
ATHENS *P*ROBABILITY COLLOQUIUM

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Math Dept, University of Athens

**“Mobile geometric graphs:
Detection, isolation and percolation”**

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Abstract: We consider the following dynamic Boolean model introduced by van den Berg, Meester and White (1997). At time 0, let the nodes of the graph be a Poisson point process in \mathbf{R}^d with constant intensity and let each node move independently according to Brownian motion.

At any time t , we put an edge between every pair of nodes if their distance is at most r . We study two features in this model: detection (the time until a target point – fixed or moving – is within distance r from some node of the graph), isolation (the time until the origin is isolated) and percolation (the time until a given node belongs to the infinite connected component of the graph). We obtain asymptotics for these features by combining ideas from stochastic geometry, coupling and multi-scale analysis.

(Based on joint works with Yuval Peres, Alistair Sinclair and Alexandre Stauffer)

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