國立中山大學應用數學系
學術演講

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講　題：Effective action from M-theory on twisted connected sum G2-manifolds

時　間：2018/03/29（星期四）15:30 ~ 16:30

地　點：理學院四樓理 SC 4009-1 室

茶　會：15:00 於理 SC 4010 室 (系辦公室)

摘 要

In physics, M-theory compactifications on seven-dimensional manifolds with G2 holonomy offer the opportunity to geometrically study the properties of N = 1 effective theories in a setting that is non-perturbative from the superstring point of view. For a long time there were only about a hundred examples of G2-manifolds constructed by the resolution of special orbifolds of seven dimensional torus. In this talk I will introduce a new construction of G2-manifolds proposed by Kovalev, and determine the Hitchin functional, the universal (semi-classical) Kahler potential of the effective N = 1 supergravity action, as a function of the Kovalevton and the volume modulus of the G2-manifold. We describe geometric degenerations in G2-manifolds, which lead to non-Abelian gauge symmetries enhancements with various matter content. Studying the resulting gauge theory branches, we argue that they lead to transitions compatible with the gluing construction and provide many new explicit examples of G2-manifolds.

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