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Research

The School of Mathematics at Birmingham University is internationally renowned for its research in many areas of mathematics. There are flourishing research groups in algebra, analysis, applied analysis, combinatorics, fluid dynamics, numerical analysis, optimization and statistics. The main research activities in the School are summarised by the five research groups listed below. You can find out more on our **research page (/research/activity/mathematics/index.aspx)** .

Pure Mathematics (/research/activity/mathematics/pure-maths/index.aspx)

The Pure Mathematics Group has internationally renowned research groups in algebra, analysis and combinatorics. In the last Research Assessment Exercise (RAE 2008) over half of our research outputs were rated as world-leading or internationally excellent.

Applied Mathematics (/research/activity/mathematics/applied-maths/index.aspx)

The Applied Mathematics Group is recognised for world leading and internationally excellent research and has collaborations with researchers from industry, healthcare, and other areas of science and engineering.

Theoretical and Computational Optimization (/research/activity/mathematics/optimization/index.aspx)

The main focus of the research activity of the group is on mathematical theory and methods applicable to managerial decision-making, particularly non-linear, discrete, and multi-criteria optimization. Research is typically a mixture of theoretical investigation and practical application or industrial collaboration.

Statistics (/research/activity/mathematics/statistics/index.aspx)

The main interests of this group are multivariate nonparametric statistics, nonparametric smoothing and wavelet based methods, time series analysis, mutual information, statistical computing, applications in bioinformatics, medical sciences, economics and neuroscience. The group also has strong inter-disciplinary research links with other internationally acclaimed research groups.

Mathematics Education (/research/activity/mathematics/maths-education/index.aspx)

The School of Mathematics undertakes educational research investigating learning and teaching of mathematics at university level, with a particular focus on assessment and feedback. This includes the design of automatic online assessment of mathematics, and how to develop effective skills for mathematical problem solving. From 2000 to 2011 the School hosted the Higher Education Academy Maths Stats and OR Network.

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