Geometry of curves and Beurling type operators

(joint work with K. Astala)

Abstract

Given a quasicircle Γ, we study the relation between the geometric properties of Γ and the dilatation μ of a quasiconformal mapping that sends the real line onto Γ. Denoting by S the Beurling operator, we characterize BJ curves in terms of the boundedness of the operator $(I - \mu S)$ on a particular weighted L^2 space, and chord-arc curves in terms of its invertibility.