Errata

Near-Equilibrium Transport: Fundamentals and Applications

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Lecture 3:

page 37: Equation (3.9) should read:

$$M_{2D}\left(E_F\right)=\sqrt{\frac{2g_v n_S}{\pi}}$$

page 41: In Exercise 3.1, the answers obtained by using eqn. (3.9) should be:

$$M_{2D}\left(E_F\right)\approx 290/\mu\text{m}$$

and for $W=120\ \mu\text{m}$, $M\left(E_F\right)\approx 35$.

When used in eqn. (3.9), this gives $R_{2D}^{ball}\approx 45\ \Omega-\mu\text{m}$, which is about **20%** of the channel resistance of this MOSFET.

page 42: In exercise 3.2, when we use this results, this ballistic resistance gives a mean-free-path of about 16 nm:

$$215=\left(1+\frac{L}{\lambda_0}\right)45\rightarrow\lambda_0\approx 16\text{ nm}$$

which is only a little larger than the results obtained by assuming Maxwell-Boltzmann carrier statistics.