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A matrix valued version of the bispectral problem

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Abstract

I will discuss the present state of the search for matrix valued polynomials $P_n(x)$ that satisfy both a 3-term recursion equation in n as well as being joint eigenfunctions for a fixed differential operator in x . This has connections with other parts of mathematics and I will show some applications to stochastic processes that arise in the study of matrix valued spherical functions for certain symmetric spaces.

Joint work with several people.