

# A conjecture on the spectral radius of bipartite graphs

Chia-An Liu

Department of Mathematics, Soochow University

## Abstract

The spectral radius of a graph is the largest eigenvalue of its adjacency matrix. The Brualdi-Hoffman conjecture characterized the graph with maximum spectral radius among all simple graphs with prescribed number of edges, which was completely proved by P. Rowlinson in 1988. In 2008, Bhattacharya, Friedland, and Peled gave an analog, abbreviated as the BFP conjecture, of the Brualdi-Hoffman conjecture for bipartite graphs with fixed numbers of vertices in the bipartition and edges in the graph. The BFP conjecture is true in some cases. However, we gave counterexamples to the BFP conjecture in 2022. In this talk, we introduce some recent approaches on the topic. This is a joint work with Prof. Chih-wen Weng and Dr. Yen-Jen Cheng.

**Keywords:** Bipartite graph, spectral radius, degree sequence, BFP conjecture.