

$$\frac{\partial n_s}{\partial t} + \nabla \cdot (n_s \vec{v}_s) = 0$$

$$\frac{\partial \vec{v}_s}{\partial t} + (\vec{v}_s \cdot \nabla) \vec{v}_s = -\frac{q_s}{m_s} \nabla \phi$$

$$\nabla^2 \phi = -\frac{1}{\epsilon_0} \sum q_s n_s$$