



香港中文大學

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# Inverse Problems Seminar

*How much can one learn a PDE from its solution?*

*Dr. Yimin Zhong*  
*University of Auburn*

## Abstract

In this work we study a few basic questions for PDE learning from observed solution data. Using various types of PDEs, we show 1) how the approximate dimension (richness) of the data space spanned by all snapshots along a solution trajectory depends on the differential operator and initial data, and 2) identifiability of a differential operator from solution data on local patches. Then we propose a consistent and sparse local regression method (CaSLR) for general PDE identification. Our method is data driven and requires minimal amount of local measurements in space and time from a single solution trajectory by enforcing global consistency and sparsity.

Date: August 11, 2023 (Friday)  
Time: 10:30am – 11:30pm (Hong Kong Time)  
Venue: LSB 222, CUHK

*All are Welcome*