SEMINARI D'ANÀLISI UAB-UB **Curs 2010–2011**

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Nevanlinna domains and univalent functions in invariant subspaces

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ABSTRACT: The concept of a Nevanlinna domain have been recently appeared in problem of uniform approximation by polyanalytic functions. By definition, a bounded simply connected domain $\Omega \subset \mathbb{C}$ is called a Nevanlinna domain if there exist two funcitons $u_1, u_2 \in H^\infty(\Omega)$ such that the equality $\bar{z} = u_1(z)/u_2(z)$ holds almost everywhere on $\partial\Omega$ in the sense of conformal mapping. In the talk it is planned to discuss analytic and geometrical properties of Nevanlinna domains. The special attention will be given to regularity of boundaries of Nevanlinna domains. Several constructions of Nevanlinna domains with sufficiently irregular boundaries will be presented. It turned out that the question of existence of such constructions brings us to a question ofn existence of univalent functions with prescribed boundary behavior in the spaces $H^2 \ominus \theta H^2$, where θ is some inner function in the unit disk