THE UNIVERSITY OF HONG KONG

Institute of Mathematical Research
Department of Mathematics

C O L L O Q U I U M

Bloch's Jets for Affine Line Image in Abelian Variety and Generalized Techniques of Minimal Rational Curve

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Date:	October 30, 2023 (Monday)
Time:	2:00 – 3:30pm
Venue:	Room 210, Run Run Shaw Bldg., HKU

Abstract

The main theme of the talk is the use of techniques of jet differentiation, first introduced by Bloch.

By using jet differentiation and Nevanlinna theory, Bloch proved in 1926 that the Zariski closure of any nonconstant holomorphic map from $\mathbb{C}$ to an abelian variety is the translate of an abelian subvariety. Block's result can be regarded as a precursor of Mok's recent result that the Zariski closure of the image of an irreducible algebraic subset, under the uniformization map of a ball quotient is totally geodesic. This motivates further study of Bloch's techniques in more general settings of uniformization maps.

Higher-order jet differentiation can be used to study the global nondeformability problem of an irreducible compact Hermitian symmetric manifold, without the Kähler condition. The Kähler case was solved by Hwang and Mok in 2005 by using the criss-cross (or non-integrability) property of limits of minimal rational curves in the central fiber. Euler vector fields yields minimal rational curves as orbits. When higher-order differentiations replace Euler vector fields, their integral curves play the role of generalized minimal rational curves.

One approach to the nonexistence problem of complex structure for the 6-sphere uses pseudo minimal rational curves. At this point the challenge lies in the implementation of details.

All are welcome