



Kamy Sepehrnoori

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Kamy Sepehrnoori is a professor in the Department of Petroleum and Geosystems Engineering at The University of Texas at Austin, where he holds the W. A. (Monty) Moncrief Centennial Chair in Petroleum Engineering. His research interests and teaching include computational methods, reservoir simulation, parallel computing, enhanced-oil-recovery modeling, naturally fractured reservoirs, and unconventional resources. He is the director of the Reservoir Simulation Joint Industry Project in the Center for Petroleum and Geosystems Engineering and serves as the associate chairman for the department and associate director of the Center for Petroleum and Geosystems Engineering at The University of Texas at Austin. He holds a PhD degree from The University of Texas at Austin.

Various Research Topics in Reservoir Simulation

Abstract

An overview of several ongoing reservoir simulation research projects will be presented. Specifically, the talk will focus on development of a compositional equation-of-state reservoir simulator that has been under development for the last twenty years. Various modules for simulating different enhanced oil recovery processes have been implemented in the simulator. The simulator is designed to perform accurate and efficient high-resolution simulation of fluid flow in permeable media for large complex problems using desktop computers as well as application of parallel processing on clusters of PCs. The simulator also contains a module for simulating fluid flow in the wellbores with flow assurance consideration. A dual porosity module and an embedded discrete fracture module for simulating enhanced oil recovery processes in naturally fractured reservoirs have also been implemented in the simulator. A preprocessing code has been developed in order to facilitate placement of the discrete fractures in the computational domain. This simulator has also been extended to handle simulation of unconventional reservoirs for production from shale gas and tight oil reservoirs. Various reservoir simulation studies are carried out to verify and test the models/methods developed in this research as well as to aid further development of new algorithms and methodologies for simulating complex reservoirs and modeling enhanced oil recovery processes for conventional and naturally fractured reservoirs.

An important aspect of this project is the development of a reservoir simulator capable of modeling a variety of oil recovery processes.

Tuesday March 7th, 2017
2112 Learned Hall
10:00 - 10:50AM