Spectral Resolution and Functions of Diagonalisable Normal Operators

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Abstract

This talk shall present an application of the spectral theorem to diagonalisable normal operators on finite-dimensional inner product spaces. After recalling the spectral resolution of such an operator T, we will show how a function f on its spectrum can be extended to a new diagonalisable normal operator $f(T)$. We will describe some relations between $f(T)$ and T regarding their spectra and matrix representations and illustrate these by means of an example.