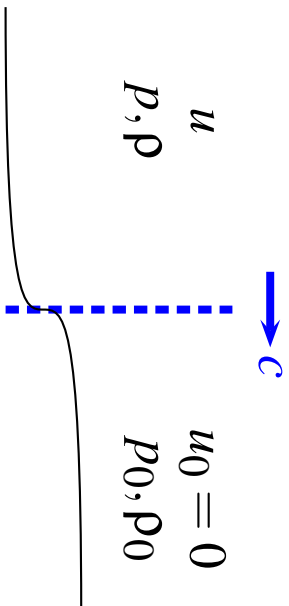


Acoustic wave



$$[\rho(\mathbf{u} - \tilde{\mathbf{v}}) \cdot \tilde{\mathbf{n}}] = 0$$

$$\Rightarrow \rho(u - c) = -\rho_0 c$$

$$[\{\rho \mathbf{u} - \tilde{\mathbf{v}} - \boldsymbol{\tau}\} \cdot \tilde{\mathbf{n}}] = t^\sigma$$

$$\Rightarrow \rho u(u - c) + p = p_0$$

$$u = \frac{p - p_0}{\rho} \quad c = \frac{p - p_0}{\rho_0 c}$$

$$c = \sqrt{\frac{p - p_0}{\rho - \rho_0} \frac{\rho}{p_0}} \rightarrow \sqrt{\left(\frac{\partial p}{\partial \rho}\right)_s} = a$$

$$\text{If } p = p_0 \rho^\gamma \quad p_0^{-\gamma}$$

$$a = \sqrt{\gamma R T}$$