Categorification problems in algebraic topology and algebraic geometry
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The dictionary faisceau / fonction proved to be an invaluable tool in algebraic geometry and geometric representation theory. For instance the classical Hecke algebra of a reductive group G is categorified by the category of equivariant perverse sheaves on the affine Grassmannian together with its convolution product, a key ingredient of the geometric Langlands program.

In recent years, many researchers tried to scale up the dictionary faisceau fonction, further categorifying sheaves (of spaces) by considering sheaves of categories. Among the most successful results in this direction, let me mention Toën's work on derived Azumaya algebras, Gaitsgory's work on 1-affineness and Toda-Padurariu work on categorified Donaldson-Thomas invariants.

In this talk I will survey this type of problems, focusing on two novel results : the categorification of Beauville-Laszlo's theorem, and an explicit obstruction to 1-affineness in the topological setting. This is based on joint work with Federico Binda, Owen Gwilliam, Peter Haine, Julian Holstein and Jean-Baptiste Teyssier.