

# *Courant algebroids and representations up to homotopy*

## Abstract:

Classical Lie theory gives a pair of adjoint functors, differentiation and integration between the category of (finite dimensional) Lie algebras and that of Lie groups. Categorification of Lie algebras and Lie groups gives us Lie 2-algebras and Lie 2-groups respectively. Even higher Lie algebra(oid)s and Lie group(oid)s can be achieved through the homotopy Lie operad and Kan complexes respectively. Courant algebroids, showing up in Poisson geometry, higher symplectic geometry, and generalized complex geometry, give rise to an important example of Lie 2-algebroids. In this talk, we will show that under a higher representation theory, representation up to homotopy, Courant algebroids can be realized as semidirect products and thus their integration can be performed easily.

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