



北京理工大学

数学与统计学院学术报告

A-infinity structure constants of the Fukaya category of symplectic torus, and mock modular forms

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摘要: For a symplectic manifold, the generating functions arising from genus zero open Gromov-Witten invariants give the structure constants for the A infinity-structure (i.e., the homotopy version of associative algebra structure) in the Fukaya category. On the one hand, having a clear understanding of these functions is very useful to test ideas and conjectures in homological mirror symmetry; on the other hand, these functions frequently exhibit nice transformation properties, making them interesting on their own in the theory of modular forms.

In this talk, I will focus on the case of the simplest Calabi-Yau manifolds, namely elliptic curves. I will explain how these generating functions are reduced to counting functions of planar polygons, following Polishchuk-Zaslow. I will then explain what mock modular forms are and why these generating functions are mock modular forms.

The talk is based on joint works with Kathrin Bringmann and Jonas Kaszian.