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**Mirta Castro** and **F. Alberto Grunbaum\***, math dept, UC Berkeley, Berkeley, CA 94720. *The algebra of differential operators going with a family of matrix valued orthogonal polynomials.*

Given a family of matrix valued orthogonal polynomials ( a notion introduced by MG Krein around 1950) one can ask for the structure of the set of differential operators that have this as a joint family of eigenfunctions. The coefficients of the operators as well as the eigenvalue parameters are matrix valued.

In a few instances we can describe the non-commutative algebra in question, in a fairly explicit fashion: we give generators and relations.

In the much simpler case of scalar valued functions of two variables, one representing physical space and the other a spectral parameter, this sort of question goes back (at least) to work of Burchnell and Chaundy and more recently to work of I. Krichever in connection with integrable equations such as KdV. (Received February 07, 2006)