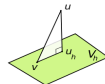


Modal
Decomposition

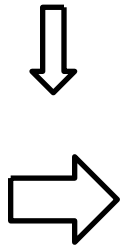
$$a_i(t) \phi(\mathbf{x})$$

Galerkin
Projection



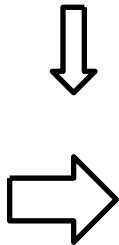
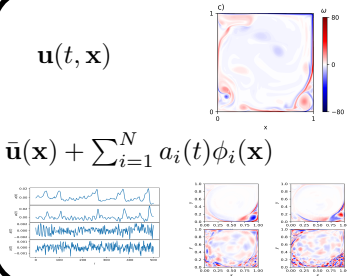
First Principle

$$\partial_t \mathbf{u} + \mathbf{u} \cdot \nabla \mathbf{u} = -\nabla p + \frac{1}{Re} \nabla^2 \mathbf{u}$$



$\mathbf{u}(t, \mathbf{x})$

$$\bar{\mathbf{u}}(\mathbf{x}) + \sum_{i=1}^N a_i(t) \phi_i(\mathbf{x})$$



$$\dot{a}_i = C_i + L_{ij} a_j + Q_{ijk} a_j a_k$$

