CRISTIANE M. SATO, University of Waterloo

On the robustness of random k-cores

The k-core of a graph is its maximal subgraph with minimum degree $\geq k$. Choose a k-core u.a.r. from the k-cores with n vertices and $m = m(n)$ edges, delete one edge u.a.r. and find the k-core of the new graph. The number z of vertices that have to be deleted to find the new k-core can be seen as a measure of robustness of the original k-core. If $c = 2m/n \to k$, we prove that $z = n$ with probability going to 1 as $n \to \infty$. We define a constant c'_k such that when $c < c'_k - \epsilon$, $z = n$ with positive probability and, if $c > c'_k + \epsilon$ and $c = O(1)$, z is bounded in probability.