$\frac{1}{2} + \frac{1}{2} + \frac{1}$ **National Center for Theoretical Sciences**

2023 NCTSSummer Course on Mathematica BIOLOGY Time & Venue

Speakers

Christopher Heggerud University of Alberta

Julian Lopez-Gomez Universidad Complutense de Madrid

Miao-Jung Yvonne Ou University of Delaware

1 June 29-30

10:00-12:00, and 14:00-16:00 Rm 505, Chee-Chun Leung Cosmology Hall, NTU

10:00-12:00 and 14:00-16:00

2 July 12, 13, 19, 20, 26, 27

Agenda



Naveen K. Vaidya San Diego State University

Feng-Bin Wang Chang Gung University

Hao Wang University of Alberta

Xueying Wang Washington State University

Yawen Yan University of Alberta

Organizers

Tai-Chia Lin National Taiwan University

Chang-Yuan Cheng National Pingtung University

Chang-Hong Wu National Yang Ming Chiao Tung University

Feng-Bin Wang Chang Gung University Rm 515, Chee-Chun Leung Cosmology Hall, NTU

August 2, 3, 9, 10

10:00-12:00

Lecture Room B, 4th Floor, The 3rd General Building, NTHU

Contact

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Course Background & Purposes

It was known that mathematical modeling can play an important role in the understanding of mechanisms in ecological/epidemic systems. This summer course is intended to introduce ecological models with nutrient(s) storage, data-fitting, parameter estimation, and model simulations, techniques of modeling. We will also focus on mathematical models for cholera and COVID-19. The target reproduction number will also be included since it is a crucial population threshold quantity that measures the level of control efforts required to achieve a particular prevention, intervention, or control objective. Finally, we will introduce the maximum principle and the positive invertibility of general linear elliptic BVP's. This theory is crucial in the analysis of reaction-diffusion-advection models, which are common for spatially variable systems.