Double derivations and Cherednik algebras for algebraic curves

Oleg Chalykh (Leeds)

For any smooth complex variety Y with an action of a finite group G, Etingof defined a family of (sheaves of) associative algebras $H(Y, G)$, which specialize to the (rational) Cherednik algebras in the case of a finite reflection group acting on a vector space. An interesting special case of his definition is $Y = X^n$, the n-fold product of a smooth algebraic curve X, with the natural action of the symmetric group S_n.

I will explain a link between $H(X^n, S_n)$ and the deformed preprojective algebras on X due to Crawley-Boevey. This realises a suggestion by I.Gordon and leads to a canonical presentation of $H(X^n, S_n)$ by generators and relations. We will further use it to compare two definitions of Calogero-Moser spaces for X.

(This is based on a joint work with Yu.Berest.)