ICM 1998, Berlin, Aug. 18–27

Abstracts of Short Communications and Posters

Section:

11. Mathematical Physics

1991 MS Classification: 17, 33, 81

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q-Hypergeometric solutions of the quantized Knizhnik-Zamolodchikov equation

The quantized Knizhnik-Zamolodchikov (qKZ) equation is a system of difference equations defined in terms of R-matrices — solutions of the Yang-Baxter equation. In some cases the qKZ equation can be identified with a periodic section equation for the discrete Gauss-Manin connection associated with a discrete local system. So one can construct solutions of the qKZ equation as multidimensional q-hypergeometric integrals. The construction involves a pairing of certain spaces of (elliptic) rational functions, which is a deformation of the canonical pairing of the twisted de Rham cohomologies and homologies. The q-hypergeometric solutions allow to calculate transiton functions between asymptotic solutions of the qKZ equation and express them via another R-matrices, in a form similar to the Kohno-Drinfeld theorem on the monodromies of the differential Knizhnik-Zamolodchikov equation.