1176-33-142 William Riley Casper* (wcasper@fullerton.edu), Department of Mathematics, California State University Fullerton, Department of Mathematics, California State U, Fullerton, CA 92831. Matrix Bochner Problem.

We present a solution of the matrix Bochner problem, a long-standing open problem in the theory of orthogonal polynomials. Our solution is based on ideas applied by Krichever, Mumford, Wilson and others, wherein the structure of an algebra of differential operators influences the values of the operators within the algebra. By using a similar idea, we convert the matrix Bochner problem to one about noncommutative algebras of GK dimension 1 which are module finite over their centers. Then the problem is resolved using the representation theory of these algebras. (Received January 19, 2022)