

## **Calabi-Yau modular forms**

Hossein Movasati, IMPA

In this talk I will first formulate an algebro-geometric framework in which  $q$ -expansions of the B-model of topological string theory become natural generalizations of elliptic modular forms. These  $q$ -expansions will be elements of the algebra of the so called Calabi-Yau modular forms. I will discuss many similarities and differences between Calabi-Yau and elliptic modular forms. This includes Ramanujan-type differential equations, functional equations, conifold cusp, some product formulas, gap condition, Hecke operators, growth of the coefficients of  $q$ -expansions etc. The talk is mainly based on the monograph Gauss-Manin connection in disguise: Calabi-Yau modular forms available at <http://w3.impa.br/~hossein/myarticles/GMCD-MQCY3.pdf>