Antidirected paths in oriented graphs

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We show that for any integer $k \geq 4$, every oriented graph with minimum semidegree bigger than $\frac{1}{2}(k-1+\sqrt{k-3})$ contains an antidirected path of length k. Consequently, every oriented graph on n vertices with more than $(k-1+\sqrt{k-3})n$ edges contains an antidirected path of length k. This asymptotically proves the antidirected path version of a conjecture of Stein and of a conjecture of Addario-Berry, Havet, Linhares Sales, Reed and Thomassé, respectively.

References

[1] A.Grzesik, M.Skrzypczyk, Antidirected paths in oriented graphs, *arXiv:2506.11866*, 2025.