Institut Henri Poincaré

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String Theory in Greater Paris

Rencontres Théoriciennes

“Supergravité, théorie des cordes et théorie M”

Jeudi 7 Mai 2015, 10:00

Philip Candelas

U. of Oxford

Geometry and Arithmetic of Two One-Parameter Special Geometries

Recently, as part of a project to find CY manifolds for which both the Hodge numbers (h^{11}, h^{21}) are small, manifolds have been found with Hodge numbers (4,1) and (1,1). The one-dimensional special geometries of their complex structures are more complicated than those previously studied. I will review these, emphasising the role of the fundamental period and Picard-Fuchs equation. Two arithmetic aspects arise : the first is the role of $\zeta(3)$ in the monodromy matrices and the second is the fact, perhaps natural to a number theorist, that through a study of the CY manifolds over finite fields, modular functions can be associated to the singular manifolds of the family.

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