1145-VF-2955   **Rinni Bhansali*** (`rinnibhansali@gmail.com`), 179B Old South Path, Melville, NY 11747, and **Laura Schaposnik**. *A Trust Model In Bootstrap Percolation.* Preliminary report.

Bootstrap percolation is a class of monotone cellular automata describing activation processes which follow certain activation rules. In the classical r-neighbor bootstrap process on a graph G, a set A of initially infected vertices spreads by infecting vertices with at least r already-infected neighbors. Motivated by the study of social networks on graphs, where vertices represent people and edges represent relationships amongst them, we introduce a novel model: the Trust Model for Bootstrap Percolation (TMBP), where vertices of G are assigned different labels, and the set A spreads by infecting vertices with at least a fixed number of already-infected neighbors of each label. In particular, TMBP requires an infection (or rumor) to be "validated" by various groups before it spreads, hence imposing a predetermined level of trust needed for its percolation. By considering different networks, we describe various properties of this new model (e.g., the critical probability of infection and the confidence threshold), and compare it to other forms of bootstrap percolation from the literature. Finally, we describe its implications when applied to rumor spread, fake news, and marketing strategies, along with potential future applications in modeling the spread of genetic diseases. (Received September 25, 2018)