

Numerical methods for nonlinear problems

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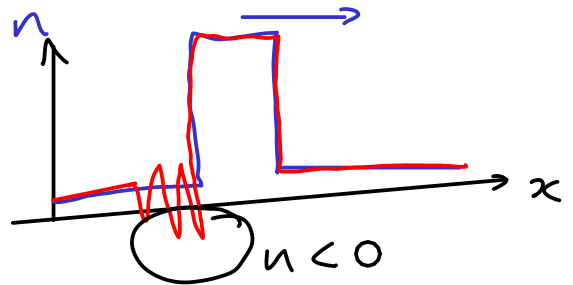
- Summary of issues to consider
- Conservation properties

1. Conservation mass, momentum, energy
entropy (increasing), enstrophy, ...

2. Stability : CFL dt changing
energy transfer \rightarrow small scale
need dissipation

3. physical constraints
density > 0
pressure

$$\nabla \cdot \vec{\beta} = 0$$



4. Dispersion relation for waves
accuracy for small waves
robustness to large fluctuations