

# Majority dynamics on the binomial random graph

Tamás Makai

Majority dynamics is a graph process. Initially every vertex is coloured either red or blue. In every step of the process every vertex adopts the colour of the majority of its neighbours, or retains its colour if no majority exists.

Benjamini, Chan, O'Donnell, Tamuz and Tan (2016) conjectured that in the binomial random graph, when the initial colour of every vertex is chosen independently and uniformly then one of the following occurs. If the average degree is bounded, then after a sufficient number of steps both colour classes will contain roughly half of the vertices. On the other hand if the average degree tends to infinity, after a sufficient number of steps, one of the colour classes will contain almost every vertex.

We prove the conjecture holds already after 3 steps when the average degree is  $\omega(\sqrt{n})$ .

This is joint work with N. Fountoulakis and M. Kang.