



Berlin  
Mathematical  
School

## BMS Friday Colloquium

**Friday 6 July 2012 at 14:15**

*Tea before the lecture begins at 13:00*

BMS Loft, Urania, An der Urania 17, 10787 Berlin

### Peter Mörters

*(U Bath)*

Tossing coins, matching points, and shifting Brownian motion

Suppose you have a collection of infinitely many fair coins indexed by the integers, but you can only see whether the coin at position zero shows heads or tails. You are allowed to shift the entire sequence to the left or right, so that through your peephole at the origin you can eventually look at as many coins as you wish. Is there a strategy for shifting the coins in such a way that at the end one can see a coin showing heads but no information is revealed about the other coins? How many coins do you have to look at?

The elegant solution of this problem given by Liggett (2001) is the basic role model for the solution of a variety of seemingly unrelated problems in discrete and continuous probability, which will be surveyed in this talk. These include matching problems for Poisson processes (see picture) and problems of shift-invariance for Brownian motion and other continuous processes, which were investigated in a recent paper of Last, Mörters and Thorisson.

Peter Mörters is Professor of Probability and Head of Statistics at the University of Bath. From 2005 to 2010 he was an EPSRC Advanced Research Fellow. His research interests include Brownian motion, large deviations, stochastic processes in random media, and random networks.