Abstract Submitted
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Assessment of surfactant models with applications to crude oil-water coalescence or aggregation modeling SHAOLIN MAO, Engineering Department, University of Jamestown, ND — We study surfactant models with focus on crude oil – sea water aggregation/coalescence analysis and modeling. Undesired crude oil-water emulsion exists in most crude oil production and recovery process; therefore, costly process such as destabilizing of oil-water emulsion in petroleum engineering is required from reservoirs, wellbores, to wellheads and transport of crude oil. This research is limited to physics of coalescence or aggregation of water in oil mixing (crude oil is the dominant phase). Parameter studies will be conducted in this work to assess surfactant models, elucidate the factors which influence the aggregation/coalescence of crude oil-sea water mixing process. Numerical simulation is based on commercial CFD tool such as ANSYS FLUENT by using population balance model (PBM) coupling with CFD solvers. Experimental observation and comparison will also be given..

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