Colored Saturation Problems.

Let $\mathcal{F}$ be a family of $t$-edge-colored graphs. An edge-colored graph $G$ is $(\mathcal{F}, t)$-saturated if $G$ contains no member of $\mathcal{F}$ as a subgraph, but the addition of any edge $e \in \mathcal{G}$ in any color $i \in [t]$ creates a copy of some $F \in \mathcal{F}$.

In this talk, we will discuss some results on $(\mathcal{F}, t)$-saturated graphs of fixed order with minimum size, in particular focusing on the case where $\mathcal{F}$ consists of all possible rainbow colorings of a given graph $H$. We will also share some results on a related problem inspired by Hanson and Toft’s 1987 conjecture on the traditional (uncolored) saturation number for $(K_{t_1}, \ldots, K_{t_k})$-Ramsey-minimal graphs.

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