

Séminaire de matrices, cordes et géométries aléatoires

Lundi 14/10/2019, 15:30-16:30

Orme des Merisiers Pièce 35, Bât. 774

**F-theory/Heterotic Duality in 8d: elliptically fibered K3s
from Wilson lines**

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F-theory compactified on elliptically fibered K3 surfaces are believed to be dual at the quantum level to the heterotic string compactified on a 2-torus with Wilson lines. An interesting approach to construct the duality maps between the parameters of the moduli spaces of both theories has been to use reflexive polyhedras in order to build elliptically fibered K3s. However these duality maps have been found for only two out of the 4319 different K3 surfaces obtained via reflexive polyhedras. After an introduction on F-theory and the construction of elliptically fibered K3s I will show that if we focus on particular reflexive polyhedras that are linked in some way to the $E_8 \times E_8 / \frac{Spin(32)}{\mathbb{Z}_2}$ polytope, we can find the Wilson line structure of the dual heterotic string. It is then possible to construct elliptically fibered K3s from Wilson lines appearing in its dual heterotic string and have interesting prospects as to construct other duality maps.
