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Erin E. M. Rizzie* (rizziee@purdue.edu). *Some results in the study of multiple-valued composition operators.* Preliminary report.

Given an analytic self-map φ of the complex unit disk, the composition operator C_φ is defined on $H^2(\mathbb{D})$ by the equation $C_\varphi f = f \circ \varphi$. Composition operators on H^2 have been studied extensively since the 1960s. In 1996, C. Cowen and E. Gallardo-Gutierrez extended this concept by defining the *multiple-valued composition operator* C_φ by $C_\varphi f = \sum f \circ \varphi_i$, where the sum is taken over all branches φ_i of a multivalued function φ , as occurs in the case of the inverse of a non-injective function. This definition was conceived by Cowen and Gallardo-Gutierrez when operators of this form appeared as adjoints of composition operators. However, these operators have not yet been studied much further. This talk will discuss some results in the study of multiple-valued composition operators. (Received September 16, 2014)