

SEMINARIO DE ANÁLISIS Y APLICACIONES

Viernes, 13 de mayo de 2011

11:30 h., Módulo 17 (antiguo C-XV) - Aula 520 (Depto. Matemáticas UAM)

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The invariant subspace problem
vs.
composition operators

Resumen:

A remarkable result by Nordgren, Rosenthal and Wintrobe states that the *Invariant Subspace Problem* is equivalent to the fact that any minimal invariant subspace for a composition operator C_φ induced by a hyperbolic automorphism φ of the unit disc \mathbb{D} in the Hardy space \mathcal{H}^2 is one dimensional.

Indeed, Nordgren, Rosenthal and Wintrobe's result may be restated as follows: if C_φ is a composition operator induced by a hyperbolic automorphism, any linear bounded operator T on a Hilbert space \mathcal{H} has a closed (nontrivial) invariant subspace if and only if for any Hardy function f that is not an eigenvector of C_φ , there exists a nonzero function g in $\overline{\text{span}}\{f, C_\varphi f, C_\varphi^2 f, \dots\}$, such that

$$\overline{\text{span}}\{g, C_\varphi g, C_\varphi^2 g, \dots\} \neq \overline{\text{span}}\{f, C_\varphi f, C_\varphi^2 f, \dots\}$$

Motivated by Nordgren, Rosenthal and Wintrobe's Theorem, we will discuss some recent results obtained in this context on (non-)minimal invariant subspaces generated by Hardy functions.