THE UNIVERSITY　　　　　　**OF HONG KONG**

Institute of Mathematical Research
Department of Mathematics

GEOMETRY SEMINAR

Semi-orthogonal decompositions and discriminants

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Abstract

　　The derived category of a toric variety can usually be decomposed into smaller pieces, by passing through different birational models and using the 'windows' theory relating VGIT and derived categories. There are many choices involved and the decompositions are not unique. We prove a Jordan-Holder result, that the multiplicities of the pieces are independent of choices.

　　If the toric variety is Calabi-Yau then there are no decompositions, instead the theory produces symmetries of the derived category. Physics predicts that all these symmetries form an action of the fundamental group of the "FI parameter space". I'll explain why our Jordan-Holder result is necessary for this prediction to work, and state a conjecture (recently proven by Huang-Zhou) relating our multiplicities to the geometry of the FI parameter space.

Date:	September 20, 2022 (Tuesday)
Time:	4:00 – 5:00pm
Venue:	ZOOM: https://hku.zoom.us/j/
	Meeting ID: 924 7767 4109
	Password: 234171

All are welcome