Boğaziçi
MATH GRAD SEMINAR

Introduction to Aluhgte Transformation and Invariant Subspaces

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Abstract: Let $U|T|$ be the polar decomposition of the operator $T \in B(H)$ such that U is a partial isometry and $|T|$ is an injective and positive operator. Then the non-linear transformation $\tilde{T} = |T|^{\frac{1}{2}}U|T|^{\frac{1}{2}}$ is called "The Aluthge Transform of T. In this presentation some important properties of Aluthge Transformation, some specific relations with many operators and the invariant subspace problem with this transformation will be held. Finally, a different but incomplete idea on the existence of a non-trivial invariant for a given $T \in B(H)$ with an arbitrary degree of Aluthge tranform of an arbitrary power of this operator will be discussed.

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