

Friday, March 8th (at 4.00pm, UK time)

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Title: Complex crystallographic groups and Seiberg-Witten integrable systems.

ABSTRACT

For any smooth complex variety Y with an action of a finite group W , P. Etingof defines the global Cherednik algebra H_c and its spherical subalgebra B_c as certain sheaves of algebras over Y/W . When Y is an n -dimensional abelian variety, the algebra of global sections of B_c is a polynomial algebra on n generators, as shown by Etingof, Felder, Ma, and Veselov. This defines an integrable system on Y .

In the case of Y being a product of n copies of an elliptic curve E and $W=S_n$, this reproduces the well-known elliptic Calogero-Moser system. Recently, together with P. Argyres and Y. Lu, we proposed that many of these integrable systems at the classical level can be interpreted as Seiberg-Witten integrable systems of certain super-symmetric quantum field theories.

In this (mathematical!) talk I will mostly focus on the case of groups W of rank one, related to elliptic curves with Z_m symmetry ($m=2,3,4,6$), which is already rather interesting.

This is based on arXiv:2309.12760.
