For favour of Posting

The Hong Kong University of Science and Technology

Department of Mathematics

Lecture Series on Geometry

by

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Lecture 1:	In this lecture we review special Kaehler geometry of the moduli space of Calabi-Yau threefolds, and introduce the BCOV propagators in the B-model language. We derive a differential graded ring structure and reformulate the holomorphic anomaly equations for the topological string partition functions F_g. ***Title: Special Kaehler geometry of the moduli space of Calabi-Yau threefolds and BCOV propagators*** **Date: Thursday, 31 October 2019** **Time: 1:30pm – 3:30pm** **Venue: Room 5508 (Lifts 25-26)**
Lecture 2:	Variations of Hodge structures of Calabi-Yau threefolds are special instance special Kaehler geometry. In this lecture, we review the relation between the two formulations. This allows us to explicitly compute the BCOV propagators in the holomorphic limit in terms of solutions to linear holomorphic PDE known as Picard-Fuchs equation. We give an overview of how to determine the F_g in this way for a hypersurfaces in a toric variety with two moduli and low g. ***Title: Variations of Hodge structures of Calabi-Yau threefolds*** **Date: Thursday, 31 October 2019** **Time: 3:45pm – 4:45pm** **Venue: Room 5508 (Lifts 25-26)** **Date: Friday, 1 November 2019** **Time: 1:30pm – 2:30pm** **Venue: Room 5510 (Lifts 25-26)**
Lecture 3:	In the holomorphic limit, we describe an equivalent algebro-geometric description of the BCOV propagators and the holomorphic anomaly equation in terms of certain vector fields on an extended moduli space of Calabi-Yau threefolds. This allows us to unveil a previously unknown Lie algebra governing the topological string partition functions F_g. ***Title: A new Lie algebra and the holomorphic anomaly equation*** **Date: Friday, 1 November 2019** **Time: 2:45pm – 4:45pm** **Venue: Room 5510 (Lifts 25-26)**

All are welcome!