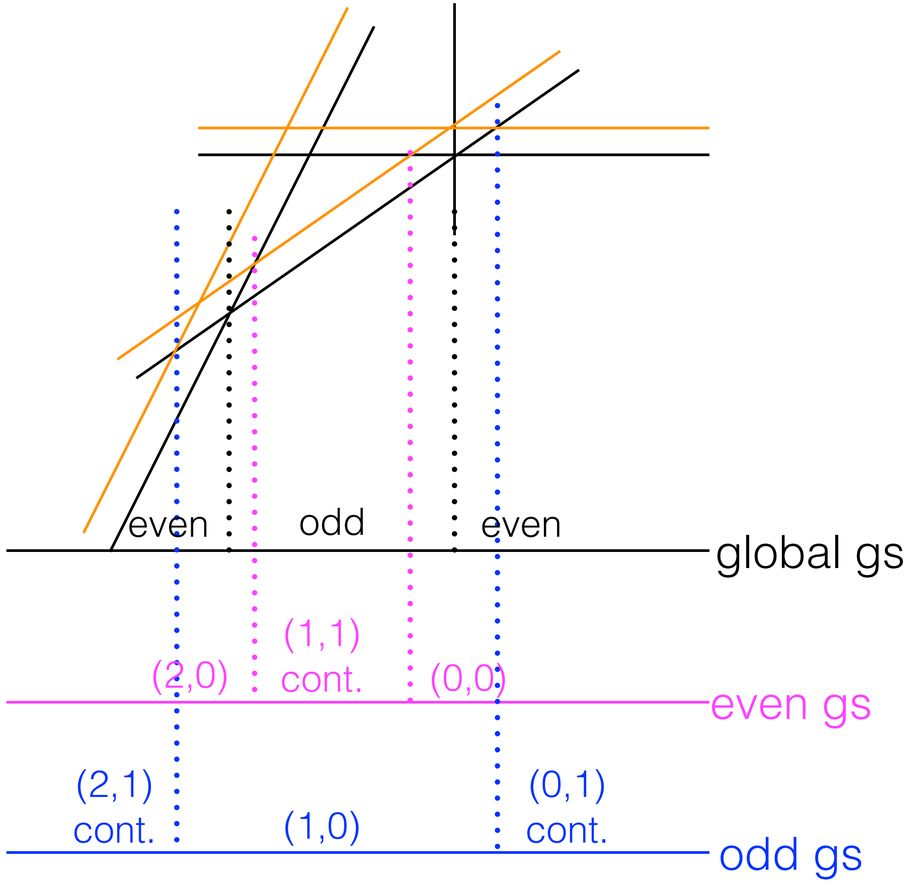
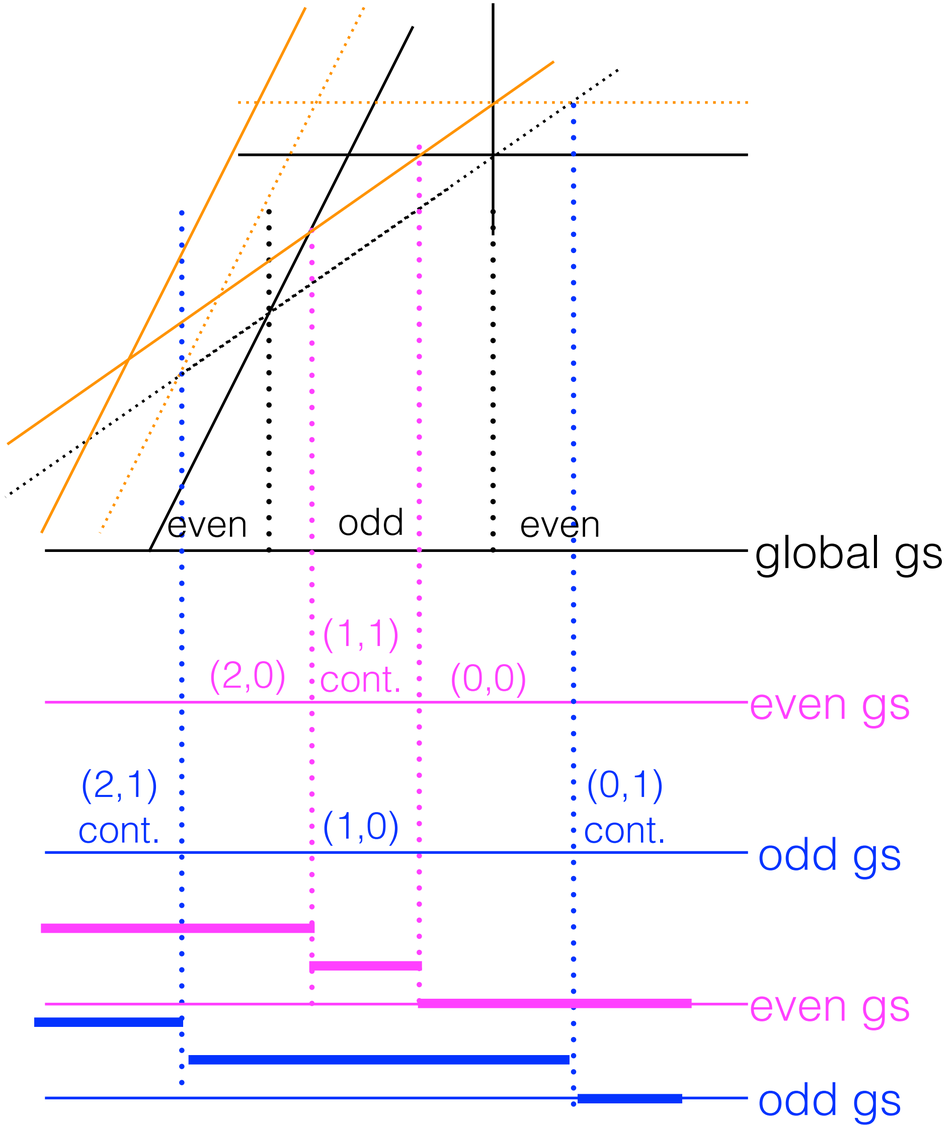

even
odd
even
global gs
(1,1)
cont.
(2,0)
(0,0)
even gs
(2,1)
cont.
(1,0)
(0,1)
cont.
odd gs


even
odd
even
global gs
(1,1)
cont.
(2,0)
(0,0)
even gs
(2,1)
cont.
(1,0)
(0,1)
cont.
odd gs
even gs
odd gs

$U = 0.333$ $\Delta = 0.166$

As fn of $\varepsilon_i \in \left[-1, +\frac{1}{2}\right]$, determine

even GS, odd GS, even ES$_1$

odd ES$_1$, + dot charge $n_d(\varepsilon)$

for all 4 states.

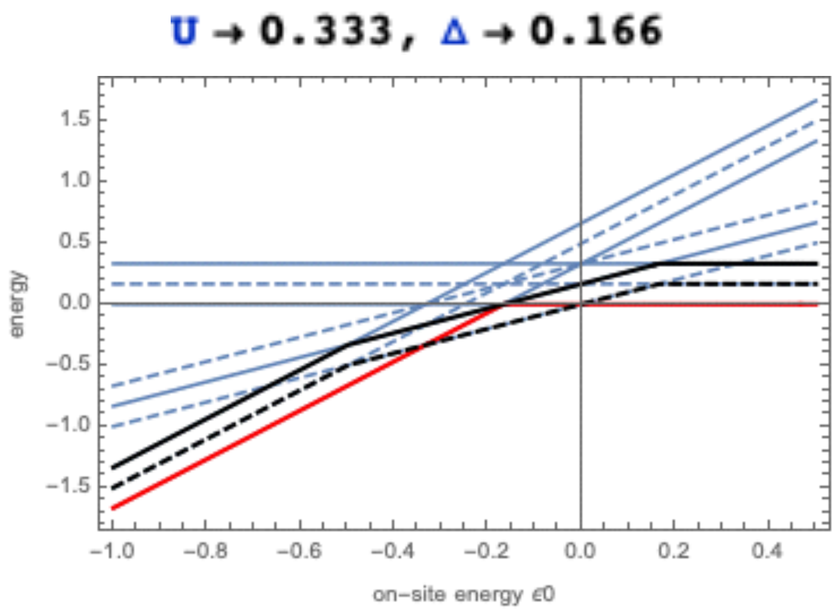
Even states ($\Gamma_t = 0$) Odd states

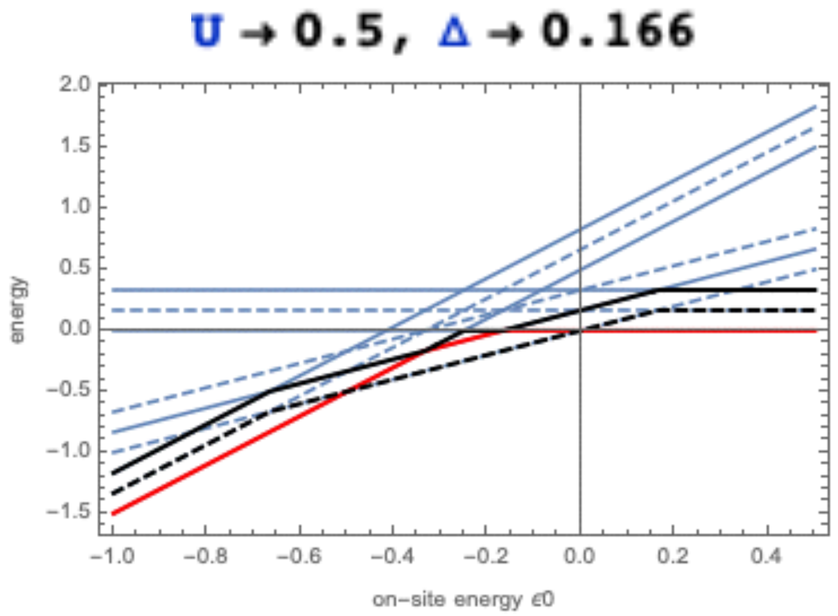
only lower edge of qp continuum is considered

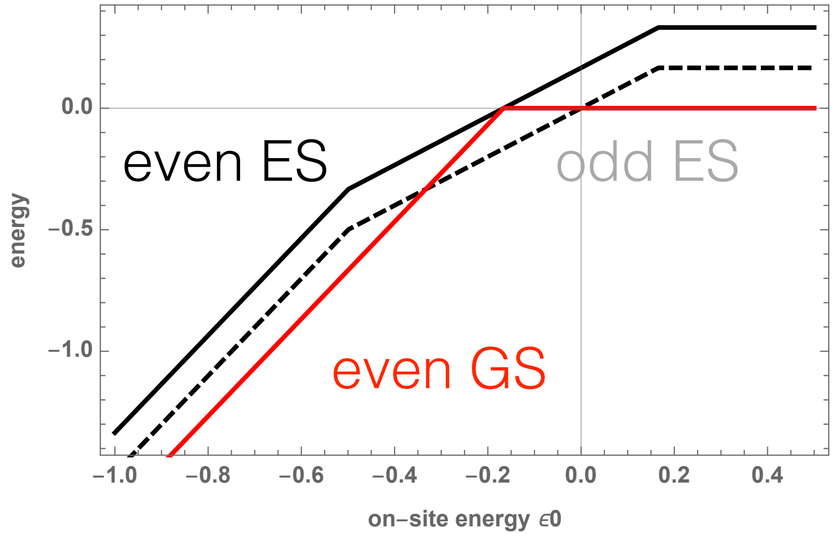
n_d dot	qp ← n_q		E(n_d, n_q)
$\|0,0\rangle$	$\|0,2\rangle$	$\|1,0\rangle$	$\|1,2\rangle$
$\|1,1\rangle$	$\|1,3\rangle$	$\|0,1\rangle$	$\|0,3\rangle$
$\|2,0\rangle$	$\|2,2\rangle$		

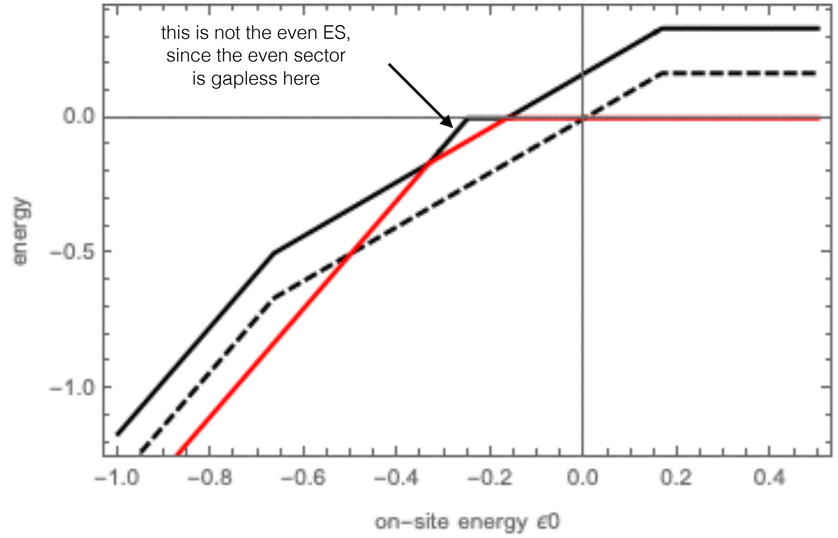
$|n_d, n_q\rangle \rightarrow \varepsilon_0 n_d + \frac{1}{2} U n_d(n_d - 1) + \Delta n_q$

Rok's hypothesis: n(evenES) = n(oddGS)









$$C = P_{g0}|e|^2 \frac{dn_g}{d\epsilon_0}\Big|_{\epsilon_0=\epsilon_0^w} + (1-P_{g0})|e|^2 \frac{dn_e}{d\epsilon_0}\Big|_{\epsilon_0=\epsilon_0^w} + (n_{g0}-n_{e0})|e|^2 \frac{\lambda^2\eta}{\omega^2+\gamma^2} \frac{dS_{mg}}{d\epsilon_0}\Big|_{\epsilon_0=\epsilon_0^w} \gamma$$

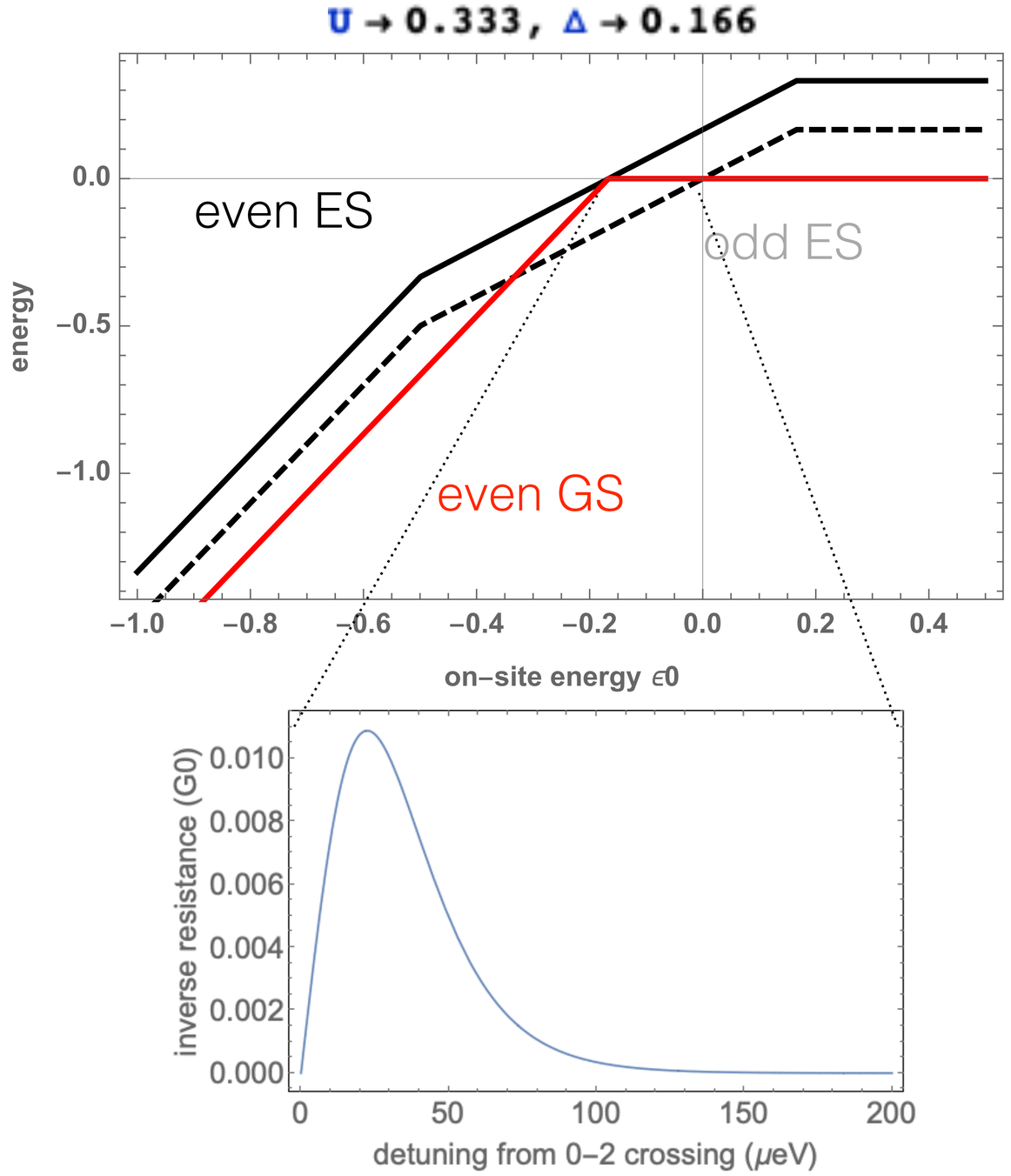
$$\frac{1}{R} = (n_{g0}-n_{e0})|e|^2 \frac{\lambda^2\eta}{\omega^2+\gamma^2} \frac{dS_{mg}}{d\epsilon_0}\Big|_{\epsilon_0=\epsilon_0^w} \omega^2$$

$$\lambda = \frac{e^{\delta_0/kT}+1}{e^{\delta_0/kT}+N}$$

$$\gamma = N\Gamma_+^0 + \Gamma_-^0 = \Gamma \frac{e^{\delta_0/kT}+N}{e^{\delta_0/kT}-1}$$

$$\eta = \frac{N\gamma}{4kT\cosh^2\left(\frac{\delta_0}{2kT}\right)}$$

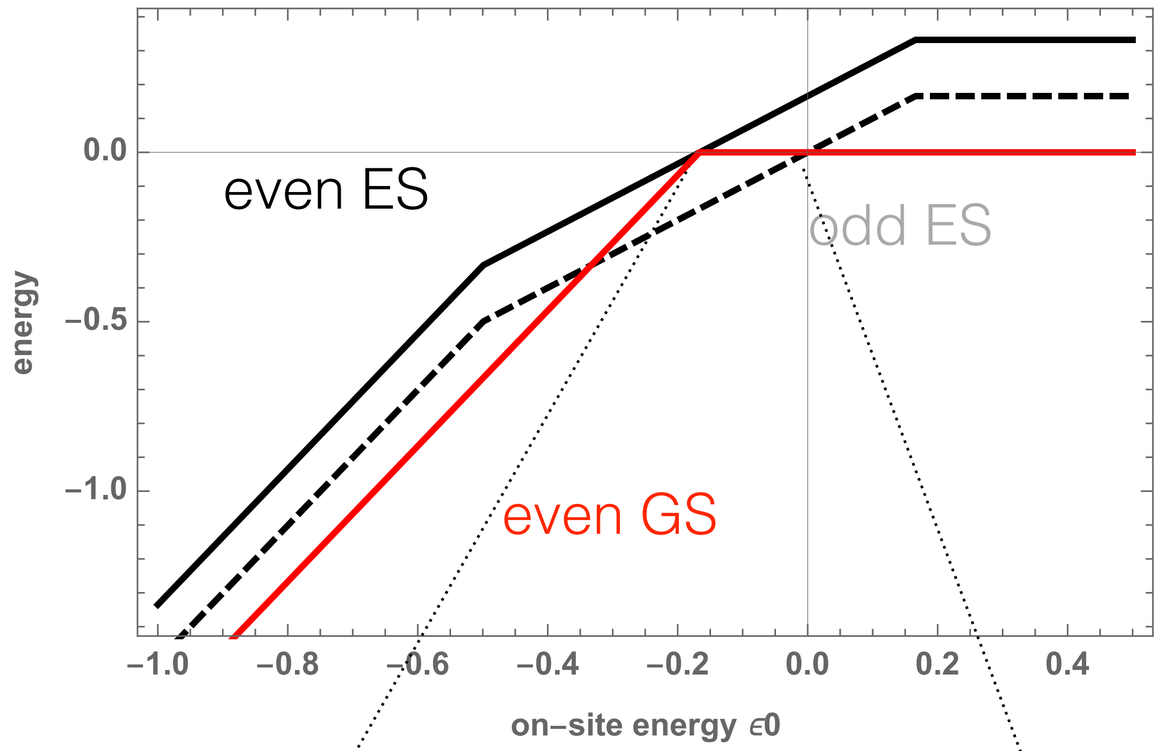
$$P_0 = \frac{1}{1+Ne^{-\delta_0/k_BT}}.$$

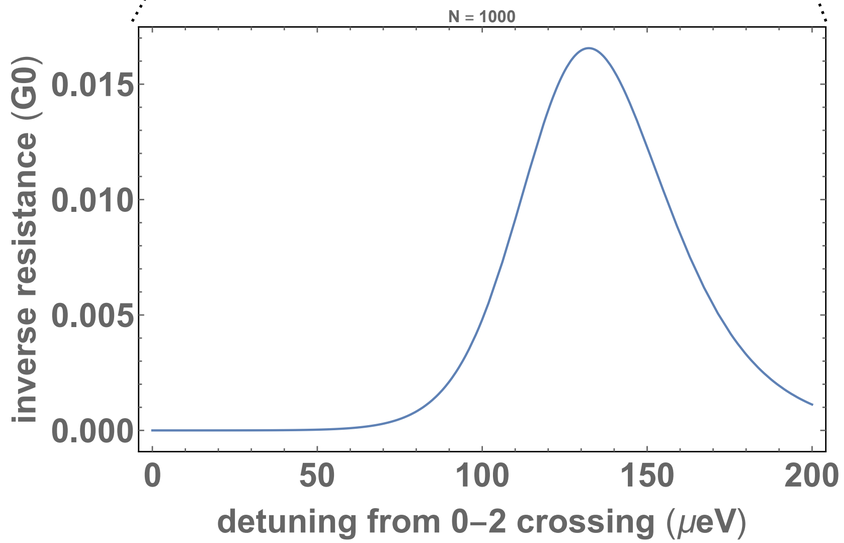


N=1

{ω → 2 π * 500 * 10 ^ 6, δ0 → 15 * (10 ^ -6) * 1.6 * (10 ^ -19), T → 0.2, kB → 1.4 * 10 ^ -23, e → 1.6 * 10 ^ -19, Γ → 10 ^ 10,

U → 0.333, Δ → 0.166

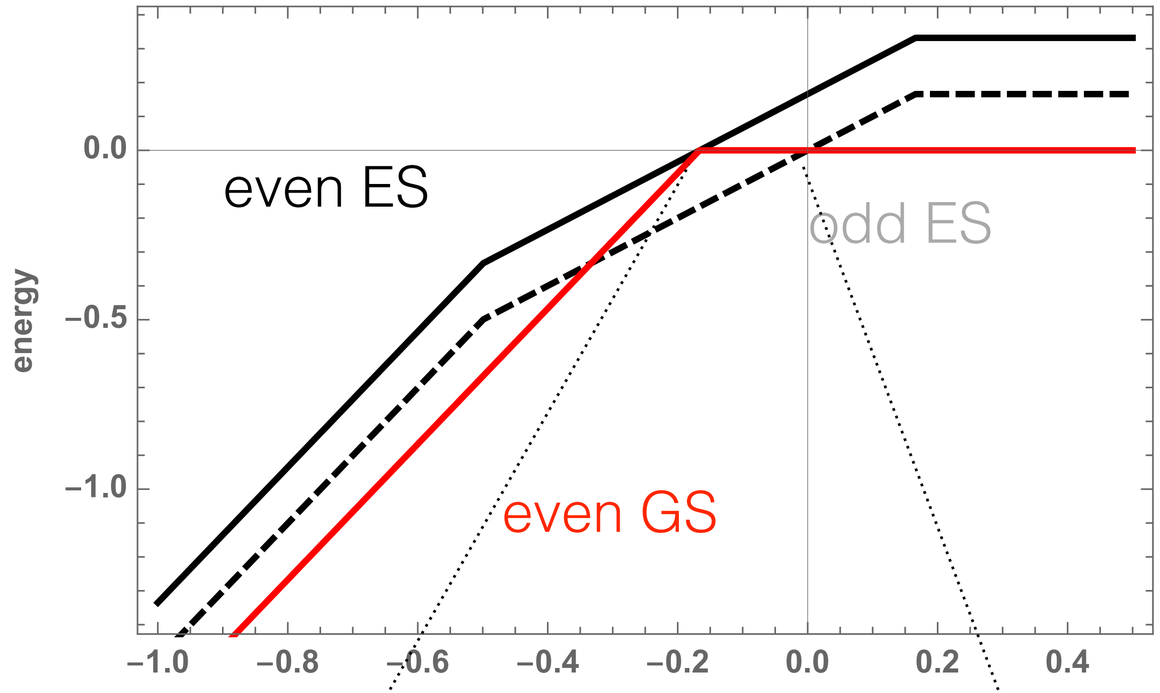


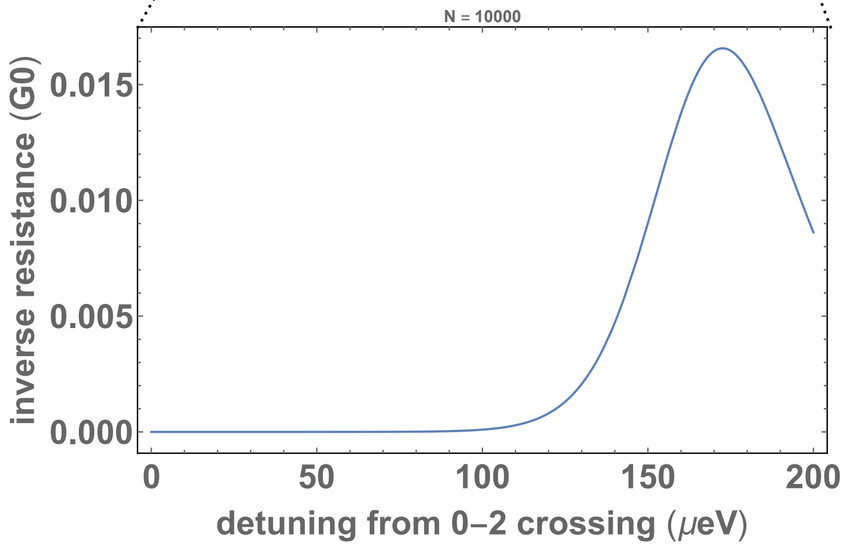


N=1000

{ω → 2 π * 500 * 10 ^ 6, δ0 → 15 * (10 ^ -6) * 1.6 * (10 ^ -19), T → 0.2, kB → 1.4 * 10 ^ -23, e → 1.6 * 10 ^ -19, Γ → 10 ^ 10,

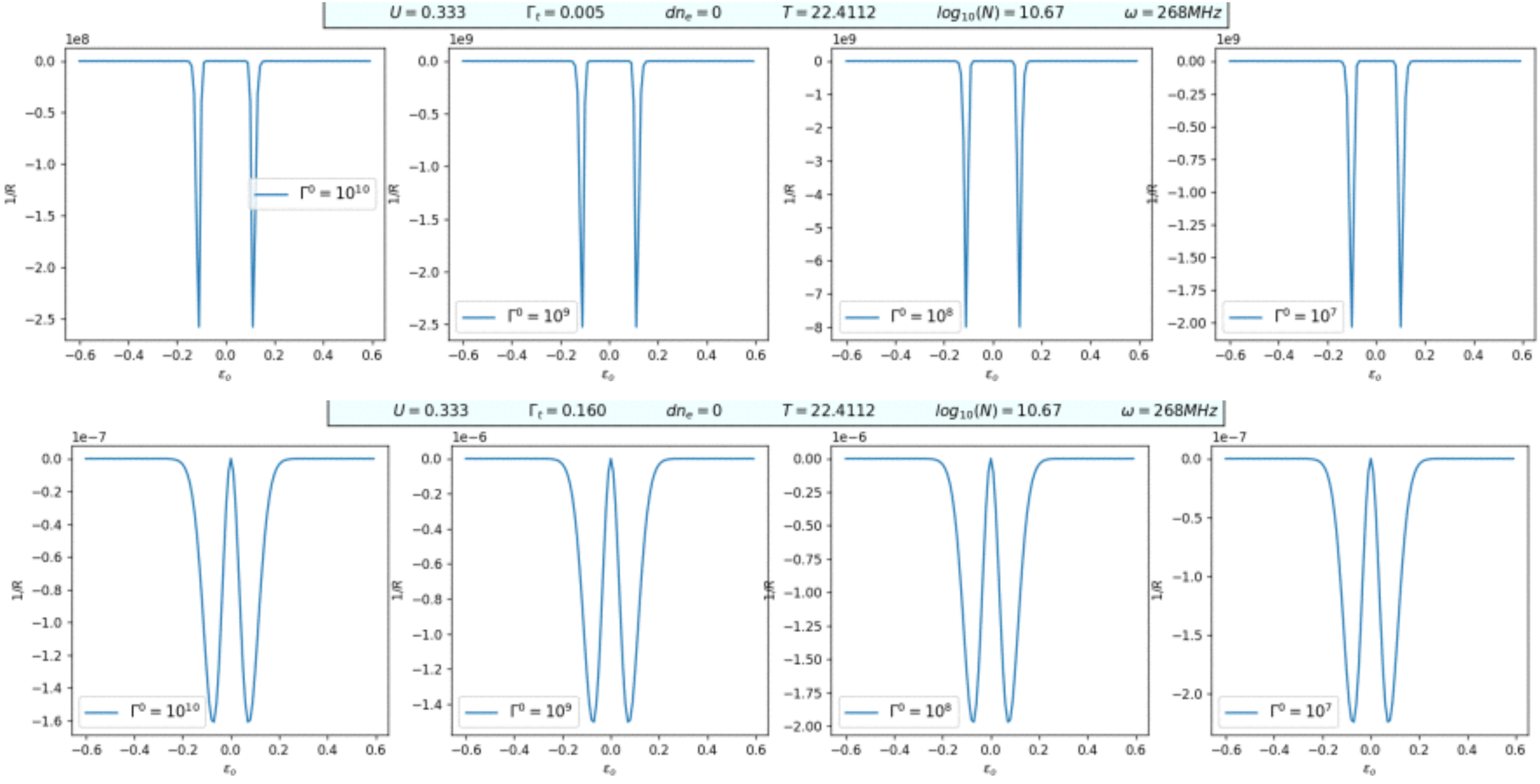
U → 0.333, Δ → 0.166





N=10 000

{ω → 2 π * 500 * 10 ^ 6, δ0 → 15 * (10 ^ -6) * 1.6 * (10 ^ -19), T → 0.2, kB → 1.4 * 10 ^ -23, e → 1.6 * 10 ^ -19, Γ → 10 ^ 10,


$U = 0.333$ $\Gamma_t = 0.005$ $dn_e = 0$ $T = 22.4112$ $log_{10}(N) = 10.67$ $\omega = 268MHz$
1e8
1e9
1e9
1e9
$\Gamma^0 = 10^{10}$
$\Gamma^0 = 10^9$
$\Gamma^0 = 10^8$
$\Gamma^0 = 10^7$
1/R
ε_0
$U = 0.333$ $\Gamma_t = 0.160$ $dn_e = 0$ $T = 22.4112$ $log_{10}(N) = 10.67$ $\omega = 268MHz$
1e−7
1e−6
1e−6
1e−7
$\Gamma^0 = 10^{10}$
$\Gamma^0 = 10^9$
$\Gamma^0 = 10^8$
$\Gamma^0 = 10^7$
1/R
ε_0