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Wiesław Zelenko

## Wiesław Żelazko (1933–2025)

We announce with deep sorrow that Wiesław Żelazko passed away in Warsaw on 6 November 2025. Professor Żelazko was a distinguished mathematician, one of the leaders of the theory of Banach algebras.

Wiesław Żelazko was born in Łódź on 16 February 1933. In 1955 he got his MSc in mathematics from the University of Warsaw, supervised by Roman Sikorski, and started working at IMPAN (the Institute of Mathematics of the Polish Academy of Sciences). Notably, he continued the employment in the Institute until his retirement in 2018.

In 1960 he defended his PhD thesis, written under the supervision of Stanisław Mazur, titled ‘On locally bounded and  $m$ -convex rings’. In 1965 he completed his habilitation, and in 1976 he received the title of full professor. In 1967 he obtained the Banach Prize of the Polish Mathematical Society, and in 2000 the Banach Medal of the Polish Academy of Sciences. For his contributions to science he was awarded the Order of Polonia Restituta.

From 1983 to 1985 he was the President of the Polish Mathematical Society; he also served three 4-year terms as the Deputy Director of IMPAN. He had several doctoral students, among them K. Jarosz, E. Ligocka, Z. Słodkowski, A. Sołtysiak and J. Zemánek.

The mathematical work of Wiesław Żelazko was centered on Banach algebras and spectral theory, understood in a broad and flexible sense. From his early papers onward, he was interested in how notions such as spectrum, invertibility or spectral radius interact with linear and topological structure. Rather than treating spectral theory as a subsidiary technique, he regarded it as a primary organizing principle for understanding the internal geometry of algebras and the behaviour of mappings acting on them.

A significant part of his research concerns linear functionals and linear operators constrained by spectral conditions, but this theme has appeared in many variations and could not be reduced to a single type of result. One particularly influential example is the Gleason–Kahane–Żelazko theorem, which shows that a linear functional on a complex Banach algebra that does not vanish on invertible elements must be a scalar multiple of a character. This has found numerous applications and extensions. More generally, Żelazko studied spectrum-preserving and spectrum-restricting maps, properties of maximal ideals, and the role of invertible elements in Banach algebras. His

work is characterized by careful formulation of hypotheses and by interest in borderline cases, clarifying when spectral assumptions are strong enough to force additional structure and when they are not.

In later years, he increasingly turned to more general, non-normed settings, including locally convex and topological algebras. There he explored how far classical spectral ideas extend beyond the Banach framework and which phenomena depend essentially on normed structure. Taken together, his papers form a coherent contribution to modern functional analysis, marked by conceptual precision, economy of assumptions, and a persistent focus on the spectral foundations of Banach algebra theory. His monograph ‘Banach Algebras’ (Polish Scientific Publishers/Elsevier, 1973) was at the time a widely used and influential reference in the field.

Throughout his career Wiesław Żelazko was very closely connected to *Studia Mathematica*. He published 34 articles in the journal, spanning the period from 1960 to 2012. He was a member of the Editorial Board of *Studia* from 1969 until the very end of his life (so for almost 60 years!), and the Deputy Editor-in-Chief of *Studia* from 1970 to 1974 and from 2004 to 2015.

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