

ECE 656: Fall 2011
Lecture 18 Homework
Due FRIDAY, October 14, 2011

- 1) Show that the following relation is true:

$$e^{-\frac{\pi}{\rho_S} R_{MN,OP}} + e^{-\frac{\pi}{\rho_S} R_{NO,PM}} = 1$$

- 2) Assume $T_L = 0$ K and show that for graphene

$$\sigma_S(E_F) \approx \frac{2q^2}{h} \lambda_{app}(E_F) \left(\frac{2E_F}{\pi \hbar v_F} \right).$$

This relation works well at 300 K too.