Special Lecture

Curvature Properties of Hodge Bundles

Professor Phillip A. Griffiths

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Date :   September 12, 2018 (Wednesday)

Time :   4:30 – 5:30pm
               (*Refreshments will be served at 4:00pm in Rm 320A*)

Venue :   Room 301, Run Run Shaw Building
               The University of Hong Kong

Abstract

The fundamental invariant of a complex algebraic variety is the Hodge structure on its cohomology. When the variety varies in a family the Hodge structures give rise to holomorphic vector bundles that reflect the geometry of the family. These bundles have canonical metrics whose curvatures and Chern forms have striking special properties. The goal of this talk is to describe some of these properties and give an application to moduli. We will also discuss a fundamental open problem in complex differential geometry.

Biography

Professor Phillip A. Griffiths, Member of the National Academy of Sciences of the United States, is Professor Emeritus of Mathematics of the Institute for Advanced Study (IAS), Princeton, USA. Formerly Professor of Mathematics at Princeton University (1968-1972), Harvard University (1972-83), Provost and James B. Duke Professor of Mathematics at Duke University (1983-1991), Director of the IAS (1991-2003) and Professor of Mathematics at the IAS (2004-2009), he has been Professor Emeritus of Mathematics at the IAS since 2009. Professor Griffiths is a major figure in the field of geometry. Especially, he initiated with his collaborators the theory of variation of Hodge structure, which has come to play a central role in many aspects of algebraic geometry and its uses in modern theoretical physics. In addition to algebraic geometry, he has made contributions to differential and integral geometry, geometric function theory and the geometry of partial differential equations.

In 2008 Professor Griffiths was awarded the Wolf Prize (jointly with Deligne and Mumford) and the Brouwer Medal. In 2014 he was awarded the Leroy P. Steele Prize for Lifetime Achievement by the American Mathematical Society and the Chern Medal for lifetime devotion to mathematics and outstanding achievements at the International Congress of Mathematicians. Professor Griffiths has served in numerous committees for the advancement of mathematics, science and engineering. Especially, he was Chair (1992-1999) of the NRC (National Research Council) Committee on Science, Engineering and Public Policy, Chair (1995-1998) of the Program Committee of the International Congress of Mathematics, Chair (2005-2008) of the NRC Mathematical Sciences Education Board, and Chair (1999-2016) of the Science Initiative Group at the IAS, which fosters science in the developing world through programs such as the Carnegie–IAS African Regional Initiative in Science and Education.