On confetti percolation
Dr. Rahul Roy
(Indian Statistical Institute, New Delhi)

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Using the randomized algorithm method developed by Duminil-Copin, Raoufi, Tassion (2016, 2017) we exhibit sharp phase transition for the confetti percolation model. This provides an alternate proof that the critical parameter for percolation in this model is $1/2$ when the underlying shapes for the distinct colours arise from the same distribution. This extends the work of Hirsch (2015) and Müller (2016). In addition we study the covered area fraction for this model, which is akin to the covered volume fraction in continuum percolation. This study allows us to calculate exact critical parameter for percolation when the underlying shapes for different colours may be of different sizes subject to a certain 'transitivity condition'.
Joint work with Partha Pratim Ghosh.