OBITUARY

YURII IVANOVICH MEL'NIK

Doctor Yurii Ivanovich Mel'nik, the well-known mathematician and eminent expert in the theory of functions of real and complex variables, died on September 2, 1993.

Yurii Ivanovich Mel'nik was born on June 10, 1947 in Kiev. His mathematical talent manifested itself quite early. In 1965, he left the Republican Physico-Mathematical Boarding School and entered the Department of Mathematics and Mechanics at Kiev University. In 1970, Yu. I. Mel'nik graduated from the Kiev University with a first-class honors degree. After working for two years as an engineer at the "Arsenal" plant, he became a post-graduate student in the Institute of Mathematics of Ukrainian Academy of Sciences. In 1976, he defended his Candidates Degree thesis under the guidance of Prof. V. K. Dzyadyk. In 1990, Yu. I. Mel'nik defended his Doctorial Degree thesis.

From 1976 until the end of his life, Yu. I. Mel'nik worked at the Institute of Mathematics of the Ukrainian Academy of Sciences, first as a senior research fellow and then as a leading research fellow.

In the 1970s, Soviet and foreign mathematicians carried out a series of deep investigations aimed at the representation of functions analytic in convex regions by the series of exponents. As indices in these representations, they used zeros of entire functions satisfying the three standard Leont'ev conditions that guarantee the absolute convergence of an expansion. In his Candidates Degree thesis, Yu. I. Mel'nik proved that one of these conditions can be omitted while preserving the absolute convergence of an exponential series and suggested an essentially new constructive method for determining this function. Recently, this result has been fruitfully applied to the theory of representation systems developed by the Rostov School of Mathematicians.

For exponential series of functions analytic in polygons, Yu. I. Mel'nik proved the analogs of almost all known results in the theory of trigonometric series. We particularly mention the proofs of the analogs of the classical Hausdorff–Young theorem, the Hardy–Littlewood theorem, and the Carleson–Hunt theorem. For some important classes of functions regular in convex polygons, Yu. I. Mel'nik solved the problem of expanding functions into a sum of periodic functions of the same class. This result marked a successful completion of the earlier investigations of many prominent mathematicians. Yu. I. Mel'nik also constructed nontrivial examples illustrating the case where the behavior of exponential series differs from the behavior of the corresponding Fourier series. Yu. I. Mel'nik also obtained many other important results, for example, he proved the direct and inverse theorems of the theory of approximation of functions regular in convex polygons by exponential polynomials and established the exact-order estimates of Kolmogorov's widths for certain important classes of functions.

The bright mathematical talent and extremely high scientific activity of Yu. I. Mel'nik as well as his active participation in mathematical discussions with his colleagues gave him high prestige and the deep respect of everybody.

Yurii Ivanovich Mel'nik, gifted mathematician and remarkable man, has gone. Mathematics has suffered an irretrievable loss. The memory of Yurii Ivanovich Mel'nik will always live in our hearts.

Research fellows of the Department of the Theory of Functions

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