Good coloring for stationary list

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Abstract

For graph $X = (V_G, E_G)$, list chromatic number $\mathsf{List}(X)$ is defined as the least κ which satisfies that for every list function $L : V_G \to [\mathsf{On}]^\kappa$, there exists a good coloring $f : V_G \to \mathsf{ran}(L)$ such that $f(v) \in L(v)$ for all $v \in V_G$.

In [1], Komjáth investigated a variation of list chromatic number $\mathsf{List}^*(X)$ called restricted list chromatic numbers, which is defined by replacing the list function $L : V_G \to [\mathsf{On}]^\kappa$ with $L : V_G \to \mathsf{Stat}_\kappa$. By a simple observation, we can obtain $\mathsf{List}^*(X) \leq \mathsf{List}(X) \leq \mathsf{Col}(X)$, where $\mathsf{Col}(X)$ is another characteristic called coloring number. Regarding these characteristics, he obtained the following two results:

- In general, the restricted list chromatic number is different from the list chromatic number.
- In GCH, the interval between the coloring number and the (restricted) list chromatic number is not so big for all graphs. In other words, the (restricted) list chromatic number is not so large compared to the coloring number.

In this talk, the speaker introduces another variation of list chromatic number, called stationary list coloring, and considers analogous results to the above two.

References

[1] Péter Komjáth. The list-chromatic number of infinite graphs. *Israel Journal of Mathematics*, 196(1):67–94, 2013.