
Fri 14th Oct, 10h30am

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Title:

From Koornwinder operators to cluster algebra:
Proof of the Macdonald-Q-system conjecture

Abstract

We present various constructions of commuting difference operators for the theory of Koornwinder polynomials. We show how a specialization/limiting procedure produces a functional representation for quantum Q-system cluster algebras associated to affine and twisted types A,B,C,D, also interpreted as discrete algebraic quantum integrable systems. The correspondence uses Koornwinder duality and a suitable Fourier-Whittaker transform allowing to interpret Koornwinder polynomial Pieri rules as relativistic Toda systems. (Based on joint work with Rinat Kedem).