

Rayleigh-Taylor Instability

The RayleighTaylor instability, or RT instability (after Lord Rayleigh and G. I. Taylor), is an instability of an interface between two fluids of different densities which occurs when the lighter fluid is pushing the heavier fluid. Examples include the behavior of water suspended above oil in the gravity of Earth, mushroom clouds like those from volcanic eruptions and atmospheric nuclear explosions, supernova explosions in which expanding core gas is accelerated into denser shell gas, instabilities in plasma fusion reactors and inertial confinement fusion.

The report about the simulation of Reyleigh-Taylor instability of two fluids with density 1020 kg/m^3 and 800 kg/m^3 with heavier liquid being top on the lighter. The result obtained is good but not excellent. It could have been better but it needs high computational power. This case is solved with interFoam with k-Epsilon model. The result fairly agrees with experimental videos taken by several people.

Solver used : interFoam