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Spectra of Linear Fractional Composition Operators in Several Variables. Preliminary report.

Linear fractional maps on the complex plane that carry the open unit disk into itself play a central role in developing and understanding the theory of composition operators on the classical spaces of functions analytic on the disk. Linear fractional maps in several variables generalize classical linear fractional maps in the complex plane; for example, the class of linear fractional maps that carry the unit ball in \mathbf{C}^N into itself include the automorphisms of the ball.

Previous work of Barbara MacCluer and the speaker studied basic properties of these linear fractional maps and showed that they induce bounded composition operators on the Hardy spaces and some weighted Bergman spaces of functions analytic in the unit ball in \mathbf{C}^N . In addition, the adjoints of these composition operators were computed for the Hardy and Bergman Hilbert spaces.

In this talk, we will review the earlier work on linear fractional composition operators in several variables and present new work on the spectra of these operators. (Received September 18, 2000)