Hodge Loci and Complex Multiplication via Generalized Symmetries in Calabi-Yau sigma models

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Abstract

I will propose a sigma-model analogue of Hodge loci in the moduli space of geometric Calabi-Yau compactifications, characterized by the emergence of non-trivial rational Hodge endomorphisms, using generalized symmetries. In the CFT description, the complex cohomology is spanned by Ramond-Ramond ground states, the Hodge decomposition is determined by the $U(1)\times U(1)$ $R-charges, and the rational structure is provided by BPS boundary states, with polarizatio trivial category TDL of topological defects preserving the ${N} = (2, 2)$ superconformal algebra and acting inverti flow generators. At special points on the se loci, the category TDL exhibits additional arithmetic structure and admits

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