http://www.sfiface.no

FACE

The Norwegian Flow Assurance and Innovation Centre

MSc thesis suggestions

Experimental oil-water flows in pipes

Water in oil emulsions are very common in petroleum production systems. Emulsions viscosity predictions as a function of water content using small scale flow loops seem to be a promising option regarding emulsions characterization. Viscosity estimative from pressure drop measurements require of the study of the distribution of the dispersed phase in the pipe cross section. The aim of the MSc is to investigate the mixing process of the dispersed phase (flow pattern) as the water content increases for both laminar and turbulent flow conditions. The effect of how the oil viscosity affects the mixing process will also be studied using the reference fluids prepared by FACE in a small and medium scale flow loops at NTNU. For this task a gamma or a x-ray based densitometer will be used. The candidates are expected to keep in close contact and attend meetings with the FACE project partners.

Supervisors: Ole Jørgen Nydal (NTNU), Jose Plasencia (NTNU).

Interested candidates are invited to discuss this opportunity with Jose Plasencia (+47-73591638, jose.l.plasencia@ntnu.no).

The FACE SFI

FACE was initiated in August 2007 with the vision of *combining surface and colloid chemistry with fluid mechanics to solve flow assurance challenges.* Its objective is to *deliver world class applied and fundamental research and education focused on production, transportation and separation of complex well fluids*.

To achieve the FACE objective, a main goal was set: to develop **generic methods** to describe **complex fluid systems** in models that can be incorporated into scalable and robust multiphase flow assurance tools needed by the petroleum industry to develop new production solutions for oil and gas with complex fluids. The two terms **generic methods** and **complex fluid systems** basically define and focus the work carried out within FACE.