

SESSION—Orthogonal polynomials, special functions and their relation to discrete integrable systems and their elliptic analogs

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TITRE/TITLE : "SUPERINTEGRABLE SYSTEMS OF SECOND ORDER, RECOUPLING OF LIE ALGEBRA REPRESENTATIONS AND THE DISCRETE BRANCH OF THE ASKEY SCHEME" BY *VINCENT GENEST*

In this mini-course, I will discuss the connection between superintegrable systems of second order, the recoupling of representations of the Lie algebra $\mathfrak{sl}(2)$, and the discrete part of the Askey scheme of hypergeometric orthogonal polynomials. I will focus on the rank-one, rational case, which is associated to 2nd order superintegrable systems in two dimensions and orthogonal polynomials in one variable. I will give indications on recent results on the higher rank and trigonometric (q -deformed) cases.

TITRE/TITLE : "ELLIPTIC HYPERGEOMETRIC SERIES AND BIORTHOGONALITY" BY *FOKKO VAN DE BULT*

These lectures will focus on a generalization of the orthogonal polynomials in the Askey scheme. We will start by introducing elliptic hypergeometric series and integrals, a generalization of ordinary and q -hypergeometric series. There are many different families of orthogonal polynomials in the Askey scheme, all which can be written using hypergeometric series. For the elliptic hypergeometric series extension however there is just *one* family of *bi*orthogonal functions. We will study a few of the properties of these functions. Time permitting we will sketch the multivariate extensions.