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**PAWEL PRALAT**, Ryerson University

*k*-regular subgraphs near the *k*-core threshold of a random graph

We prove that the binomial random graph  $G_{n,p=c/n}$  with high probability has a *k*-regular subgraph if *c* is at least  $e^{-\Theta(k)}$  above the threshold for the appearance of a subgraph with minimum degree at least *k*; i.e. a non-empty *k*-core. In particular, this pins down the threshold for the appearance of a *k*-regular subgraph to a window of size  $e^{-\Theta(k)}$ . (Joint work with Dieter Mitsche and Mike Molloy.)