ECE 656: Fall 2009
Lecture 1 Homework

1) Assume a nonparabolic energy band structure described by

$$E(k)\left[1+\alpha E(k)\right]=\frac{\hbar^2 k^2}{2m^*(0)}.$$

where

$$\frac{1}{m^*(0)}=\frac{1}{\hbar^2}\frac{d^2E(k)}{dk^2}\bigg|_{k=0} \quad .$$

For this bandstructure, deduce the velocity, $\upsilon(k)$ as a function of k.