The Hong Kong University of Science and Technology

Department of Mathematics

PhD THESIS EXAMINATION

Data Recovery on a Manifold from Linear Samples

By

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ABSTRACT

Data recovery on a manifold is an important problem in many applications. Many such problems, e.g. phase retrieval, matrix recovery, tensor recovery, and compressive sensing, involve solving a system of linear equations knowing that the unknowns lie on a known manifold. In this thesis, we studied the recovery of signals lying on a manifold from linear measurements. Particularly, we focus on the case where signals lying on an algebraic variety. In this thesis we give a framework to study the above problem and give general results for minimum measurement problem of manifold recovery. It is applied to a variety of linear manifold recovery problems and give minimum linear measurement numbers for different cases. Many of the above minimum measurements results can be proved to be sharp.

Date: **30 Sep 2020, Wednesday**

Time: **10:00 a.m.**

Venue: **https://hkust.zoom.us/j/9425939355**

Thesis Examination Committee:

Chairman	:	**Dr. Sung Hun KIM, CSE/HKUST**
Thesis Supervisor	:	**Prof. Yang WANG, MATH/HKUST**
Member	:	**Prof. Jianfeng CAI, MATH/HKUST**
Member	:	**Prof. Can YANG, MATH/HKUST**
Member	:	**Prof. Ling SHI, ECE/HKUST**
External Examiner	:	**Prof. Song LI, School of Mathematical Sciences/ Zhejiang 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).