



The Hong Kong University of Science and Technology

Department of Mathematics

PhD THESIS EXAMINATION

On Randomness Properties of Linear Codes over Finite Fields

By

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ABSTRACT

In a series of papers, authors studied different kinds of randomness of linear codes over finite fields. One is the randomness in terms of weight distribution. In the first part of this thesis we generalize the result to complete weight distribution. Another one is the group randomness of sequences constructed from linear codes with respect to the Marchenko-Pastur and Wigner's semicircle laws. In the second part of this thesis we use technical tools related to Stieltjes transform to quantify this by computing the convergence rate of the spectral distribution in terms of the length n of the code.

Date: 01 Aug 2019, Thursday

Time: 4:00 p.m.

Venue: Room 5501 (near lifts 25-26)

Thesis Examination Committee:

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|--------------------------|---|
| Chairman | : Prof. Yaping GONG, MGMT/HKUST |
| Thesis Supervisor | : Prof. Maosheng XIONG, MATH/HKUST |
| Member | : Prof. Zhigang BAO, MATH/HKUST |
| Member | : Prof. Beifang CHEN, MATH/HKUST |
| Member | : Prof. Cunsheng DING, CSE/HKUST |
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(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).