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# *Joint Harvard-CUHK-YMSC Differential Geometry Seminar*

## **Gopakumar-Vafa type invariants of holomorphic symplectic 4-folds**

Abstract: Gromov-Witten invariants of holomorphic symplectic 4-folds vanish and one can consider the corresponding reduced theory. In this talk, we will explain a definition of Gopakumar-Vafa type invariants for such a reduced theory. These invariants are conjectured to be integers and have alternative interpretations using sheaf theoretic moduli spaces. Our conjecture is proved for the product of two K3 surfaces, which naturally leads to a closed formula of Fujiki constants of Chern classes of tangent bundles of Hilbert schemes of points on K3 surfaces. On a very general holomorphic symplectic 4-folds of  $K3^2$  type, our conjecture provides a Yau-Zaslow type formula for the number of isolated genus 2 curves of minimal degree. Based on joint works with Georg Oberdieck and Yukinobu Toda.

By

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**Date:** April 6, 2022 (Wednesday)  
**Time:** 9:30am – 10:30am (Hong Kong Time)  
**Zoom Link:** <https://cuhk.zoom.us/j/92433760489>  
(Meeting ID: 924 3376 0489; Passcode: 20220406)

*All are Welcome*