Yann Palu - **current interests**

Cluster algebras can be categorified by means of certain triangulated categories. In that context, clusters correspond to some specific objects: the maximal rigid objects. Reflecting the mutation of clusters, a mutation theory for maximal rigid objects has been studied extensively. I am currently interested, in collaboration with Robert Marsh, in the mutation theory of (not necessarily maximal) rigid objects, as it resembles the mutation theory of maximal rigid objects in d-Calabi–Yau categories. Inspired by [BT09] we studied, in [MP], the combinatorics of these mutations in terms of coloured quivers. This included, in particular, the case of the Amiot cluster categories associated with Riemann surfaces. In that setup, it was proved in [BZ10] that rigid objects correspond to partial triangulations. We proved that Iyama–Yoshino reduction at the categorical level corresponds to cutting along arcs in the associated Riemann surface.

We are now tackling the following problem:

As proved in [BMR07], mutations of maximal rigid objects in cluster categories induce nearly-Morita equivalences (in the sense of Ringel) between their endomorphism algebras. Does this phenomenon hold in the non-maximal case? Even though it is easily seen to fail in most cases, some weaker kinds of Morita equivalence do hold.

References

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