GURAM KHARATISHVILI IS 70

The well-know Georgian Mathematician, Academician of Georgian Academy of Sciences Guram Kharatishvili was born on January 12, 1934, in the town of Gori, Georgia, in a family remarkable for its industriousness. His father, Levan Kharatishvili, was a distinguished engineer, his mother, Irine Razikashvili was a renowned doctor, a descendent of the genial Georgian poet Vazha-Pshavela. In 1951 Guram Kharatishvili completed with the silver medal Gori Secondary school No.2 and the same year entered Department of Mechanics and Mathematics of M. Lomonosov Moscow State University. This choice was substantially influenced by Sergo Dadianidze, his schoolteacher of mathematics who from the very beginning discerned mathematical talent and diligence in the young man. Guram Kharatishvili prepared his master's degree work "Some Problems of the Theory of Thick Hulls" under the guidance of the well-known mathematician I. Vekua who at that time was teaching at Moscow State University. Following I. Vekua's advice and under his recommendation, in 1956 Guram Kharatishvili returned to Tbilisi and began working in Computational Center of Georgian Academy of Sciences, where during 1957–1966 he passed the way from Junior Research Fellow to Head of Department. The first scientific research of Guram Kharatishvili dealt with developing a method of computation of the minimal eigenvalue for a special class of integral equations.

The year 1958 was especially important in the life of Guram Kharatishvili. This year he first met R. Gamkrelidze, one of the founders of the mathematical theory of optimal control, a pupil of the genial Russian mathematician L. Pontryagin and a prominent representative of his school. The meeting resulted in that in 1958 Guram Kharatishvili was sent by the Computational Center to Moscow, Steklov Mathematical Institute, on a long duration mission, where under the guidance of R. Gamkrelidze he began scientific research in the field of the optimal control theory. R. Gamkrelidze posed to him the optimal control problem in which a delay vector was involved. The problem was based on a concrete optimal problem formulated by A. Fel'dbaum and M. Aĭzerman at the seminar of L. Pontryagin. It is well-known that a real control system, as a rule, contains a delay vector. In 1961 G. Kharatishvili carried out a fundamental research. Specifically, he proved an analogue of Pontryagin's maximum principle for control systems containing delays in phase coordinates. Later this research served as a basis of the optimal control theory with retarded arguments. In the famous monograph by L. S. Pontryagin, V. G. Boltyanskiĭ, R. V. Gamkrelidze and E. F. Mishchenko "The Mathematical Theory of Optimal Processes", Wiley, New York, 1962, a separate section is dedicated to this result.

G. Kharatishvili is a scientist of wide range of interests. His research deals with differential equations and control theory, general theory of extremal problems, theory of differential games, numerical methods in optimal problems, theory of mathematical modeling.

G. Kharatishvili is a participant and direct organizer of many international scientific forums. Of them, we should especially note: Symposium in Control Theory (Los Angeles, 1967), World Congress of Mathematicians (Nice, 1970), International Symposia (Tbilisi, 1969, 1976).

In 1969 G. Kharatishvili was invited by R. Bellman, the founder of the control theory, to University of South California (USA) for lecturing. While in the university, he had a close contact with L. Neustadt, I. La Salle, H. Antosievicz, H. Banks, the well-known specialists of the control theory.

G. Kharatishvili, together with R. Gamkrelidze, is considered as an organizer of development of the optimal control theory in Georgia and as a continuator of scientific

traditions of the first Georgian scientist-mathematician A. Razmadze. He, together with R. Gamkrelidze and with direct assistance of I. Vekua, founded the chair of control theory at I. Javakhishvili Tbilisi State University and Department of Differential Equations and Control Theory at I. Vekua Institute of Applied Mathematics of Tbilisi State University. During a short period of time, the chair and the department have become centers of development of the control theory in Georgia as well as education ground of young generation of scientists.

Along with scientific and public activities, G. Kharatishvili, with the professionalism and responsibility inherent to him, carried out activities at executive positions. In 1966–1994 he was Head of Department at I. Vekua Institute of Applied Mathematics of Tbilisi State University; in 1969–1972 he was the Dean of Faculty of Mathematics and Mechanics of Tbilisi State University; in 1972–1981 he was the Director of Institute of Control Systems of Georgian Academy of Sciences; he was a member of Supreme Council of Georgia in 1991. At present, Guram Kharatishvili is the Director of Institute of Cybernetics of Georgian Academy of Sciences; he is the Chairman of a Dissertation Council, a member of bureau of Department of Physics and Mathematics of Georgian Academy of Sciences; he is also member of editorial boards of many scientific journals.

In 1969 G. Kharatishvili defended his Doctor of Sciences Thesis on the theme: "Extremal Problems in Linear Topological Spaces". Since 1970 he is a professor of Tbilisi State University. In 1979 he was elected corresponding member of Georgian Academy of Sciences, and in 1988 he became a real member of the Academy.

In 2001 G. Kharatishvili, together with his pupils, was awarded A. Razmadze prize of Georgian Academy of Sciences for a cycle of works "Variation Theory of Solutions of Retarded Differential Equations and Its Applications to Optimal Control Problems with Discontinuous Initial Conditions".

The contribution of G. Kharatishvili in educating scientific researchers is important. Among his numerous pupils, there are many Candidates and Doctors of Sciences. He is still lecturing with inspiration at the Department of Applied Mathematics and Computer Sciences of Tbilisi State University.

G. Kharatishvili's personality is optimistic by nature. Painting is his hobby. He meets his 70th anniversary cheerfully and with youthful enthusiasm. We wish him longevity and creative successes.

Tamaz Tadumadze

LIST OF MAIN PUBLICATIONS

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3. Time optimal processes in linear controlled systems with delay. (Russian) *Soobshch. Akad. Nauk Gruzin. SSR* **33** (1964), No. 1, 3–7.
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7. Extremal problems in linear topological spaces. I (with R. V. Gamkrelidze). *Math. Systems Theory* **1** (1967), 229–256.
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19. Poly-atomic optimal systems. (Russian) In: *Optimal problems in variable structure systems,* 3-47. *Tbilisi State University Press, Tbilisi,* 1985.
20. On optimal problems with delays and non-fixed initial moment (with T. A. Tadumadze). (Russian) *Soobshch. Akad. Nauk Gruzin. SSR* **129** (1988), No. 3, 473–476.
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