



Department of Mathematics
The Institute of Mathematical Sciences
The Chinese University of Hong Kong

數學系
數學科學研究所
香港中文大學

Phone: (852) 3943 7988 • Fax: (852) 2603 5154 • Email: dept@math.cuhk.edu.hk (Math. Dept.)
Room 220, Lady Shaw Building, The Chinese University of Hong Kong, Shatin, N.T., Hong Kong

Joint Geometric Analysis Seminar

(Part of MIST program)

Overview of moment map on Kähler manifolds

Dr. King Leung Lee

Instituto de Ciencias Matemáticas – ICMAT

Abstract

Over the years, many important equations in complex geometry have been given moment map interpretations. A few examples of equations with moment map interpretations are Yang-Mills equation, the cscK equation, the coupled Kähler Yang-Mills equation and the coupled constant scalar curvature. Those equations are basically a moment map equation $\mu = 0$, where $\mu : X \rightarrow \text{Lie}(\mathbf{K})^*$ is a moment map from some Kähler manifold to some Lie algebra. In this presentation, we will explain what insight and results can the moment map picture provide in the moment map equation in a Kähler manifold.

Organization: In this talk, we will first explain what a moment map and what a Kähler manifold is. Then we will give some criteria that if the solution of $\mu = 0$ exists, what kind of obstructions and properties we will have. Finally, we will explain how the moment map equation can be related to the classical equations in complex geometry.

Remark: Knowing some backgrounds of Lie group is optimal. Knowing some backgrounds of Riemannian manifold and vector bundle can help to understand the equations, but not necessary in order to understand most part of the talk.

Date: October 24, 2023 (Tuesday)

Time: 2:30 pm- 3:30 pm

Venue: LSB 219

All are Welcome