coursera

Item Navigation

Vorticity Finite Difference Equation

Derive the finite difference equation for the scalar vorticity from the time-dependent vorticity equation,

$$\frac{\partial \omega}{\partial t} = \frac{2e^{-2\xi}}{\mathrm{Re}} \left(\frac{\partial^2 \omega}{\partial \xi^2} + \frac{\partial^2 \omega}{\partial \theta^2} \right) + e^{-2\xi} \left(\frac{\partial \psi}{\partial \xi} \frac{\partial \omega}{\partial \theta} - \frac{\partial \psi}{\partial \theta} \frac{\partial \omega}{\partial \xi} \right).$$

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