ACADEMICIAN TAMAZ CHELIDZE – 90

Varamashvili N., Darakhvelidze L.

M. Nodia Institute of Geophysics, TSU, Tbilisi, Georgia

Abstract. *Professor* ***Tamaz Chelidze****, a full member of the Georgian National Academy of Sciences, Doctor of Physical-Mathematical Sciences and Chemistry, celebrates his 90th jubilee on December 24, 2024. So far, Mr. Tamaz has made a great contribution to the development of geophysical sciences. “World-class leader”, “scientist with an international reputation” – this is how outstanding foreign colleagues describe him.*

Key Words: *geophysics, seismicity, geo-ecology.*

Tamaz Chelidze’s professional activity is versatile and interesting. It includes a wide range of experimental and theoretical researches: physics of heterogeneous environment, geo-ecology, physical and chemical surface processes, exploration and archaeo-geophysics, seismicity, seismic risk assessment and prediction of earthquakes, groundwater seismo-hydraulics. Creation of models of percolation and fracture of solids brought special popularity to the scientist. T. Chelidze’s works in percolation theory are a new direction in the physics of seismic processes and related geophysical fields. During recent years the scientist has published several pioneering works on the use of nonlinear dynamics and machine learning methods in solving geophysical problems.

Tamaz Chelidze was born on December 24, 1934 in the family of famous scientists and teachers in Kutaisi. Tamaz’s father, Professor Luka Chelidze, headed the Kutaisi Pedagogical Institute, and later was the Chair at the Faculty of Chemistry of Tbilisi State University. T. Chelidze finished his secondary school in Kutaisi with a gold medal in 1952, and in 1957 he graduated from the Faculty of Geology of Lomonosov Moscow State University with the specialty of geologist-geophysicist. Since 1957 he has been an employee of the Institute of Geophysics of the Georgian Academy of Sciences. In 1957-1958 he headed the Seismic Station in Dusheti, from 1958 he worked as a scientist at the Department of Rock Physics of the Institute, in 1976 he became the head of this department, in 1985 he was appointed the Deputy Director in the scientific field of the Institute, during 1992-2006 he was selected in the position of the Director of the Institute from among other candidates. From 2006 to the present Tamaz Chelidze has been the Chairman of the Scientific Council and Head of the Sector of Applied and Experimental Geophysics of the Institute of Geophysics.

In 1964, Tamaz Chelidze successfully defended his thesis at the Tbilisi State University to obtain the scientific degree of the Candidate of Physical-Mathematical Sciences on the topic “Dependence of the electric parameters of rocks on the field frequency“. In 1975, he defended his doctoral thesis on “Surface Effects in Dielectric Spectroscopy of Heterogeneous Systems” in Kyiv and was awarded the scientific degree of Doctor of Chemistry. In 1985, at the Institute of Earth Physics in Moscow, he defended his second doctoral thesis on the topic “Percolation models in the fracture physics” and was unanimously awarded the scientific degree of Doctor of Physical-Mathematical Sciences. In 1990 T. Chelidze was awarded the title of professor. In the same year, the Great Scientific Council of Tbilisi State University elected him as a professor. Since 1997 he has been a corresponding member of the Georgian Academy of Sciences, and since 2013 – an academician.

In 1990-1995, a group of Georgian seismologists, headed by T. Chelidze and Z. Javakhishvili, compiled a new map of the general seismic regions of Georgia (using Cornell’s probabilistic approach – SEISRISK-III), which was approved by the Ministry of Construction of Georgia in 1999 as a normative document.

After many years of continuous observations in the territory of Enguri HPP, Academician Tamaz Chelidze, together with his co-authors, analyzed the database of tilts and deformations of the dam and its foundation by use of nonlinear dynamics methods and obtained the results that are of great importance for the safe operation of this unique facility. T. Chelidze is the Head of the European Center for "Geodynamic Risk of High Dams" in Georgia, which was established in 1996 by the Council of Europe and which has been involved in the international research of natural and man-made risks. He is also the permanent representative from Georgia of the Agreement on Major Disasters with the Council of Europe.

Project "Influence of strong electromagnetic discharges on the seismic regime" performed by T. Chelidze aroused great interest. The results of this work, which indicate the possibility of artificial influence on the seismic regime, were followed by a response in popular science journals in England, Italy, Greece and Chile.

Academician T. Chelidze, has been working together with scientists from the Czech Republic, Germany, the United States of America, France, Italy, Russia, and Greece over years. In 1982-1983 he was a visiting professor at the Institute of Geophysics in Czechoslovakia, in 1986, 1988 and 1990 – University of Colorado (Boulder, USA), 1987-1992 – University of Strasbourg (France), 1994, 1996-1997 – University of Rennes (France) and in 2000 – a visiting professor at Ecole Normale Supérieure in Paris. He has become a full member of the American Geophysical Society (AGU) since 1992, a member of the Seismological Society of America (SSA), a member of the New York Academy, World Exploration Geophysics Society (SEG), a member of the World Innovation Foundation since 1998, a member of the European Expert Committee on Earthquake Prediction since 2001, a member of the World Exploration Geophysics Society since 2002. On June 23, 2021 he was elected as a member of the Royal Astronomical Society of London (Great Britain) (for the first time in Georgian history). This multifaceted scientific activity, mastery of several foreign languages significantly raises the authority of T. Chelidze as a great scientist and as a rare intellectual. He has been the chairman of the Scientific Council of Seismology and Earthquake Prediction of Georgia since 1991, an academician of the Georgian Academy of Environmental Sciences since 1993, the president of the Geophysical Society established with his direct participation in 1993-2000. He also founded the English-language journal of this society, which has been published under his editorship once a year since 1995 in the form of two series: "Physics of Solid Earth" and "Physics of Atmosphere, Ocean and Space Plasma". Academician Chelidze has received many international, individual and national scientific grants. It should be noted that during the difficult years for the Institute of Geophysics, through his high authority, the experimental bases of the Institute were equipped with modern automated systems and computers. More than 350 works have been published under his authorship and co-authorship, including monographs and textbooks. 250 works have been published in foreign high-rated peer-reviewed journals and publishing houses. Under his supervision, many young people were involved in geophysical science, including four PhDs and eleven Candidates of Sciences.

In 1984 Tamaz Chelidze received the Certificate of Honor of the Presidium of the Supreme Council of the Georgian SSR, in 2000 – the Order of Honor, in 1999 – M. Aleksidze Prize, in 2009 – M. Nodia Prize of the National Academy of Sciences of Georgia, in 2014 – Tbilisi State University Ivane Javakhishvili Medal. Since 2013 he has been an honorary citizen of Tbilisi.

Tamaz Chelidze is an outstanding person in every way. His exemplary personal qualities are: generosity, modesty, high intelligence, diligence, great sense of responsibility towards himself and his colleagues.

We wish him health, courage and inexhaustible energy for the benefit of his family and Georgian science.