Spreading in graphs

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Let $p \in \mathbb{N}$ and $q \in \mathbb{N} \cup \{\infty\}$, and let vertices of a graph G be colored either white or blue. If a white vertex w has at least p blue neighbors, and one of the blue neighbors of w has at most q white neighbors, then by the *spreading color change rule* the color of w is changed to blue. A set S is a (p, q)-*spreading set* for G if initially exactly the vertices of S are colored blue and by repeatedly applying the spreading color change rule all the vertices of G are eventually turned to blue. The (p, q)-*spreading number*, $\sigma_{p,q}(G)$, of a graph G is the minimum cardinality of a (p, q)-spreading set. This concept provides a common generalization of several processes of spreading that have been studied such as q-forcing and p-percolation. In this talk, I will discuss some recent results on the (p, q)-spreading numbers of graphs.

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