

Energy PhD Seminar
October 5, 2016
14:00, room 402

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Optimization workflow for modelling of two-phase thermal multicomponent filtration

I present in this report newly developed optimization workflow for modelling of two phase thermal multicomponent filtration. By making use approximation of phase equilibrium at the preprocessing stage, then numerical solution can be constructed depending which is the faster the lower is desired accuracy. Another key parameter for the workflow is a number of splits of both temperature and pressure ranges where we perform approximation of phase equilibrium. Besides, a two-parametric family of TVD MUSCL scheme in the research code was implemented, which also makes it possible to attain desired accuracy at of order 10 times less number of grid points than if conventional first order approximation scheme is used. All that make it possible to run a huge number of experiments to determine the influence of non-stationary borehole pressure regimes on gas condensate wells performance.