

Universality of graphs with few triangles and anti-triangles

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Call a graph sequence *3-random-like* if it contains asymptotically the same number of triangles and empty 3-sets as the random graph $G_{n,1/2}$. This property is a natural relaxation of graph quasirandomness.

I will demonstrate that 3-random like graphs are 4-universal, meaning that each of them contains many induced copies of every 4-vertex graph. On the other hand, it is no longer true that 3-random like graphs are 5-universal. In fact, higher order universality can be disproved in a very strong sense.

Joint work with Dan Hefetz.