Simultaneous diagonalization of normal operators

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Abstract

The topic of this seminar is the simultaneous diagonalization of families of normal operators. We will introduce *roots*, which can be thought as a generalization of eigenvalues for families of operators. We will examine some of their properties and give a practical example of their calculation. Afterwards, we will focus on the self-adjoint algebra generated by a family of commuting normal diagonalizable operators and give a nice characterization for this algebra in finite dimensions.