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A survey of invariant Hilbert spaces of analytic functions on bounded symmetric domains.
(English) [Zbl 0831.46014](#)

Curto, Raúl E. (ed.) et al., Multivariable operator theory. A joint summer research conference on multivariable operator theory, July 10-18, 1993, University of Washington, Seattle, WA, USA. Providence, RI: American Mathematical Society. Contemp. Math. 185, 7-65 (1995).

This paper is a survey of recent developments concerning Hilbert spaces H of analytic functions on bounded symmetric domains D which are invariant under biholomorphic automorphisms of D , as well as the representation theory of these automorphism groups. The survey is written for a general audience of functional analysts, and some of the works cited are in preprint form.

After reviewing E. Cartan's classification of D and the Jordan triple product, the author presents various ways of describing H , including the work of *J. Faraut* and *A. Koranyi* [*J. Funct. Anal.* 88, No. 1, 64-89 (1990; [Zbl 0718.32026](#))] and joint work of the author with *S. D. Fisher* [*Oper. Theory: Adv. Appl.* 48, 67-91 (1990; [Zbl 0733.46011](#))], as well as extensions by the author of work by *Z. Yan* to invariant inner products for Cartan tube domains. He illustrates some of the results by formulating them in case D is a classical Cartan domain regarded as a space of complex matrices or as the unit ball in complex n -space, where formulas for the inner products on H are derived. There are many highly technical results drawing upon various fields of both classical and functional analysis.

For the entire collection see [[Zbl 0819.00022](#)].

Reviewer: [J.V.Whittaker \(Vancouver\)](#)

MSC:

- [46E20](#) Hilbert spaces of continuous, differentiable or analytic functions
- [32M15](#) Hermitian symmetric spaces, bounded symmetric domains, Jordan algebras (complex-analytic aspects)
- [43A85](#) Harmonic analysis on homogeneous spaces
- [46H70](#) Nonassociative topological algebras
- [32A25](#) Integral representations; canonical kernels (Szegő, Bergman, etc.)

Cited in **22** Documents

Keywords:

[Bergman kernel](#); [Peter-Weyl decomposition](#); [Hilbert spaces of analytic functions on bounded symmetric domains](#); [invariant under biholomorphic automorphisms](#); [Jordan triple product](#); [invariant inner products for Cartan tube domains](#)