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*Composition operators and endomorphisms.*

Under appropriate technical hypotheses, a local homeomorphism  $\sigma$  of the circle induces both bounded operators  $\Gamma_\sigma$  on Hilbert spaces associated to the circle, and \*-endomorphisms  $\pi_\sigma$  of various function algebras associated to the circle. We study some questions related to these objects— for example, under what circumstances is there a \*-endomorphism of the appropriate Toeplitz  $C^*$  algebra sending the Toeplitz operator with symbol  $f$  to a compact perturbation of the Toeplitz operator with symbol  $\pi_\sigma(f)$ ? How are properties of  $\sigma$  reflected in various  $C^*$  algebras associated to the operator  $\Gamma_\sigma$ ? We have partial answers to these questions and some guesses about what we do not know. (Received April 11, 2010)