

1016-33-118

Mirta Castro and **F. Alberto Grunbaum*** (grunbaum@math.berkeley.edu), math dept, UC Berkeley, Berkeley, CA 94720. *Matrix valued orthogonal polynomials and differential equations*. Preliminary report.

The subject of matrix valued orthogonal polynomials was introduced around 1950 by MG Krein. The problem of studying those that satisfy second order differential equations was raised by A. Duran and studied by several people, including A. Duran, I. Pacharoni, and J. Tirao.

In this paper we consider the "ad-conditions" that originate in joint work of one of us and H. Duistermaat, and further looked at in joint work with P. Iliev, to produce instances of "bispectral situations" where both operators have order one. The full solution of the corresponding Bochner problem, raised by A. Duran, requires extending these tools to the case when both operators have order two. (Received February 07, 2006)