Workshop on Applied Analysis at Taichung

March 2, 2026

Rm 301, Information Science Building, National Chung Hsing University

Invited Speakers:

Tetsuya Ishiwata, Shibaura Institute of Technology, Japan
Tatsuki Kawakami, Ryukoku University, Japan
Ken-Ichi Nakamura, Meiji University, Japan
Toshiko Ogiwara, Josai University, Japan

Program:

10:00-10:30 Nakamura
10:30-11:00 Kawakami
11:00-11:30 Ishiwata
11:30-12:00 Ogiwara

12:00-13:00 Lunch

13:00-17:00 Free Discussions

Organizers: Jong-Shenq Guo (TKU), Chin-Chin Wu (NCHU)

Sponsored by
Tamkang Center for Mathematical Biology, Tamkang University
National Chung Hsing University
National Science and Technology Council, Taiwan

Titles and Abstracts

Ken-Ichi Nakamura

Title: Propagation speed of bistable traveling waves in a 3-component Lotka-Volterra competition-diffusion system

Abstract:
This study investigates the propagation speed of bistable traveling waves in a three-component Lotka–Volterra reaction-diffusion system. First, we consider a case where competition between two of the species is absent, enabling the application of the comparison principle. By constructing suitable super- and sub-solutions, we establish sufficient conditions to determine the sign of the wave speed. Furthermore, we discuss the sign of the speed in a system that lacks the comparison principle, specifically focusing on cases where the competition coefficients between the two species are sufficiently small.

Tatsuki Kawakami

Title: Fundamental solution to the heat equation with a dynamical boundary condition

Abstract:
We give an explicit representation of the fundamental solution to the heat equation o a N-dim half-space with the homogeneous dynamical boundary condition, and obtain upper and lower estimates of the fundamental solution. These enable us to obtain sharp decay estimates of solutions to the heat equation with the homogeneous dynamical boundary condition. Furthermore, as an application of our decay estimates, we identify the so-called Fujita exponent for a semilinear heat equation on the N-dim half-space of with the homogeneous dynamical boundary condition.

This talk is based on the joint work with Kazuhiro Ishige (Univ. of Tokyo) and Sho Katayama (Univ. of Tokyo).

Tetsuya Ishiwata

Title: TBA
Abstract: TBA

Toshiko Ogiwara

Title: TBA
Abstract: TBA