Progress in development of 2 complementary plasma edge modelling tools:

1) **SOLEDGE2D-EIRENE**, 2D mean-field code
   - multi-species simulations
   - perpendicular drifts

2) **TOKAM3X**, 3D global turbulence code
   - first fluid flux-driven 3D turbulent simulation in divertor geometry
   - coupling with EIRENE for kinetic neutrals

Intermediate approach proposed to allow self-consistent description of transverse transport in mean-field simulations:

- inspired from fluid dynamics’ Reynolds-Average Navier Stokes approaches
- successful transposal to interchange turbulence model ⇒ first ever recovery of ballooning properties of transport in mean-field simulation