CHEMICAL, BIOLOGICAL & MATERIALS ENGINEERING

100 E. Boyd, Sarkeys Energy Center, T-335
405-325-5811
The University of Oklahoma
Norman, Oklahoma
2011 – 2012 Seminar Series

DR. KARSTEN E. THOMPSON

LOWE PROFESSIONAL DEVELOPMENT PROFESSOR CHAIRMAN, CRAFT AND HAWKINS DEPARTMENT OF PETROLEUM ENGINEERING LOUISIANA STATE UNIVERSITY BATON ROUGE, LOUISIANA

Will present a seminar on

"3D IMAGING AND MODELING OF WETTING-PHASE DISPLACEMENTS IN POROUS MEDIA"

The flow of wetting fluid into a porous medium (termed imbibition) affects processes such as composite materials manufacturing, consumer products design, trapping of contaminants in aquifers, and oil and gas production. Factors such as the shape of the invasion front and trapping of non-wetting phase behind the front can impact performance of a process or application. However, these factors are difficult to predict and control because of their strong dependence on local pore structure, wettability, and the balance of interfacial and viscous forces. In this work we use x-ray microtomography to examine wetting fronts that have been frozen in place during dynamic imbibition processes, focusing in particular on the bulk imbibition front and the region just ahead of the front, where low wetting phase saturation can pull ahead of the main front under some conditions. Results from these images provide mechanistic insights that are being incorporated into pore-scale models of imbibition processes. Ultimately, the models and the mechanistic understanding will lead to better prediction of front propagation and trapping behavior..

THURSDAY, SEPTEMBER 15, 2011
COOKIES AND COFFEE -- 2:45 P.M.
SEMINAR -- 3:00 P.M.
SARKEYS ENERGY CENTER, ROOM M-204

THIS IS A REQUIRED SEMINAR FOR CHE 5971

Accommodations on the basis of disability are available by contacting the office before the event.