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Titre : Introduction to shifted symplectic structures

Résumé : The purpose of the series of lectures is to introduce the notion of shifted symplectic structures, a generalization of symplectic structures in the context of derived algebraic geometry. It will start with two motivating examples : the moduli stack of sheaves on CY manifolds, and representations of the fundamental group of a compact oriented manifold.

I will then present the formalism of derived algebraic geometry and explain some construction techniques (derived mapping spaces, derived fiber products). In the last part these techniques will be used to define shifted symplectic structures, and to state the main existence theorem : the derived mapping space (or stack) from an oriented object (e.g. a CY variety) towards a shifted symplectic target carries a canonical shifted symplectic structure.

The two motivating examples of sheaves on a CY, and of linear representations of fundamental groups, will be considered again as instances of applications of this general existence theorem.