

## Academician Azat Mirzajanzade – 95



This year the scientific community celebrates a jubilee date - Academician Azat Khalil oglu Mirzajanzade would be 95 years old. Academician Azad Mirzajanzade is an outstanding Azerbaijani scientist, the founder of fundamental science in the field of mechanics, engineering, technology and development of oil and gas fields, academician of the Azerbaijan National Academy of Sciences and the Academy of Sciences of the Republic of Bashkortostan, honorary oilman and honorary gas industry worker, twice laureate of Azerbaijan State Prize, laureate of three prizes named after I.M. Gubkin, honored scientist of the Academy of Sciences of the Republic of Bashkortostan, honored Worker of Science and Technology of the Azerbaijan Republic. Azad Mirzajanzade became one of the young doctors of sciences in the republic, who at the age of 34 was elected a corresponding member, and at the age of 40 - a full member of the Academy of Sciences of the Azerbaijan Republic.

Academician Azad Mirzajanzade developed the phenomenological theory of viscous-plastic fluid and proposed the generalized Darcy's law. The theory of viscous-plastic fluid motion, which has been widely used in technological processes of oil production and transportation, was created. For almost 40 years Azad Mirzajanzade has been dealing with the problems of viscous-plastic anomalous systems application in oil and gas production industry.

As one of the researchers of the problem of gas-condensate fields, he established the important fact of the presence of the limiting pressure gradient and created a theory of development of gas and gas condensate fields. Under the leadership of Academician Azad Mirzajanzade, a method of determining the sorption capacity of rocks on the basis of non-steady-state filtration of gases in a porous medium was developed. A series of works on enhancing efficiency of oil and gas field development, natural gas production and transportation, namely "Improving Quality of Cementation of Oil and Gas Wells", "Physico-Rheological Problems of Enhancing Oil Recovery", "Methods of Enhancing Efficiency of Gas Production and Transportation Processes", "Hydrodynamics of Pipeline Transportation" was awarded the second prize after Academician Gubkin I.M. in 1982. The results were presented at the International Gas Congress in Canada. Academician Azad Mirzajanzade first applied the mathematical theory of experiment in drilling, transport, development and production. The results are summarized in monographs "Mathematical theory of experiment in oil and gas production", "Improving the efficiency and quality of drilling deep wells", "Hydraulics in drilling and cementing of oil and gas wells".

Merit of Academician Azad Mirzajanzade is also in the systematic application of hydrodynamics in the study of well drilling in difficult conditions, which was reflected in a number of monographs on the hydraulics of clay and cement slurries. Under the leadership of Azad Mirzajanzade performed a comprehensive scientific and technical program to create a theoretical framework for the development of offshore oil, gas and gas condensate fields. Methodological guidelines on the design and analysis of the development of offshore oil, gas and gas condensate fields based on the generalization of experience accumulated in Azerbaijan, which were widely used in Western Siberia, were compiled.

For many years Azad Mirzajanzade engaged in problems of mechanics of technological processes, which was reflected in a number of monographs and textbooks: "The solution of problems of gas and oilfield mechanics", etc. For a cycle of works on mechanics of technological processes in oil and gas production he was awarded in 1980. State Prize of Azerbaijan in the field of science and technology. In recent years Azad Mirzajanzade paid much attention to the issues of global optimization of oil and gas production processes. The results of these works had stimulated him to hold seminars, symposiums, conferences in different cities of the former Soviet Union. The chairman of organizing committees of these seminars is Prof. Azad Mirzajanzade. These are All-Union seminars

on hydraulics of flushing liquids (since 1967), application of non-Newtonian systems in oil production (since 1968) and probabilistic-statistical methods in drilling and oil production (since 1972), mechanics of anomalous systems (since 1977), hydraulics of drilling and squeezing fluids, rheological research in oil production, problems of pipeline transport, production, transport of high-viscosity oil, opening of oil and gas formations and well development. He was also a leader of seminars on oil and gas mechanics at the Institute of Mechanics Problems of the Russian Academy of Sciences heading annual All-Union schools “Application of methods of applied mathematics in drilling and oil production”; “Questions of hydrodynamics of technical diagnostics and reliability of pipeline transport”; “Thermodynamics of oil production processes”. Azad Mirzajanzade is a man of versatile abilities and wide interests. His books “Mathematical Mosaic”, “Introduction to Speciality”, “The Paradoxes of Oil Physics”, “Etudes on Humanitarianization of Education” are very popular with readers of different ages and specializations. He has a series of articles on the problems of manifestation of mathematical logic in the structure of musical melodies.

His scientific heritage included 70 monographs, textbooks, over 400 scientific articles, and 40 inventions. Under his supervision more than 200 PhD theses were written and defended, 100 doctors of sciences were trained. Under the leadership of Academician Azad Mirzajanzade highly qualified personnel are trained for Azerbaijan, Uzbekistan, Western Siberia, Komi, Bashkortostan, Tatarstan, Turkmenistan, Ukraine, Afghanistan, Germany, Bulgaria, Syria, Egypt, Algeria, North Korea and others. Rector of the Ukhta Oil Institute, Vice-Rectors of the Ufa and Grozny Oil Institutes, directors of major enterprises in Moscow and other cities of the former Soviet Union are Mirzajanzade’s students. The meaning of the great scientist’s extraordinary, amazing life is love and devotion to science, as he himself perfectly summed up: “It is interesting to raise a scientist, his spiritual heir. I want him to be in love with his work”.

*Editorial board*