

Abstract Submitted
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Detached eddy simulations of Taylor bubbles rising in stagnant liquid columns¹ HASSAN SHABAN, STAVROS TAVOULARIS, University of Ottawa — The rise of a single air Taylor bubble in a vertical circular tube filled with stagnant water was investigated numerically using the Volume Of Fluid (VOF) method to model the phase distribution and the Detached Eddy Simulation (DES) method for turbulence modelling. The predictions were in good quantitative agreement with previous experimental results. The simulation results provided insight into bubble shedding in the wake of the Taylor bubble, frictional pressure drop along the tube and scalar dispersion caused by the passage of the Taylor bubble. The interaction between adjacent Taylor bubbles and the process of Taylor bubble coalescence were also examined in detail.

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