

CURRENT RESEARCH INTERESTS CONNECTED TO CLUSTER ALGEBRAS THEORY

DAVID HERNANDEZ

I am currently interested in the relations between cluster algebras and the representation theory of quantum affine algebras.

In the context of monoidal categorification of cluster algebras [HL], it is useful to establish the binarity property for tensor products of irreducible objects in certain monoidal categories : a tensor product of irreducible objects is irreducible is and only if, two by two, the tensor products are irreducible. By extending a result with Bernard Leclerc [HL], I proved this property [H] for the (full) tensor category of finite dimensional representations of a quantum loop algebras.

Recently, in a joint work in progress with Bernard Leclerc, we have shown that the t -deformed Grothendieck rings of certain tensor categories of representations of quantum loop algebras of type ADE, have a quantum cluster algebra structure (see the abstract of Bernard Leclerc).

REFERENCES

- [H] **D. Hernandez**, *Simple tensor products*, Invent. Math. **181** (2010), no. 3, 649–675
- [HL] **D. Hernandez and B. Leclerc**, *Cluster algebras and quantum affine algebras*, Duke Math. J. **154** (2010), 265–341

UNIVERSITÉ PARIS 7, INSTITUT DE MATHÉMATIQUES DE JUSSIEU, 175, RUE DU CHEVALERET
75013 PARIS - FRANCE