

# Fluid

Fluid Dynamics @ USyd

2016 Seminar Series

**Presentation –**  
Numerical Simulation of Compressible  
Turbulent Mixing due Rayleigh-Taylor  
Instability

By Prof David L. Youngs

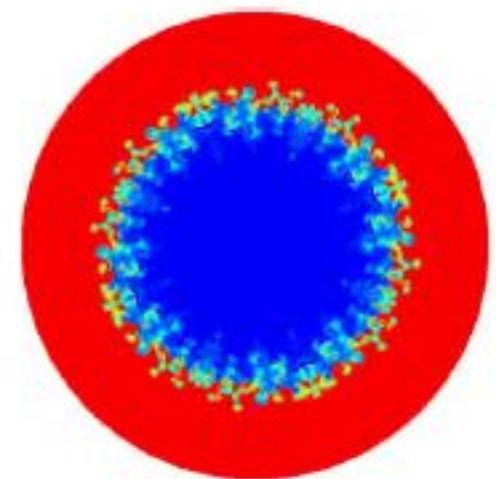
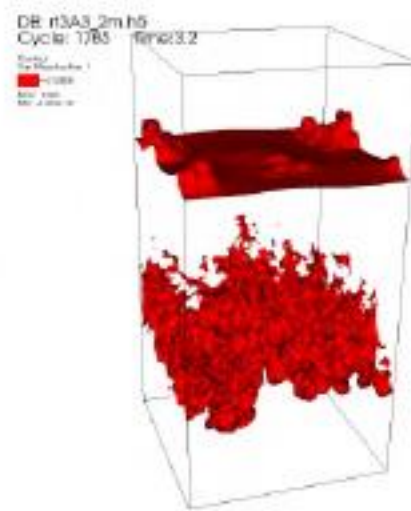
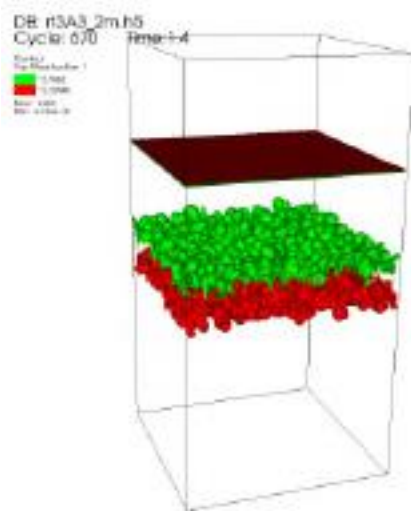
School of AMME,  
University of Sydney

Tuesday 5<sup>th</sup> July

1515-1615 hrs

Mech. Engg Conference Room S316,

All Welcome



## Abstract –

Turbulent mixing due to Rayleigh-Taylor (RT) instability and related processes is of importance in a range of applications including Inertial Confinement Fusion (ICF), astrophysical and environmental flows. During the past few decades 3D simulation [Implicit Large Eddy Simulation (ILES) and Direct Numerical Simulation (DNS)] has made a major contribution to understanding these processes, see for example [1,2]. This talk will describe some of the key features of high-Reynolds number RT mixing in simple situations and will show a range of results from 3D simulations (see images above).

1. Youngs, D.L. 2009 Application of monotone integrated large eddy simulation to Rayleigh-Taylor mixing: *Phil. Trans. R. Soc. A*, **367**, 2971-2983.

2. Youngs, D.L. 2013 The density ratio dependence of self-similar Rayleigh-Taylor mixing: *Phil. Trans. R. Soc. A*, **371**, 20120173.

**Further information –** Dr Ben Thornber  
Jack Geoghegan

[ben.thornber@sydney.edu.au](mailto:ben.thornber@sydney.edu.au)

[jack.geoghegan@sydney.edu.au](mailto:jack.geoghegan@sydney.edu.au)