THE RUDIN-CARLESON PROPERTY FOR PLANAR VECTOR FIELDS

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Abstract

Consider a subset E of the boundary $\mathbb{T}$ of the unit disc $D \subset \mathbb{C}$ and a complex valued continuous function f defined on E. The Rudin-Carleson theorem states that there exists a continuous function F on $\overline{D}$ which is holomorphic on D, coincides with f on E and satisfies $\sup |F| \leq \sup |f|$. We discuss the validity of the analogous result when the algebra of holomorphic functions is replaced by the algebra of homogeneous solutions of a given locally solvable real analytic vector field L defined on a neighborhood of $\overline{D}$.

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