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Transformation of Graphs, Characteristic Polynomials, and Spectra

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Abstract of Report Talk: Every directed graph has a characteristic polynomial, which comes from its adjacency matrix. The spectrum is the set of roots. Through these we can examine different aspects of the graph. We investigate ways of transforming graphs, and the resulting transformation of the characteristic polynomials and spectra. We focus on transformations preserving maps between graphs, such as products, edge reversal, and forming path graphs. Applications include creating isospectral graphs from products of graphs and determining whether a given polynomial is a characteristic polynomial of a graph. [DA13111538]

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