

# The critical probability for confetti percolation equals $1/2$

Tobias Müller\*

April 30, 2015

## Abstract

In the confetti percolation model, or two-coloured dead leaves model, radius one disks arrive on the plane according to a space-time Poisson process. Each disk is coloured black with probability  $p$  and white with probability  $1 - p$ . In this paper we show that the critical probability for confetti percolation equals  $1/2$ . That is, if  $p > 1/2$  then a.s. there is an unbounded curve in the plane all of whose points are black; while if  $p \leq 1/2$  then a.s. all connected components of the set of black points are bounded. This answers a question of Benjamini and Schramm. The proof makes use of earlier work by Hirsch and an asymmetric version of a "sharp threshold" result of Bourgain.

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\*Utrecht University, Utrecht, the Netherlands. E-mail: [t.muller@uu.nl](mailto:t.muller@uu.nl). Part of the work in this paper was done while this author was supported by a VENI grant from Netherlands Organisation for Scientific Research (NWO).