



**THE HONGKONG UNIVERSITY OF SCIENCE & TECHNOLOGY**

**Department of Mathematics**

**SEMINAR ON APPLIED MATHEMATICS**

**Signal Recovery on an Algebraic Variety  
from Linear Samples**

**By**

**Prof. Zhiqiang XU**

Academy of Mathematics and System Science,  
Chinese Academy of Sciences, Beijing

**Abstract**

Signal recovery on an algebraic variety is an essential problem in many applications. Many well-known problems, such as compressed sensing, phase retrieval and low-rank matrix recovery, can be viewed as a signal recovery problem on an algebraic variety. A fundamental question is: How many measurements are needed to recover (almost) all the signals lying on an algebraic variety? In this talk, we focus on the problems of phase retrieval and low-rank matrix recovery. We use the tools from algebraic geometry to study the question and present many results to address it in many different settings. We also introduce the performance of several numerical models for solving these problems. This is a joint work with Yang Wang.

**Date : 29 May 2024 (Wednesday)**

**Time : 3:00p.m.-4:00p.m.**

**Venue : Room 2128C (near Lift 19)**

*All are Welcome!*