THE UNIVERSITY   **OF HONG KONG**

Institute of Mathematical Research
Department of Mathematics

GEOMETRY SEMINAR

One-pointed rigidity of families of polarized manifolds and geometry of moduli spaces

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Date:	Tuesday, November 5, 2024
Time:	4:30 – 5:30pm
Venue:	Rm 210, Run Run Shaw Bldg., HKU

Abstract

Motivated by Shafarevich's conjecture, Arakelov and Parshin proved a notable finiteness result: for any curve C, the set of isomorphism classes of non-constant morphisms $C \to Mg$ is finite for $g \geq 2$. However, for moduli stacks that parametrize higher-dimensional varieties, Arakelov-Parshin's finiteness theorem fails due to the existence of non-rigid families, such as product families. In this talk, we will explain that the presence of product families is essentially the only obstruction—rigidity holds for "1-pointed" curves, where product families are excluded. This 1-pointed rigidity imposes strong restrictions on the deformation spaces of non-rigid families. As an application, we explore how 1-pointed rigidity can be used to study maximal non-rigid families in the corresponding moduli spaces, which can be regarded as "special subvarieties" of moduli spaces.

All are welcome