

$$\left(\frac{\partial^2}{\partial R^2} - \frac{1}{R} \frac{\partial}{\partial R} + \frac{\partial^2}{\partial Z^2}\right) RH = 0$$

$$U = \frac{1}{R} \frac{\partial \Psi}{\partial R}$$

$$V = -\frac{1}{R} \frac{\partial \Psi}{\partial Z}$$

$$\left(\frac{\partial^2}{\partial R^2} - \frac{1}{R} \frac{\partial}{\partial R} + \frac{\partial^2}{\partial Z^2}\right) \Psi = R\Omega$$

$$\frac{\partial \Omega}{\partial t} = -\frac{\partial(U\Omega)}{\partial Z} - \frac{\partial(V\Omega)}{\partial R} + C \frac{H}{R} \frac{\partial H}{\partial Z} + \frac{1}{Re} \left( \frac{\partial^2}{\partial R^2} + \frac{1}{R} \frac{\partial}{\partial R} - \frac{1}{R^2} + \frac{\partial^2}{\partial Z^2} \right) \Omega$$