$$\frac{\partial \zeta}{\partial t} + \{\phi, \zeta\} = \alpha(\tilde{\phi} - \tilde{n}) - \mu\nabla^4\zeta$$

$$\frac{\partial n}{\partial t} + \{\phi, n\} = \alpha(\tilde{\phi} - \tilde{n}) - \kappa\frac{\partial \phi}{\partial y} - \mu\nabla^4 n$$

BOUT++

A distributed numerical solver for fluid and plasma simulations