



THE HONG KONG UNIVERSITY OF SCIENCE & TECHNOLOGY

Department of Mathematics

## **PHD STUDENT SEMINAR**

# **High-order numerical methods for hyperbolic conservation laws**

By

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### Abstract

Hyperbolic conservation laws are a class of partial differential equations that arise in many areas of science and engineering, such as fluid dynamics, electromagnetics, and traffic flow. Due to their nonlinear and often discontinuous nature, solving these equations numerically presents a significant challenge. High-order numerical methods offer a promising approach to accurately and efficiently approximate solutions to hyperbolic conservation laws. This seminar will introduce some of the most popular high-order numerical methods, including finite difference methods and discontinuous Galerkin methods. We will discuss the advantages and disadvantages of each method, as well as their applications in solving hyperbolic conservation laws. Additionally, we will present some recent developments in high-order numerical methods, and their potential for further improving the accuracy and efficiency of numerical solutions to hyperbolic conservation laws.

**Date : 19 April 2024 (Friday)**

**Time : 9:00am**

**Venue : Room 4475 (Lifts 25/26)**

*All are Welcome!*