COMPOSITION OPERATORS ON HARMONIC EXTENSIONS OF CLASSICAL BANACH SPACES OF ANALYTIC FUNCTIONS

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ABSTRACT. By a harmonic mapping we mean a complex-valued function on a domain in $\mathbb{C}$ whose Laplacian is identically zero. In this talk, we consider several spaces of harmonic mappings that are extensions of familiar analytic function spaces defined on the open unit disk $\mathbb{D}$ in the complex plane. Specifically, we study the linear structure of the harmonic counterparts of the α-Bloch spaces, the growth spaces, the Besov spaces, and the Zygmund space. We also extend several known properties valid for the analytic case to the harmonic setting. Given an analytic self-map φ of $\mathbb{D}$, we study the composition operator $C_\varphi : f \mapsto f \circ \varphi$ acting on such spaces. We characterize boundedness, compactness, describe the isometries and the eigenfunctions of C_φ. This is joint work with Munirah Aljuaid.

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