Advanced Nuclear Systems Group & Computational Fluid Dynamics Group

Validating second generation CFD URANS models in some challenging flows

**Background: The need for cheaper scale-resolving turbulence models**

Challenging turbulent flows are today best predicted with CFD Large Eddy Simulation (LES), since Unsteady Reynolds Averaged Navier-Stokes (URANS) models usually fail. Because of its high CPU cost, LES is however restricted to small Reynolds number. New URANS based on local resolution of flow structures offer the promise of substantial predictive potential at a fraction of LES cost.

Current status at LSM:

Second generation (2G) URANS are being tested at LSM in exploratory manner

Your Task:

Validate 2G URANS simulations in challenging 3D benchmark flows
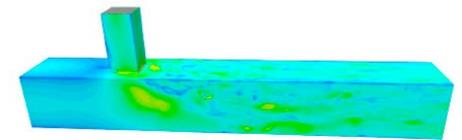
LES
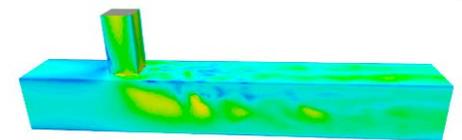
2G URANS
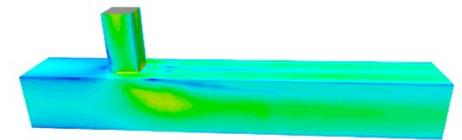
1G URANS

Wall y+ (instantaneous)

Interested? Contact Abdel:
abdel.dehbi@psi.ch

Flow in T-Junction