Du
**09**
AVR.
2014

14h00
-
15h00

**RÉGA**

**Yiannis Vlassopoulos "An introduction to Calabi-Yau algebras"**

IHP
Salle 314

Yiannis Vlassopoulos (IHES)
An introduction to Calabi-Yau algebras

An $A_\infty$ algebra $A$ is a generalization of a differential graded algebra where associativity of the multiplication holds only up to higher homotopies (which take the form of tensors $A^{\otimes n} \to A$ for $n \geq 3$).
A Calabi-Yau (CY) structure on an $A_\infty$ algebra is a kind of duality theory. From an algebra with CY structure one can construct a Topological Quantum Field Theory (TQFT), namely an algebra over a dg-PROP of chains in the moduli space of curves with marked points. We will explain the definitions and classification results. Moreover we will show the TQFT construction as well as some examples of CY algebras among which are: 1) the cohomology algebra of a closed, compact, oriented manifold along with higher Massey products, 2) the cohomology of the dg-algebra of Dolbeault forms with values in the endomorphisms of a holomorphic vector bundle on a CY manifold (also with higher Massey type products).
Other examples are expected to be related to the string topology of Chas-Sullivan and to the Fukaya category of a symplectic manifold.

**INSTITUT HENRI POINCARÉ**

11 rue Pierre et Marie Curie
75231 Paris Cedex 05

**HORAIRES**

Lundi au vendredi : 8h30 à 18h
Fermé les jours fériés