1135-60-811 **Hanbaek Lyu*** (colourgraph@gmail.com), 231 W 18th ave, Columbus, OH 43210, and **Janko Gravner** and **David Sivakoff**. *Limiting behavior of 3-color excitable media on arbitrary graphs.*

Fix a simple graph $G = (V, E)$ and choose a random initial 3-coloring of vertices drawn from a uniform product measure. The 3-color cycle cellular automaton is a process in which at each discrete time step in parallel, every vertex with color i advances to the successor color $(i + 1)$ mod 3 if in contact with a neighbor with the successor color, and otherwise retains the same color. In the Greenberg-Hastings Model, the same update rule applies only to color 0, while other two colors automatically advance. The limiting behavior of these processes has been studied mainly on the integer lattices. In this paper, we introduce a monotone comparison process defined on the universal covering space of the underlying graph, and characterize the limiting behavior of these processes on arbitrary connected graphs. In particular, we establish a phase transition on the Erdős-Rényi random graph. On infinite trees, we connect the rate of color change to the cloud speed of an associated tree-indexed walk. We give estimates of the cloud speed by generalizing known results to trees with leaves. (Received September 14, 2017)