

Title: Universality and regularity of the integration operator

Speaker: Vassili Nestoridis, University of Athens

Let Y denote the space of holomorphic functions in a planar domain Ω , such that the derivatives of all orders extend continuously to the closure of Ω in the plane \mathbb{C} . We endow Y with its natural topology and let X denote the closure in Y of all rational functions with poles off the closure of Ω . Some universality results concerning Taylor series or Padé approximants are generic in X . In order to strengthen the above results we give a sufficient condition of geometric nature assuring that $X=Y$. In addition to this, if a Jordan domain Ω satisfies the above condition, then the primitive F of a holomorphic function f in Ω is at least as smooth on the boundary as f , even if the boundary of Ω has infinite length. This led us to construct a Jordan domain Ω supporting a holomorphic function f which extends continuously to the closure of Ω , such that its primitive F is even not bounded in Ω . Finally we extend the last result in generic form to more general Volterra operators.

This is based on a joint work with Ilias Zadik.