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Toeplitz operators defined by sesquilinear forms

The classical theory of Toeplitz operators in spaces of analytic functions (Hardy, Bergman, Fock, etc spaces) deals usually with symbols that are bounded measurable functions on the domain in question. A further extension of the theory was made for symbols being unbounded functions, measures, and compactly supported distributions.

For reproducing kernel Hilbert spaces we describe a certain common pattern, based on the language of sesquilinear forms, that permits us to introduce a further substantial extension of a class of admissible symbols that generate bounded Toeplitz operators. Although the approach is unified for all reproducing kernel Hilbert spaces, for concrete operator consideration in this talk we restrict ourselves to Toeplitz operators acting on the standard Fock and Bergman spaces, as well as, on the Herglotz space of solutions of the Helmholtz equation.

The talk is based on a joint work with Grigori Rozenblum, Chalmers University of Technology, Gothenburg, Sweden.