

## Alternating diagrams and non-commutative cluster Lagrangians

*mercredi 9 juillet 2025 14:00 (1 heure)*

Given a bipartite graph  $G$  on a possibly punctured surface  $S$ , there is a (non-commutative) cluster Poisson variety  $X(G,S)$ . It depends only on the equivalence class of  $G$  under certain elementary transformations. A threefold  $M$  which bounds the surface  $S$  with filled punctures gives rise to a Lagrangian in the generic symplectic fibers of  $X(G,S)$ . I will explain that it carries a natural non-commutative cluster symplectic structure. The construction requires a 3d generalization of bipartite surface graphs. The talk reflects joint work with Maxim Kontsevich.

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