Abstract Submitted
for the DFD19 Meeting of
The American Physical Society

Rayleigh-Taylor mixing in a porous medium[1] GUIDO BOFFETTA, MATTEO BORGNINO, STEFANO MUSACCHIO, University of Torino
— Rayleigh-Taylor mixing in a porous medium is studied by high-resolution direct numerical simulations of the Darcy-Boussinesq equations in both two and three dimensions. The width of the mixing layer is found to grow linearly in the limit of small diffusivity, in agreement with the dimensional expectation. A different growth rate is observed in two and three dimensions. The characteristic transverse scale, a measure of the typical plume size, grows slower following a diffusive law: as a consequence plumes became more elongated during the time evolution. The evolution of the density flux, quantified by the Nusselt number, is studied as a function of the Darcy-Rayleigh number.

[1]INFN FieldTurb initiative and Cineca "INF19 fldturb"

Guido Boffetta
University of Torino

Date submitted: 01 Aug 2019 Electronic form version 1.4