Representation and Number Theory Seminar

Geometry of the Gopakumar-Vafa theory

by

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Abstract:

Motivated by classical enumerative geometry and mathematical physics, counting curves in Calabi-Yau *3*-folds has been studied intensively for decades, including Gromov-Witten theory and Donaldson-Thomas theory. In recent years, mathematical theory (Hosono-Takahashi-Saito, Kiem-Li, Maulik-Toda etc) has been developed to realize the idea of Gopakumar and Vafa to recover the curve-counting invariants using the geometry of 1-dimensional sheaves. These developments shed new light on both enumerative geometry and the classical geometry of the relevant moduli spaces. I will discuss 3 particular cases (1) Higgs bundles (2) *K3* surfaces, and (3) P^2, where the Gopakumar-Vafa theory interacts with some other structures and conjectures in a surprising way.

Date : March 9, 2021 (Tuesday)
Time : 9:00am – 10:00am (Hong Kong SAR)
Zoom link :
https://cuhk.zoom.us/j/97838822137?pwd=ZTVvSC9abmNjR3RCcS9FTzJNTVhXdz09
Meeting ID: 978 3882 2137
Passcode : sesame

All are Welcome