



Institute of Mathematical Research
HKU



Department of Mathematics
HKUST



Department of Mathematics and IMS
CUHK

Hong Kong Geometry Colloquium November 25, 2017 (Saturday) Room 210, Run Run Shaw Bldg., HKU

Dr. Aeryeong Seo

Korea Institute for Advanced Study, Seoul

Proper Holomorphic Maps between Symmetric Domains

10:00 - 11:00am

Let $D_{r,s}$ be a generalized ball in the complex projective space defined by

$$D_{r,s} = \{[z_1, \dots, z_{r+s}] \in \mathbb{P}^{r+s-1} : |z_1|^2 + \dots + |z_r|^2 > |z_{r+1}|^2 + \dots + |z_{r+s}|^2\}$$

and $\Omega_{r,s}$ a bounded symmetric domain of type I defined by

$$\Omega_{r,s} = \{Z \in M(r, s, \mathbb{C}) : I_{r,r} - Z\bar{Z}^t > 0\}.$$

Here, “ > 0 ” denotes the positive definiteness of square matrices, $M(r, s, \mathbb{C})$ the set of $r \times s$ complex matrices and $I_{r,r}$ the $r \times r$ identity matrix.

In this talk I will introduce some methods of constructing proper holomorphic maps between bounded symmetric domains of type I and the proper monomial rational maps between generalized balls. Furthermore I will talk about isotropically equivalent proper holomorphic polynomial maps between bounded symmetric domains of classical type. As an application, new examples of proper holomorphic maps between type I domain will be given.

11:00 - 11:20am

Tea Break

Dr. Weizhe Zheng

Chinese Academy of Sciences

Nearby cycles over general bases

11:20am - 12:20pm

This talk provides an overview of the algebraic theory of nearby cycles, with focus on Deligne's theory of nearby cycles over general bases. After reviewing basics of the theory, I will discuss recent developments on Künneth formula and duality as well as arithmetic applications.

This meeting is hosted by the Institute of Mathematical Research, HKU.

All are Welcome