

Institute of Mathematics

Research conducted at the Institute of Mathematics covers many areas of contemporary mathematics and its applications, including functional analysis, theory of analytic functions, probability theory and mathematical statistics, differential equations and geometry. In recent years, research has been expanded to include new lines of scientific activity mainly related to applications.

The most important areas of our scientific activity are:

- fixed point theory,
- geometry of Banach spaces, interpolation of operators and Banach spaces,
- applications of stochastic processes and random fields to the modelling of structure, dynamics and equilibria in wide-ranging complex systems used in physics and life sciences,
- applications of differential equations to the modelling of traffic flow, crowd dynamics, gas flow,
- operations research,
- theory of operators on function spaces,
- order statistics and ordered random variables,
- limit theorems of probability theory and mathematical statistics,
- algebraic methods in cryptography,
- didactics of mathematics – research on the importance of feedback (stationary and remote), critical thinking in mathematics.

Institute members collaborate with numerous domestic and foreign centers, including those in the USA, Italy, Spain, Germany, Mexico, Ukraine and Iran. Interdisciplinary research is also carried out in the fields of medical and health sciences, social sciences, and natural sciences.

In recent years, the Institute of Mathematics has been the organizer or co-organizer of several prestigious national and international conferences:

- Infinite Particle Systems, a series of five conferences in 2005-2009,
- Computational Methods and Function Theory, 2017,
- 8. Forum Matematyków Polskich, 2017,
- VII Kongres Młodych Matematyków Polskich, 2018,
- XLVI Konferencja Statystyka Matematyczna, 2020,
- XXXI Szkoła Dydaktyki Matematyki, 2023,
- Contemporary Mathematics Education (CME'24), 2024.