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*Multifold tensor product modules of $su_q(1,1)$, trigonometric superintegable systems, and multivariate $q$-special functions*

In this talk, I will explain how to construct separated wavefunctions for $q$-analogs of second-order superintegrable systems in any dimension. The construction is based on the decomposition of multifold tensor product modules of the quantum algebra $su_q(1,1)$ in irreducible components using multivariate $q$-special functions of $q$-Hahn or $q$-Jacobi type as generalized recoupling coefficients.