Cheng, Yen-Jen; Liu, Chia-An; Weng, Chih-wen
Counterexamples of the Bhattacharya-Friedland-Peled conjecture. (English) Zbl 07485760
Linear Algebra Appl. 641, 200-207 (2022)

Summary: The Brualdi-Hoffman conjecture, proved by P. Rowlinson [Linear Algebra Appl. 110, 43–53 (1988; Zbl 0666.05043)], characterized the graph with maximal spectral radius among all simple graphs with prescribed number of edges. A. Bhattacharya et al. [Electron. J. Comb. 15, No. 1, Research Paper R144, 23 p. (2008; Zbl 1178.05061)] proposed an analog, which will be called the BFP conjecture in the following, of the Brualdi-Hoffman conjecture for the bipartite graphs with fixed numbers of edges in the graph and vertices in the bipartition. The BFP conjecture was proved to be correct if the number of edges is large enough by several authors. However, in this paper we provide some counterexamples of the BFP conjecture.

MSC:
05C50 Graphs and linear algebra (matrices, eigenvalues, etc.)
15A18 Eigenvalues, singular values, and eigenvectors

Keywords:
bipartite graph; spectral radius; degree sequence; BFP conjecture

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References:

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