

## HW #9

1. For a homogeneous, unmagnetized plasma, find the kinetic dispersion of a 1-D plasma wave with  $\vec{k} = k\hat{e}_x$ . If the ion velocity distribution is included,  $f_{oi}(v)$ .

2. Find the dispersion if the velocity distributions for ion and electron is cold or

$$f_0 = n_0 \delta(v_x) \delta(v_y) \delta(v_z)$$

3. Find the dispersion for the 1-D Lorentz distribution

$$f_0 = n_0 \frac{v_0}{(v_x - v_0)} \delta(v_y) \delta(v_z)$$