1145-05-1959 **Catherine Lee*** (catherine.lee@yale.edu), 206 Elm Street #203555, New Haven, CT 06520-3555, and **Henry Reichard**, **David Townley**, **Ross Berkowitz** and **Patrick Devlin**.
Expected Chromatic Number of Random Subgraphs.

Given a graph G and $p \in [0,1]$, let G_p denote the random subgraph of G obtained by keeping each edge independently with probability p. Alon, Krivelevich, and Sudokov proved $\mathbb{E}[\chi(G_p)] \geq C_p \frac{\chi(G)}{\log |V(G)|}$, and Bukh asked if this could be improved to $\mathbb{E}[\chi(G_p)] \geq C_p \frac{\chi(G)}{\log \chi(G)}$. We propose the stronger conjecture that if $p \leq 1/2$, then among all graphs of fixed chromatic number, the quantity $\mathbb{E}[\chi(G_p)]$ is minimized by the complete graph. We prove this stronger conjecture when G is planar or $\chi(G) < 4$. We also consider weaker lower bounds on $\mathbb{E}[\chi(G_p)]$ proposed in a recent paper by Shinkar. We answer two open questions posed by Shinkar negatively and consider a possible refinement of one of them. We conclude with an original spectral lower bound on $\mathbb{E}[\chi(G_p)]$. (Received September 24, 2018)