ChE SEMINAR

Multi-scale simulations of dispersed two-phase flows

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Seminar Room
Dept. of Chemical Engineering
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ABSTRACT

I will address different configurations of two-phase flows related to the dynamics of bubbles, drops and particles. A special emphasis will be given to numerical approaches able to handle multi-scale phenomena. These approaches are based on the Direct Numerical Simulations of the fluid flow equations dynamically coupled to the dispersed phase response. The talk will be complemented by selected examples such as particulate shear flows, bubble plumes and turbulent drop break-up.

ABOUT THE SPEAKER

Prof. Eric Climent is Professor of Fluids Mechanics (INPT-ENSEEIHT / IMFT) and Deputy Director of the Institute of Fluids Mechanics, Toulouse. He is also the Head of the Masters program on Fluids Engineering for Industrial Processes. In 1996, he received his PhD (with honours) in the area of Fluid Mechanics from Ecole Nationale Supérieure d'Electrotechnique, d'Electronique, d'Informatique et d'Hydraulique de Toulouse, France. His area of research interest includes dispersed two-phase flows: dispersion and collective induced effects, direct numerical simulations (two-way coupling, modulation of turbulence), flow of suspensions (sedimentation, shear-induced self-diffusion, colloidal dispersions in microchannels), complex suspensions (magneto-rheological fluids, gyrotactic suspensions of micro-organisms.