

mock modular forms and 3-manifolds

Francesca Ferrari, SISSA (Trieste)

In this talk, I describe the connection between mock modular forms and the homological blocks of certain closed connected 3-manifolds. When the 3-manifold is a Seifert manifold, described by a negative-definite plumbing, the homological block is related to false theta functions and characters of logarithmic CFTs. On the other hand, the topological invariant associated to the oppositely oriented 3-manifold is a more mysterious object, which happens to be related to (the theory of) mock modular forms. The talk investigates the appearance of mock theta functions in the study of the topology of 3-manifolds.