

ANAS
Institute of Mathematics and Mechanics
Department "Applied Mathematics"
summary report on activities for 2021

ON SCIENTIFIC ACTIVITIES

During the reporting period, the department completed 7 works on two topics.

1. Modeling the movement of gas, liquid and gas-liquid mixture in the reservoir-well system.
2. Deformation, strength and use of composite materials of heterogeneous structural elements.

The department employs 9 scientists, 1 engineer and 1 senior laboratory assistant. The department trains 3 doctors of philosophy and 1 doctor of sciences. In the reporting year, 12 articles and 5 theses were published. Of the articles published, 5 were published in Web of Sciences-based journals, 1 in SCOPUS, 2 in Zentralblatt Math and 2 in Index Copernicus. As an important work, the scientific work was presented by the head of the department, dr.of m.s Elkhan Abbasov.

**SIMULATION OF GAS MOTION IN A LAYERED WELL SYSTEM DURING
HEAT EXCHANGE**

The heat exchange process can significantly affect the dynamics of gas movement in the well system. The rheological properties of a gas are very sensitive to changes in ambient temperature. During the movement of gas through the pipeline, heat exchange occurs between the gas stream and the environment. This leads to a change in the viscosity and density of the gas and, as a consequence, to a change in its dynamics.

The problem of determining the influence of changes in the viscosity and density of the gas depending on the temperature on the dynamics of its movement in the reservoir-well system has been solved.

ACTIVITIES OF THE SCIENTIFIC DEPARTMENT:

m.e.d. EAT. Abbasov is a member of the Expert Council on Mathematics and Mechanics of the Supreme Arbitration Court under the President of the Republic of Azerbaijan, scientific supervisor of dissertations for the preparation of 2 doctors of philosophy and 1 doctor of sciences. Teaches a master's degree in fluid mechanics, gas and plasma mechanics and solid mechanics.

The department seminar is held every 2nd day of the week at 14:00.

Head of Department:

Dr.of. m.s Elkhan Abbasov