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**Katie Spurrier Quertermous\*** (querteks@jmu.edu), Department of Mathematics and Statistics, MSC 1911, James Madison University, Harrisonburg, VA 22807. *Fixed Point Composition and Toeplitz-Composition C\*-algebras.*

Let  $\varphi$  be an analytic self-map of the unit disk  $\mathbb{D}$ , and let  $H^2(\mathbb{D})$  denote the Hardy space of the disk. We define the composition operator  $C_\varphi$  by  $C_\varphi f = f \circ \varphi$  for all  $f \in H^2(\mathbb{D})$ . We are particularly interested in composition operators induced by linear-fractional, non-automorphism self-maps of  $\mathbb{D}$  that fix a given point  $\zeta$  on the unit circle and satisfy  $\varphi'(\zeta) \neq 1$ .

In this talk, we consider C\*-algebras generated by a composition operator of this form and either the unilateral shift  $T_z$  or the ideal  $\mathcal{K}$  of compact operators. We identify the structures of these C\*-algebras, modulo the ideal of compact operators, and calculate the essential spectra of a class of algebraic combinations of composition operators. By combining our results with the work of Jury and Kriete, MacCluer, and Moorhouse, we obtain a full description of the structures of the C\*-algebras  $C^*(T_z, C_\varphi)/\mathcal{K}$ , where  $\varphi$  is any linear-fractional self-map of  $\mathbb{D}$ . (Received January 16, 2012)