

“Fluid Mechanics” Department

In accordance with the research plan in 2014 Department of “Fluid Mechanics” successfully completed research and applied works.

In the reporting period, the influence of electrokinetic characteristics on the unsteady flow and filtration of the multiphase fluid, the influence of changing temperature and pressure conditions on the process of steady flow of liquid mixtures.

In addition to determining the impact of changes in pressure, leading to the formation of high-frequency waves, the influence of temperature factor on the gas allocation process in gas-liquid systems and formation, destruction and coalescence of micro bubbles of gas.

Showing decisive influence of the hydrodynamic and capillary forces ratio on the stationarity of the filtration process, definition of boundary and initial conditions at a particular time on a particular area of the porous medium are proposed.

Effect of the anomalies in viscosity of heterogeneous hydrocarbon systems was observed and demonstrated the presence of simultaneously increasing and reducing of the viscosity of such liquids at the start of "small" perturbations, kinetic description of the process and its solution was performed.

The condition of consistency between the different versions of the models of Reynolds strengths during momentary blockage in studies of turbulent flow in channels is considered.

According to the results of applied research on the topic: “Development of thermoelectric and thermo-chemical control methods in education asphaltene-resin-paraffin deposits (ARPD) in the wells” identified mechanism was shown-up and the most efficient and cost-effective method of preventing paraffin deposition in lifting pipes of gas-lift wells is offered. The method and apparatus preventing formation of deposits, tested in field conditions NGDU them. N. Narimanov (SOCAR) by placing it in the lubricator without using of the heating cable is developed.