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G. Manjavidze's 80th Birthday Anniversary

Professor G. F. Manjavidze, Doctor of Physical and Mathematical Sciences, the well-known Georgian mathematician would have been 80.

G. Manjavidze was born on May 6, 1924 in the town Zestaphoni in the family of Theraponte Manjavidze, mathematics teacher. In 1941 he entered the faculty of physics and mathematics of Tbilisi State University and graduated from the above-mentioned university in 1947. From 1947 to 1950 he continued his education as a post-graduate student of A. Razmadze Mathematical Institute of the Georgian Academy of Sciences.

After finishing the post-graduate course, in 1951 G. Manjavidze defended his dissertation for the degree of Candidate of Sciences in physics and mathematics and in 1970 be was granted the Doctor of Science degree.

In the period from 1950 to 1954 G. Manjavidze worked as scientific secretary of A. Razmadze Mathematical Institute, and from 1954 to 1977 he was acting director in science at the same institute. From 1977 till the last days of his life G. Manjavidze was the head of the Department of Complex Analysis and Its Applications at I. Vekua Institute of Applied Mathematics of Tbilisi State University.

Prof. G. Manjavidze has made a tremendous contribution to the mathematical science. He directed the research seminars on problems of the theory of analytic and generalized analytic functions, singular equations and their applications to the theory of elasticity. G. Manjavidze wholly devoted himself to scientific activity. He studied systems of singular integral equations with discontinuous coefficients in the case where these equations together with unknown functions contain complex conjugate functions.

In his works, with great thoroughness, G. Manjavidze investigated D. Sherman's equation allowing one to solve the basic mixed problem of the plane elasticity for an isotropic body. He also studied the basic plane mixed problem for an anisotropic elastic body and the problem of the classical theory of bending of elastic plates.

A special cycle of G. Manjavidze's works is devoted to the study of boundary value problems of the function theory by the method of successive approximations. Thanks to these works, the presentation of the theory of boundary value problems of linear conjugation in the case of several unknown functions was considerably simplified.

A great place in the works of G. Manjavidze is devoted to the study of boundary value problems of the theory of functions with displacements. A result obtained by him in this direction is particularly known. In the sequel it became known as the theory on the conformal sewing. He also investigated the problem with displacement depending on the parameter and proved the invariance of partial indices for conformal mappings.

Prof. G. Manjavidze obtained marked results for discontinuous boundary value problems with respect to generalized analytic vectors. He studied the Riemann–Hilbert problem in domains with non-smooth boundaries, the Riemann–Hilbert–Poincaré problem for generalized analytic functions, and the differential boundary value problem of linear conjugation. In particular, G. Manjavidze established both the criteria for the solvability of the above-mentioned problems and the index formula, and discovered the connection between the problems with displacement for analytic functions and the generalized analytic functions.

Prof. G. Manjavidze is the author of more than fifty scientific papers. His monograph "Boundary Value Problems of Conjugation with Displacement for Analytic and Generalized Analytic Functions" was published in 1990 by Tbilisi University Press. For this work the author was awarded N. Muskhelishvili prize of the Georgian Academy of Sciences.

A number of G. Manjavidze's results are presented in detail in the well-known monographs "Singular Integral Equations" by N. Muskhelishvili and "Systems of Singular Integral Equations" by N. Vekua.

G. Manjavidze was the co-author of review papers which were published in collected articles such as "Mechanics in the USSR for 50 Years" and "The History of Development of Mathematics in the Country" (edited by the USSR and the Ukraine Academies of Sciences). He also wrote a review paper on the application of the methods of the theory of analytic functions in the theory of elasticity which was edited by the German Academy of Sciences.

Prof. G. Manjavidze's editorial activity is versatile. For many years he was member of Editorial Boards and editor of proceedings of A. Razmadze Mathematical Institute and I. Vekua Institute of Applied Mathematics.

He was one of the organizers of the Enlarged Sessions of the Seminar of I. Vekua Institute of Applied Mathematics which used to invite specialists in complex analysis from various scientific centers of the USSR. He was the permanent head of the session of complex analysis.

Prof. G. Manjavidze was actively involved in the international scientific cooperation. He was co-director of the Trieste School in Theoretical Physics, in different years he delivered lectures at Halle (Germany) and Graz (Austria) Universities.

For many years he delivered lectures on the complex analysis and theory of elasticity at Tbilisi State University. Under his guidance a number of dissertations for candidate's degree were written.

Prof. G. Manjavidze died on April 13, 1999. He left behind himself the name of an outstanding scientist, fascinating personality, careful family man, eternal toiler and ardent patriot of his country.

G. Akhalaia, R. Bantsuri, V. Paatashvili

List of Main Publications

(i) Monographs

1. Boundary Value Problems of Conjugation with Displacement for Analytic and Generalized Analytic Functions. (Rusisan) *Tbilis. Gos. Univ., Tbilisi,* 1990.

(ii) Papers

2. On a class of singular integral equations with discontinuous coefficients. (Russian) *Soobshch. Akad. Nauk Gruzin. SSR* **11** (1950), 269–274.
3. On a system of singular integral equations with discontinuous coefficients. (Russian) *Soobshch. Akad. Nauk Gruzin. SSR* **11** (1950), 351–356.
4. On a singular integral equation with discontinuous coefficients and its applications in the theory of elasticity. (Russian) *Akad. Nauk SSSR. Prikl. Mat. Mekh.* **15** (1951), 279–296.
5. On approximate solution of boundary problems of the theory of functions of a complex variable. (Russian) *Soobshch. Akad. Nauk Gruzin. SSR* **14** (1953), 577–582.
6. On the Riemann–Privalov problem with continous coefficients (with B. V. Khvedelidze). (Russian) *Dokl. Akad. Nauk SSSR* **123** (1958), 791–794.
7. Approximate solution of boundary problems of the theory of analytic functions. (Russian) *Issledovaniya po sovremennym problemam teorii funkciĭ kompleksnogo peremennogo*, 365–370. *Gosudarstv. Izdat. Fiz.-Mat. Lit., Moscow,* 1960.

8. A problem for the linear conjugate and singular integral equations with Cauchy kernel with continuous coefficients (with B. Khvedelidze). (Russian) *Trudy Tbiliss. Mat. Inst. Razmadze* **28** (1962), 85–105.
9. Singular integral equations as a tool of solving the mixed problems of the theory of elasticity. *Appl. Theory Functions Continuum Mech., Proc. Int. Sympos.* (*Tbilisi,* 1963) **1** (1965), 237-247.
10. N. I. Mushelishvili, Some basic problems of the mathematical theory of elasticity. Fundamental equations, plane theory of elasticity, torsion and bending. (Russian) Fifth revised and enlarged edition. With a supplementary chapter by G. M. Barenblatt, A. I. Kalandija and G. F. Manjavidze. *Nauka, Moscow,* 1966.
11. A boundary value problem of linear conjugacy in general form with shifts. (Russian) *Soobshch. Akad. Nauk Gruzin. SSR* **33** (1967), 76–81.
12. A boundary value problem of linear conjugacy with shift and its connection with the theory of generalized analytic functions. (Russian) *Soobshch. Akad. Nauk Gruzin. SSR* **33** (1967), 82–87.
13. The behavior of solutions of a boundary value problem of linear conjugacy. (Russian) *Soobshch. Akad. Nauk Gruzin. SSR* **35** (1969), 173–182.
14. One-dimensional singular integral equations (with B. Khvedelidze). *History of Home Mathematics. Akad. Nauk SSSR i Akad. Nauk Ukr. SSR* **4** (1970), No. I, 774-786.
15. Boundary value problems of linear conjugation and some of their applications. *Thesis of Dissertation submitted for doctor's degree* (*Phys., Math.*), *Tbilisi State University,* 1970.
16. Statement and methods of the solution of problems of the plane theory of elasticity; basic results of investigation of the plane theory of elasticity (with A. Kalandia). In: *Mechanics in the USSR for 50 years* **3**, *Moscow,* 1972.
17. A boundary value problem of linear conjugacy with a piecewise continuous matrix-valued coefficient. (Russian) *Continuum mechanics and related problems of analysis* (*on the occasion of the eightieth birthday of Academician N. I. Muskhelishvili*) (Russian), 297–304. *Nauka, Moscow,* 1972.
18. The reduction of a linear conjugation boundary value problem with displacement to a linear conjugation problem. (Russian) *Dokl. Akad. Nauk SSSR* **234** (1977), No. 4, 758–760.
19. The application of the theory of generalized analytic functions to a boundary value problem of conjugacy with shift. (Russian) *Dokl. Akad. Nauk SSSR* **237** (1977), No. 6, 1285–1288.
20. A family of boundary value problems of linear conjugacy. (Russian) *Soobshch. Akad. Nauk Gruzin. SSR* **95** (1979), No. 2, 289–292.
21. Application of the theory of generalized analytic functions to the study of boundary value problems of conjugacy with shift. (Russian) *Differential and integral equations. Boundary value problems* (Russian), 165–186, *Tbilis. Gos. Univ., Tbilisi,* 1979.
22. Some families of boundary value problems of linear conjugation. (Russian) *Sem. Inst. Prikl. Mat. Dokl.* No. 14, (1980), 45–52.
23. A class of boundary value problems of linear conjugation. (Russian) *Soobshch. Akad. Nauk Gruzin. SSR* **105** (1982), No. 3, 493–496.
24. Some boundary value problems for first-order nonlinear differential systems on the plane (with V. Tutschke). (Russian) *Boundary value problems of the theory of generalized analytic functions and their applications,* 79–124, *Tbilis. Gos. Univ., Tbilisi,* 1983.
25. Methods of the theory of analytic functions in the theory of elasticity. *Complex analysis,* 280–295, *Math. Lehrbcher Monogr.* II. *Abt. Math. Monogr.,* 61, *Akademie-Verlag, Berlin,* 1983.

26. The boundary value problem of linear conjugacy with displacement. *Complex analysis and applications* '81 (*Varna,* 1981), 375–382, *Publ. House Bulgar. Acad. Sci., Sofia,* 1984.
27. Boundary value problems for nonlinear systems of differential equations in the plane (with W. Tutschke). (Russian) *Soobshch. Akad. Nauk Gruzin. SSR* **113** (1984), No. 1, 29–32.
28. Some estimates of the norms of derivatives of holomorphic functions, and their application to initial value problems (with W. Tutschke). (Russian) *Z. Anal. Anwendungen* **3** (1984), No. 1, 1–5.
29. A differential boundary value problem in the theory of generalized analytic functions (with G. Akhalaia). (Russian) *Reports of the extended sessions of a seminar of the I. N. Vekua Institute of Applied Mathematics,* Vol. I, No. 1 (Russian) (*Tbilisi,* 1985), 29–31, 235, *Tbilis. Gos. Univ., Tbilisi,* 1985.
30. A differential boundary value problem for generalized analytic functions (with G. Akhalaia).(Russian) *Tbiliss. Gos. Univ. Inst. Prikl. Mat. Trudy* **21** (1987), 5–17.
31. Ilia Nesterovich Vekua (to the 80th Birthday Anniversary (with N. Bogoliubov, O. Oleinik, S. Sobolev, B. Khvedelidze). (Russian) *Uspekhi Mat. Nauk* **42** (1987), No 3.
32. Differential boundary value problems for generalized analytic vectors (with Ngo Van Lyoc). (Russian) *Current problems in mathematical physics,* Vol. II (Russian) (*Tbilisi,* 1987), 74–84, 382, *Tbilis. Gos. Univ., Tbilisi,* 1987.
33. Problem V for generalized analytic vectors (with Ngo Van Lyoc). (Russian) *Soobshch. Akad. Nauk Gruzin. SSR* **128** (1987), No. 2, 265–268.
34. Boundary value problems in the theory of generalized analytic vectors for domains with corner points (with G. Akhalaia). (Russian) *Current problems in mathematical physics,* Vol. II (Russian) (*Tbilisi,* 1987), 15–24, 379, *Tbilis. Gos. Univ., Tbilisi,* 1987.
35. On the Green identity for generalized analytic vectors (with G. Akhalaia). (Russian) *Tbiliss. Gos. Univ. Inst. Prikl. Mat. Trudy* **28** (1988), 5–11.
36. Boundary value problems for conjugation with shift for analytic and generalized analytic functions. (Russian) *Tbilis. Gos. Univ., Tbilisi,* 1990.
37. Academician N. I. Muskhelishvili (on the centennial of his birth) (with G. K. Mikhaĭlov, A. Yu. Ishlinskiĭand S. A. Khristianovich). (Russian) *Vestnik Akad. Nauk SSSR* 1991, No. 5, 68–81.
38. A survey of N. I. Muskhelishvili's scientific heritage (with B. Khvedelidze). *Continuum mechanics and related problems of analysis* (*Tbilisi,* 1991), 11–66, *Metsniereba, Tbilisi,* 1993.
39. Boundary value problems of the theory of generalized analytic vectors. *Functional analytic methods in complex analysis and applications to partial differential equations* (*Trieste,* 1993), 13–51, *World Sci. Publishing, River Edge, NJ,* 1995.
40. Ilia Vekua's 90th birthday anniversary. International Symposium on Differential Equations and Mathematical Physics (Tbilisi, 1997) (with R.P. Gilbert, G.V. Jaiani). *Mem. Differential Equations Math. Phys.* **12** (1997), 1–10.
41. Boundary value problems of the theory of generalized analytic vectors (with G. Akhalaia). *Complex methods for partial differential equations* (*Ankara,* 1998), 57–95, *Int. Soc. Anal. Appl. Comput.,* 6, *Kluwer Acad. Publ., Dordrecht,* 1999.
42. Boundary value problem of inclined derivative for second order elliptic system of differential equations (with G. Akhalaia). *Complex Variables Theory Appl.* **46** (2001), No. 4, 287–294.