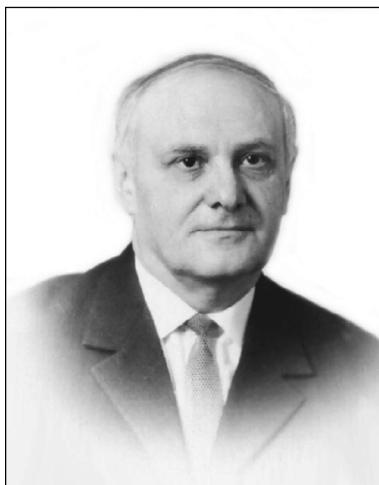


IN MEMORY OF BORIS MOISEEVICH LEVITAN (1914–2004)

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June 7, 2014, marked the 100th anniversary of the birth of Boris Moiseevich Levitan. This issue of *Transactions of the Moscow Mathematical Society* is dedicated to the memory of this outstanding 20th-century mathematician. The articles here look at problems which interested Levitan and elaborate on how they have developed in modern times.

B. M. Levitan was born on June 7, 1914, in Berdyansk. In 1922, the family moved to Kharkiv, where Boris completed the “seven-year school”, before enrolling in the Technical College of Precision Mechanics. He began to study mathematics independently, in particular, number theory but also mathematical analysis, from de la Vallée-Poussin’s two-volume work. From college, he was able to transfer directly into the second year of Kharkiv University. There he came under the supervision of N. I. Akhiezer, with whom he enrolled for postgraduate study following graduation from the university in 1936. In his Ph.D. thesis, Boris Moiseevich proposed a construction for special polynomials, later called Levitan polynomials, by M. G. Krein. Boris Moiseevich recalled: “[Akhiezer] slipped me a book by Bohr on almost periodic functions; I devoured it immediately and began to engage with this topic.” In 1938, ahead of schedule, Levitan completed his diploma.

During his postgraduate studies, Boris Moiseevich developed the remarkable theory of N -almost-periodic functions. V. V. Stepanov, the greatest expert on almost-periodic functions and topological dynamics, rated Levitan’s theory highly and recommended that it be defended as the basis of a doctoral dissertation (D.Sc.). In 1940, Levitan defended the doctoral dissertation: “The theory of generalised shift operators.” Levitan himself wrote of this work: “It seemed at first that this theory did not promise anything significant; however, reality exceeded my expectations. As with Lie groups, the main tool

for studying generalised shift operators is their generators. It turns out that the latter can serve as the main tool for the solution of inverse problems of spectral analysis.”

Levitan had a three-year break in his scientific work, because of the Great Patriotic War (Second World War). In 1941, he was drafted into the army as a pre-conscription youth and sent on training courses. Upon completing the courses, he saw active service near Stalingrad and participated in the great defeat of the German forces in November 1942. At the beginning of 1944 he was recalled from the front and sent to teach at the Dzerzhinskii Military Academy. Thereafter, Levitan headed the mathematics department of this academy. He returned to scientific research, developing his pre-war ideas, and wrote a great number of works, mainly on the spectral theory of operators. He participated in seminars at Moscow State University and delivered lectures at meetings of the Moscow Mathematical Society. The leaders of the seminars (I. G. Petrovskii, S. L. Sobolev, and others) gradually came to appreciate his great potential. In 1961, Levitan received an invitation to take up the post of professor of function theory and functional analysis in the Faculty of Mechanics and Mathematics of Moscow State University. In 1962, he was awarded the Lenin Prize for his series of papers on inverse problems of spectral analysis. (The outstanding Kharkiv mathematician V. A. Marchenko also received the Lenin Prize that year.)

From his early student years, Levitan was extraordinarily active in the scientific sphere. He published around 200 scientific articles and seven monographs. Among the wide range of research areas which Levitan developed we note the following in particular:

- (1) almost-periodic functions
- (2) generalised shift operators
- (3) inverse problems of spectral analysis

Levitan founded a large scientific school. Many of his students have become famous mathematicians. His students, friends, and colleagues remember him as a charming and very clever man who could rejoice heartily at the success of his colleagues but never put them down through his own achievements. He was not egocentric; nor was he focused on his own success. You could say he was a simple man, but his was simplicity without any hypocrisy or banality, the simplicity of a great man.

Levitan was actively engaged in mathematics until the end of his life. He died on April 4, 2004, in Minneapolis, Minnesota (USA).

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Originally published in Russian