THE BLOCH SPACE: FUNCTION- & OPERATOR-THEORETIC PERSPECTIVES

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An analytic function on the open unit disk $\mathbb{D} = \{z \in \mathbb{C} : |z| < 1\}$ is said to be Bloch if

$$\sup_{z \in \mathbb{D}} (1 - |z|^2) \left| f'(z) \right| < \infty.$$

The Bloch space is the set of all Bloch functions. In the study of Banach spaces of analytic functions, the Bloch space is ubiquitous. This talk will focus on the characteristics of Bloch functions and the Banach space structure. I will also discuss the relationship of the Bloch space to other well-studied spaces, such as the Bergman and Besov spaces. I will finish the talk with an example of the interplay between function theory and operator theory. This example comes from a recent paper of Flavia Colonna where the author characterizes the symbols which induce isometric composition operators on the Bloch space.