1067-91-2021　　　　　**Stephen J. Young*** (`s7young@math.ucsd.edu`) and **Fan Chung**. *Braess's Paradox in Random Graphs.*

Braess's paradox, in its original context, is the counter-intuitive observation that, without lessening demand, closing roads can improve traffic flow. With the explosion of distributed (selfish) routing situations understanding this paradox has become an important concern in a broad range of network design situations. However, the previous theoretical work on Braess's paradox has focused on "designer" graphs or dense graphs, which are unrealistic in practical situations. In this work, we exploit the expansion properties of Erdős-Rényi random graphs to show that Braess's paradox occurs when $np \geq c \log(n)$ for some $c > 1$. (Received September 22, 2010)