Rainbow Saturation

Neal Bushaw, Virginia Commonwealth University; Daniel Johnston*, Skidmore College; Puck Rombach, University of Vermont

A graph G is rainbow H-saturated if there is some proper edge coloring of G which is rainbow H-free (that is, it has no copy of H whose edges are all colored distinctly), but where the addition of any edge makes such a rainbow H-free coloring impossible. Taking the maximum number of edges in a rainbow H-saturated graph recovers the rainbow Turán numbers whose systematic study was begun by Keevash, Mubayi, Sudakov, and Verstraëte. In this talk, we introduce and examine the corresponding *rainbow saturation number* – the minimum number of edges among all rainbow H-free graphs.

Keywords: Edge coloring, extremal, graph theory, saturation.