

LIAM Distinguished Lecture Series

Nonlinear Boundary Value Problems in Ordered Banach Spaces

Professor Wenying Feng, Trent University

Friday, October 5, 2018

12:30pm – 1:30pm (Lunch provided at Kinsmen kitchen 11:30 am – 12:30 pm)

LIAM Lab Kinsmen 277

Abstract: In proving existence of positive solutions for nonlinear boundary value problems, properly constructions of the cones that define the order of the Banach spaces are essential. We will introduce a new class of order- cones that can be used to prove existence of fixed points for nonlinear and semilinear operators on order intervals.

The abstract results unified previous methods in various spaces. When they are applied to concrete cases such as nonlinear algebraic systems, Dirichlet boundary value problem and fractional differential equations, new results can be naturally obtained. Applications will be shown by examples. We will also briefly discuss other topological methods in studying existences and multiplicity of solutions for nonlinear and semilinear boundary value problems.

Speaker: Wenying Feng is a Professor and the Chair of the Department of Mathematics and a Professor of the Department of Computing & Information Systems in Trent University. She obtained her PhD at the University of Glasgow and her research interests include Web Caching; Network Intrusion Detection; Nonlinear Spectral Theory and Applications and Boundary Value Problems.

