



*Antoni Zygmund*

**ANTONI SZCZEPAN ZYGMUND**

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Antoni Zygmund was one of the greatest and most influential analysts of this century. Among other topics he worked on summability of numerical series, summability of general orthogonal series, trigonometric integrals, sets of uniqueness, summability of Fourier series, differentiability of functions, smooth functions, approximation theory, absolutely convergent Fourier series, multipliers and translation invariant operators, conjugate series and Taylor series, lacunary trigonometric series, series of independent random variables, random trigonometric series, the Littlewood–Paley, Lusin and Marcinkiewicz functions, boundary values of analytic and harmonic functions, singular integrals, partial differential equations and interpolation operators (for more details see Zygmund's *Selected Papers*, Vols. 1–3, Kluwer Academic Publishers, 1989).

The list of his publications consists of 215 items. It includes several books, among others the classical *Trigonometric Series* which has had several editions since 1935.

Zygmund was an excellent teacher. The list of his Ph.D. students contains 39 names, many of them leading specialists in various fields of mathematics.

Antoni Zygmund was born in Warsaw on 26 December 1900 in a family of a state employee, he was one of four children in this family (his two sisters are still living in Warsaw). At the outbreak of the first world war his family was evacuated to Poltava (Ukraine), where he continued his education. After returning in 1918 to (by then) independent Poland he completed his secondary education and in 1919 entered Warsaw University. Among his teachers were Stefan Mazurkiewicz and Wacław Sierpiński, but it was Aleksander Rajchman who had the greatest influence upon him. Rajchman directed his interest to trigonometric series. Zygmund was also influenced by his older fellow student Stanisław Saks.

With Saks' support, in 1922 Zygmund was appointed instructor at the Chair of Mathematics of Warsaw Technical University, held by Witold Pogorzelski. A year later Zygmund took his Ph.D. for his work in the Riemannian theory of trigonometric series. The degree was obtained in Warsaw University under (rather formal) guidance of Stefan Mazurkiewicz. In 1925

Zygmund married Irena Parnowska—he had met her when she was a student of mathematics at Warsaw University. In 1926 Zygmund received habilitation and in 1929/30 he was awarded a Rockefeller fellowship which he used for a visit to England. He spent half a year in Oxford with G. H. Hardy and half a year in Cambridge where he met R. E. A. C. Paley; their collaboration lasted until Paley's accidental death in 1933. Earlier (perhaps in summer 1929 on his way to England) Zygmund visited Raphaël Salem in Paris. Their collaboration lasted until Salem's death in 1957. In 1930 Zygmund was offered a chair of mathematics at the Stefan Batory University in Wilno. In Wilno he met Józef Marcinkiewicz, by then a first year student of mathematics, and one of the most promising mathematicians Poland ever had. Their collaboration lasted until the outbreak of the second world war.

In 1935 Zygmund published his first book *Trigonometrical Series*. The book has had several editions and is one of the most important and influential books in this field. In 1938 he published a book on analytic functions (in Polish) written jointly with Stanisław Saks. For this book the authors received in 1939 an award of the Polish Academy of Learning in Cracow. Both books were published in the series “Monografie Matematyczne” cofounded by Stefan Banach.

At the outbreak of the war Zygmund was mobilized as a reserve officer. After the Polish Army's defeat Zygmund succeeded in returning to Wilno and leaving Poland through Sweden for the United States together with his wife and son. He worked there in MIT, Mount Holyoke College, University of Pennsylvania in Philadelphia, and since 1947 until his retirement in 1980 at the University of Chicago (since 1964 as a Distinguished Service Professor of Mathematics). Zygmund's wife Irena died in 1966 and his son was killed in a plane accident in 1983. He is survived by four grandsons living in England.

Zygmund travelled a lot. He attended all postwar congresses of mathematicians (with an invited address during the 1954 Congress in Amsterdam), twice held a visiting position in Argentina and frequently visited England, France and Poland.

Professor Antoni Zygmund was awarded many honours. He had honorary degrees from Washington University, University of Toruń, University of Paris and University of Uppsala. He was a member of the Polish Academy of Sciences (1959), National Academy of Sciences of the United States (1961), Argentinian Academy of Sciences (1964), Royal Academy of Sciences in Madrid and Academy of Arts and Sciences in Palermo (1967). Zygmund was a honorary member of the London Mathematical Society (1967) and of the Polish Mathematical Society (1972). He received the Guggenheim Foundation fellowship (1953/54), the Award of the Alfred Jurzykowski Foundation (1972) and the Steel Prize of the American Mathematical Society (1979). In 1986 he was decorated with the National Medal of Science (USA).

Since 1968 Zygmund had served as a member of the Editorial Committee of this journal. He was one of the most active members of the Committee helping us often with his advice. The present shape of the journal owes him a lot.

Antoni Zygmund died in Chicago on 30 May 1992 and was buried there on 2nd June.

*The Editorial Committee*