Numerical Methods in Engineering Applications

Workshop #06
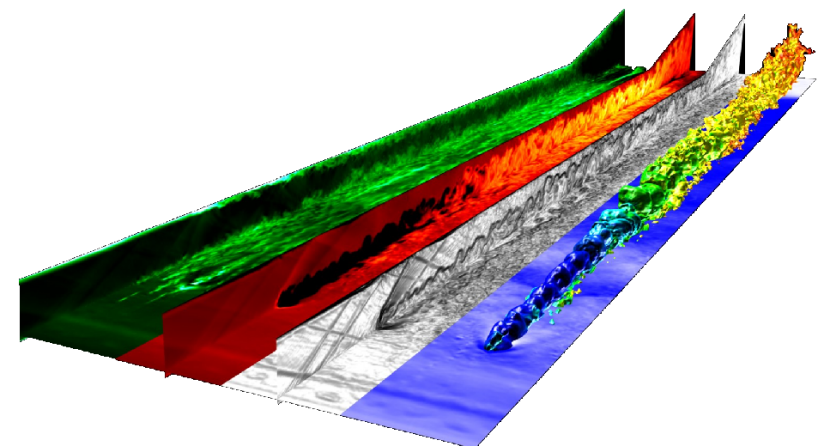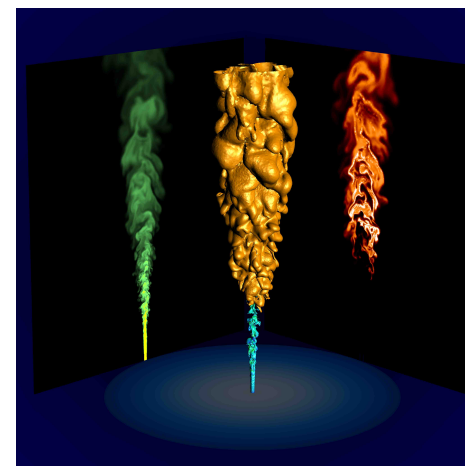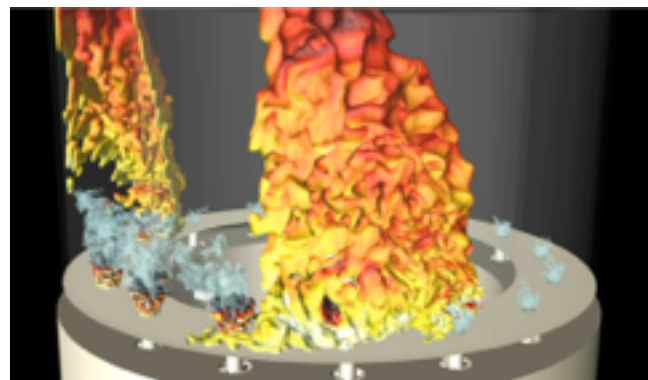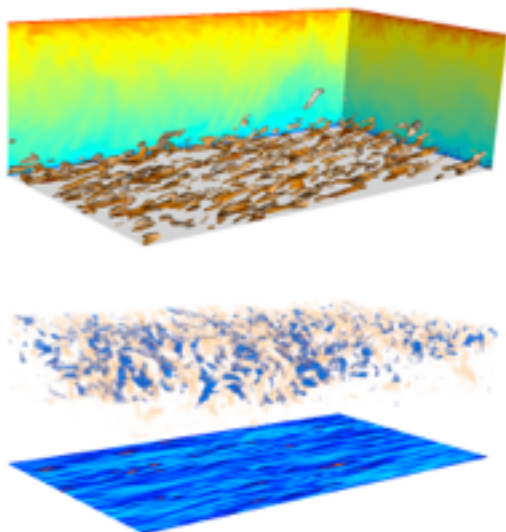
Characterisation of nur

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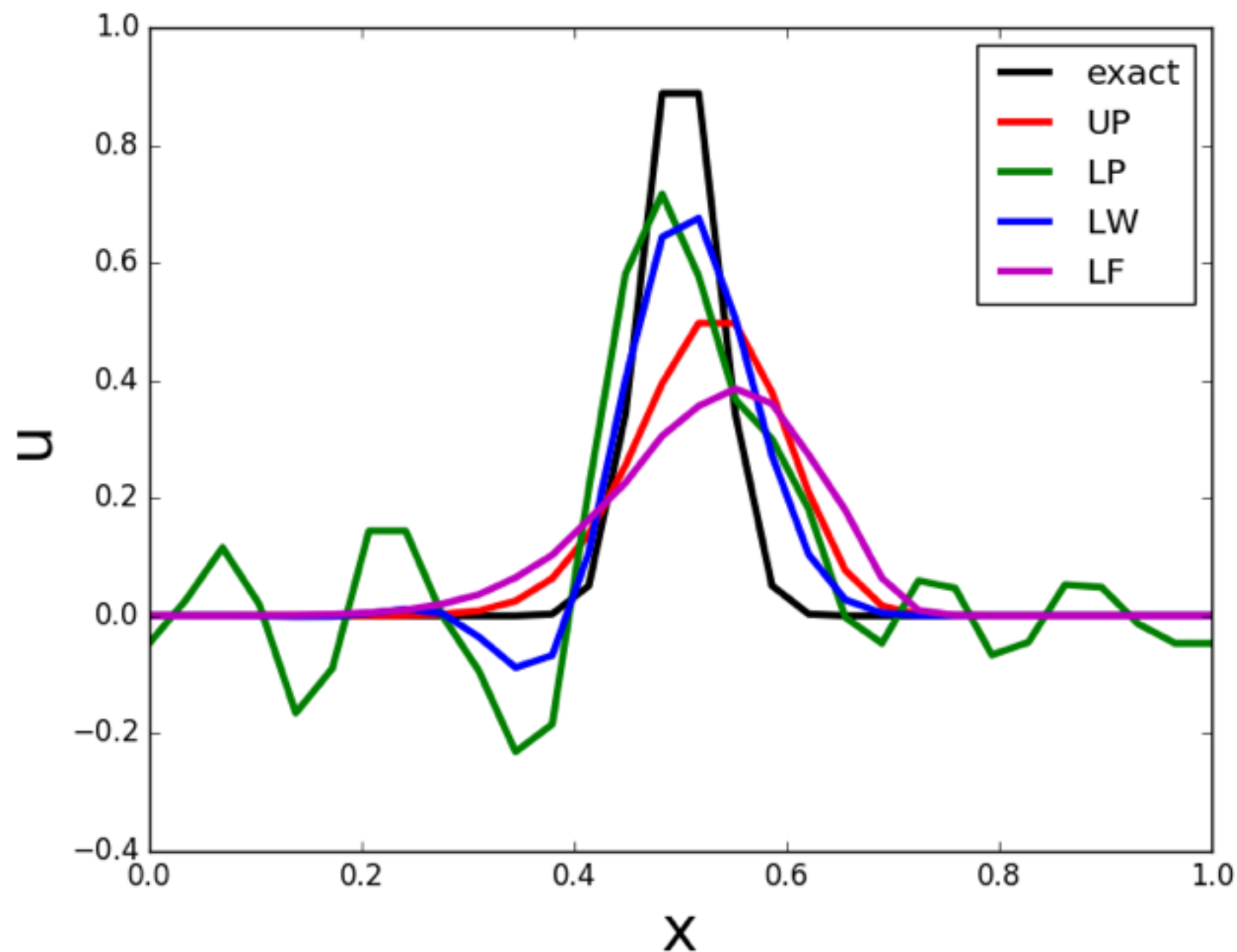
- **Advection equation with periodic boundary conditions**

$$\frac{\partial u}{\partial t} + a\frac{\partial u}{\partial x} = 0$$

- **Gaussian initial condition**
  - characterisation of order of convergence

- **Sinusoidal wave**
  - measure of diffusion and dispersion errors

Gaussian profile

$$u(t = 0, x) = \exp\left(-\frac{(x - 0.5)^2}{0.1^2}\right)$$

Sinusoidal wave

$$u(t = 0, x) = sin(\omega x)$$