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**Shyam Narayanan** and **Alec Sun\*** ([suna@college.harvard.edu](mailto:suna@college.harvard.edu)), 1 Oxford St., Cambridge, MA 02138. *Bounds on expected propagation time of probabilistic zero forcing.*

Probabilistic zero forcing is a coloring game played on a graph where the goal is to color every vertex blue starting with an initial blue vertex set. As long as the graph is connected, if at least one vertex is blue then eventually all of the vertices will be colored blue. The most studied parameter in probabilistic zero forcing is the expected propagation time starting from a given vertex of  $G$ . In this work we improve on known upper bounds for the expected propagation time in terms of a graph's order and radius. In particular, for a connected graph  $G$  of order  $n$  and radius  $r$ , we prove the bound  $ept(G) = O(r \log(n/r))$ . We also show using Doob's Optional Stopping Theorem and a combinatorial object known as a cornerstone that  $ept(G) \leq n/2 + O(\log n)$ . Finally, we approximate the expected propagation time of the Erdős-Renyi graph  $G(n, p)$ . (Received September 06, 2019)