## ON GRAPHS WITH EIGENVECTORS ENTRIES IN $\{-1, +1\}$

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## Resumo

Let G be a simple graph. In 1986, Herbert Wilf asked what kind of graphs have an eigenvector with entries formed only by  $\pm 1$ ? In this talk, we present an answer to this question for the adjacency, Laplacian and signless Laplacian matrix of a graph. Besides, we discuss some old and new bounds that connect the maximum cut optimization problem with eigenvalues of matrices related to graphs. We prove that such results are also related to eigenvectors with all entries in  $\{-1, +1\}$ .

Este trabalho foi realizado em colaboração com Jorge Alencar (Instituto Federal de Educação, Ciência e Tecnologia do Triângulo Mineiro).

## Referências

- H. WILF, Spectral bounds for the clique and independence numbers of graphs, Journal of Combinatorial Theory, Series B 40:1 (1986) 113–117.
- [2] J. ALENCAR E L. DE LIMA, On graphs with adjacency and signless Laplacian matrix eigenvectors entries in {-1,+1}, Available at: https://arxiv.org/pdf/1909.11860.pdf

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