Univalent functions in several spaces of holomorphic functions

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Abstract

In the talk we will show that univalent functions in several classical function spaces can be characterized by integral conditions involving the maximum modulus function. For a suitable choice of parameters the established condition or its appropriate variant reduces to a known characterization of univalent functions in the Hardy or the weighted Bergman space, and gives a new characterization of univalent functions in several Möbius invariant function spaces such as BMOA, Q_p or the Bloch space. It is proved, for example, that univalent functions in the Dirichlet type space $\mathcal{D}^p_{p+\alpha}$ are the same as the univalent functions in H^p_α and S^p_α if $p \geq 2$. Moreover, it is shown that there is in a sense a much smaller Möbius invariant subspace of the Bloch space than Q_p still containing all univalent Bloch functions.

Joint work with Jouni Rättyä (University of Joensuu, Finland).