

Wendy Lowen : **Box operads and noncommutative schemes**

mercredi 14 juin 2023 11:00 (1 heure)

In this talk, we discuss how the concept of algebraic deformation theory, dating back to Gerstenhaber's deformation theory of algebras, can be applied in geometry leading to 'noncommutative schemes' in the sense of Van den Bergh. In the first part of the talk, we focus on models in projective geometry, like graded algebras and \mathbb{Z} -algebras, and we describe deformations as 'noncommutative projective schemes' under the assumption that $H^1(X, \mathcal{O}_X) = 0 = H^2(X, \mathcal{O}_X)$. In the second part of the talk, we take a local approach to schemes by deforming the structure sheaf, leading to 'twisted presheaves' or 'prestacks' in case $H^2(X, \mathcal{O}_X)$ is non-zero. Finally, we present an operadic structure on the Gerstenhaber-Schack complex of a prestack recently established in joint work with Hoang Dinh Van and Lander Hermans. This yields an underlying L_{∞} structure governing deformations of prestacks.