

# Strong-majority bootstrap percolation on regular graphs with low dissemination threshold

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## Abstract

Consider the following model of strong-majority bootstrap percolation on a graph. Let  $r \geq 1$  be some integer, and  $p \in [0, 1]$ . Initially, every vertex is active with probability  $p$ , independently from all other vertices. Then, at every step of the process, each vertex  $v$  of degree  $\deg(v)$  becomes active if at least  $(\deg(v) + r)/2$  of its neighbours are active. Given any arbitrarily small  $p > 0$  and any integer  $r$ , we construct a family of  $d = d(p, r)$ -regular graphs such that with high probability all vertices become active in the end. In particular, the case  $r = 1$  answers a question and disproves a conjecture of Rapaport, Suchan, Todinca, and Verstraëte (Algorithmica, 2011). (This is joint work with Dieter Mitsche and Paweł Prałat.)