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**Gestur Olafsson\*** (olafsson@lsu.edu), Louisiana State University, Department of Mathematics, Lockett Hall, Baton Rouge, LA 70803, and **Jens G. Christensen** and **Amer H. Darweesh**.

*Projective representations, coorbits and Bergman spaces.*

Representation of topological groups are powerful tool to analyze Banach spaces of functions and distributions. Representation theory provides a unified framework for constructing function spaces and to study several generalizations of the wavelet transform. Recently representation theory has been used to provide atomic decompositions for a large collection of classical Banach spaces. But in some natural situations, including Bergman spaces on bounded domains, representations are too restrictive. The proper tools are projective representations. In this talks we discuss recent work with J. Christensen and A. Darweesh on coorbit spaces for projective representations. This leads naturally to twisted convolution, a well known idea from the Heisenberg group. We discuss some examples, the main one being atomic decompositions of Bergman spaces on the unit ball through the holomorphic discrete series for the group of isometries of the ball. (Received February 02, 2018)