Bubbles, Drops and Particles

Component
École Nationale Supérieure d'Électrotechnique d'Électronique

In brief

Code ELP: N6EM03C

Presentation

Description

I. Bubbles, drops and particles (5 class sessions, 2 TD sessions)

1) Introduction: Industrial and Environmental Issues bubbles drops and particles of energetics and processes to the environment.

2) The different types of particles. Nature of the particle vs condition surface (notion of surfactant) Structure of flow and wake / production of vorticity Shape effect (deformability of fluid particles: spherical, ellipsoidal, foolish) => limitation of course.

3) Terminal speed (<=> The drag) for each case: solution with the hands (physical arguments) then analytical solution.

3a) Stokes Law: Viscous regime

3b) Newton's law: inertial regime

3c) Levich's Law (Dissipation of Viscous Lead Flow)

4) Mass added Kinetic energy, impulse, drift

Non-contractual information.
Last update on 18 December 2024

5) Trajectory

5a) Maxey decomposition

5b) Archimedes generalized

5c) Relaxation time

5d) Number of Stokes Rq: a number of dynamic effects (to be defined) will have to be left out (and will be seen in 3H). For example, history, lift, magnus.

Non-contractual information.
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