



Revised

The Hong Kong University of Science and Technology

Department of Mathematics

PhD THESIS EXAMINATION

On the cohomology of compact symmetric spaces of exceptional types

By

Mr. Diwei LI

ABSTRACT

Computing the cohomology of symmetric spaces G/K of compact types is important. Here G is a simply-connected simple compact real Lie group and K is a compact subgroup which is stable under a Cartan involution Θ of G . By a well-known result of compact symmetric spaces, the De Rham cohomology of such kind of symmetric spaces are equivalent to the invariant space $(\Delta\mathfrak{p})^k$ with k and p the 1 and -1 eigen value spaces of a Cartan involution θ in the Lie algebra level. In this thesis I develop a totally algebraic method to compute the 12 real forms of the exceptional case. And I also summarize some results for other types.

Date : 25 July 2022, Monday

Time : 3:30 p.m.

Venue : Online via ZOOM

ID: 883 5519 266 (Revised Passcode: 123321)

<https://hkust.zoom.us/j/8835519266>

Thesis Examination Committee:

- | | | |
|--------------------------|----------|--|
| Chairman | : | Prof. Zhi Yu YANG, PHYS/HKUST |
| Thesis Supervisor | : | Prof. Yongchang ZHU, MATH/HKUST
Prof. Jianshu LI, MATH/HKUST |
| Member | : | Prof. Guowu MENG, MATH/HKUST |
| Member | : | Prof. Ivan Chi Ho IP, MATH/HKUST |
| Member | : | Prof. Xiangrong WANG, PHYS/HKUST |
| External Examiner | : | Prof. Siye WU, Department of Mathematics/
National Tsing Hua University |

(Open to all faculty and students)

The student's thesis is now being displayed on the reception counter in the General Administration Office (Room 3461).