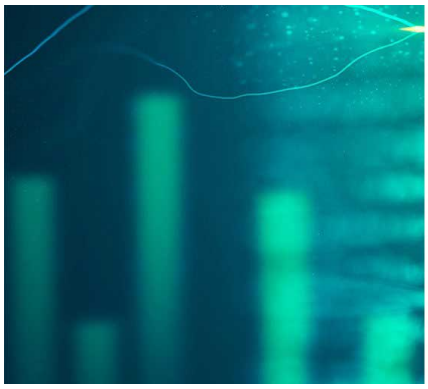

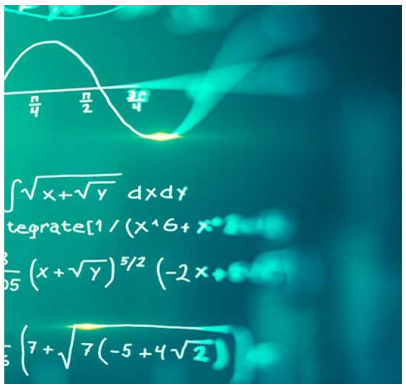

Written on 20 June 2019

2 minutes of reading

News

Fundamental Research

Physical Sciences | Rheology and behavior of materials | Engineering sciences | Fluid mechanics

From July 2018 to June 2019, IFPEN-Lyon hosted **Edson Soares**, Professor from the Mechanical Engineering Department of the Universidade Federal do Espírito Santo (Brazil). As a specialist in the field of **fluid mechanics and the rheological characterization of complex fluids**, he worked on **multiphase problems**, particularly those related to water treatment and water/oil separation in EOR (Enhanced Oil Recovery) processes, using experimental and modeling tools.

Professor Edson Soares was hosted at IFPEN-Lyon by a research team from the Applied Physical Chemistry and Mechanics Division: Myriam Darbouret, Guillaume Vinay and Jean-Lou Pierson. During his year-long scientific visit, he worked on the deformation and coalescence of Newtonian drops, in both Newtonian and non-Newtonian (viscoplastic and viscoelastic) fluids, in order to gain a better understanding of water/oil interface stability and hence be able to improve the different types of equipment used to separate a mixture of these two fluids.

Professor Edson Soares of his time working alongside Jean-Lou Pierson, an expert in multi-phase flows, and with Hiranya Deka, a post-doctoral researcher at IFPEN since January 2019, on:

- a review of the existing literature on drop's stretching and break-up in non-Newtonian fluids,
- the testing and validation of non-Newtonian models in the Basilisk open source code,
- the simulation and analysis of various associated problems of significance.

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The research will lead to several publications relating to the following themes: viscous droplet retraction, viscoplastic sheet retraction, the stretching and retraction of Newtonian and non-Newtonian drops in viscous fluids and the coalescence of viscous droplets in a polymer solution.

IFPEN Contact: Jean-Lou Pierson

IFPEN-Lyon hosted Professor Edson Soares from Brazil, a specialist in non-Newtonian fluid rheology and mechanic
20 June 2019

Link to the web page :