1. Probability at the University of Sheffield

Sheffield has a proud tradition of research and teaching in both probability and statistics, dating back to the early 1950s under Geoffrey Jowett and Hilda Davies.

In 1965, Professor Joe Gani was appointed as the first professor and head of the new Department of Probability and Statistics, which separated from the then Mathematics Departments.

He established an MSc course and PhD programme, which have now developed into three MSc courses and a large PhD group covering a wide range of areas, including many joint projects with other university departments.

Research in probability includes:

- branching processes;
- random walk;
- large deviations;
- fractals and random graphs;
- Levy processes;
- probability on groups;
- stochastic analysis;
- stochastic differential and partial differential equations;
- inference for stochastic processes.

Together with statistics, the group has a seminar series with external invited speakers, and regular informal research meetings, led by members of the group.

1.1. **Members.**

- Dr Nic Freeman
- Dr Carina Geldhauser
- Dr Jonathan Jordan
- Dr Robin Nicholas Stephenson
- Dr Dimitrios Roxanas
- Dr Mark Yarrow
- Professor David Applebaum
- Rosemary Shewell Brockway

1.2. **Past grants.** Interacting Particle Systems and Stochastic PDEs, EPSRC

1.3. **Applied Probability Trust.** The group is linked with the "Applied Probability Trust", which publishes two major international journals (*Journal of Applied Probability* and *Advances in Applied Probability*, both founded by Joe Gani) and which sponsors an annual lecture in Sheffield given by a leading international figure.

This APT lecture takes place within the contact of a Sheffield Probability day.

Dr Mark Yarrow – Executive Editor

2. Typesetting practice

(1) $x^2 + y^2$; x_i; $x_i^2 - y_i^2$; x_{i_m}; ${x_i}^m$; x^{2p}.

(2) $\frac{1}{y}$; $\frac{x^2}{x+y}$;

$$\frac{\frac{1}{x} + \frac{1}{y}}{\frac{1}{x+y}}.$$

(3) $\sqrt{x+y} + 7$; $\sqrt[3]{7}$; $\sqrt[n]{1 + \sqrt{1+x}}$.

(4)

$$\int_0^\infty e^{-x^2}\, dx = 2\pi; \quad \sum_{i=1}^{n} i = \frac{1}{2}n(n+1).$$

(5) $\sin^2 x + \cos^2 x = 1$;

$$\Gamma(x) \equiv \lim_{x \to 0} \prod_{v=0}^{n-1} \frac{n!\, n^{x-1}}{x+v}.$$

(6) $\left(2^{2^{2^2}} - 1\right)^2$; $\left\{\alpha + \left(\sqrt{\beta} + \gamma^2\right)^2\right\}$.

(7) $f : \mathbb{R} \setminus \{-\frac{d}{c}\} \to \mathbb{R}$, $x \mapsto \frac{ax+b}{cx+d}$.

(8) $\sum_{i=1}^{n} i^2 = \frac{1}{6}n(n+1)(2n+1)$ for $n = 1, 2, 3, \ldots$

(9)

$$\begin{aligned} f(x) &= x^x \\ &= (e^{\ln x})^x. \end{aligned}$$