



SEMINARIUM MATEMATYKA DYSKRETNA

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Towards a Conjecture on Long Induced Rainbow Paths in Triangle-Free Graphs

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Given a triangle-free graph G with chromatic number k and a proper vertex coloring ϕ of G , it is conjectured that G contains an induced rainbow path on k vertices under ϕ . Scott and Seymour proved the existence of an induced rainbow path on $(\log \log \log k)^{1/3-o(1)}$ vertices. We improve this bound to $(\log k)^{1/2-o(1)}$. Further, we prove the existence of an induced path that sees $k/2$ colors.

This is joint work with N.R. Aravind and Rogers Mathew. It is available at [arxiv:2601.00602](https://arxiv.org/abs/2601.00602).