THE SPECTRAL PROPERTIES OF THE CARTESIAN PRODUCT

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Professor Brand suggested to explore whether the spectrum of the Laplacian of a graph can be used to find its factorization with respect to the Cartesian product. Our approach uses Fiedler's vector (the eigenvector that correponds to the second lowest eigenvalue) of the Laplacian to distinguish the layers of factors. We also show how to use the information provided by the spectrum for the recognition of approximate Cartesian products.