

College of Arts and Sciences
Department of Mathematics
University of South Carolina

Math Colloquium

From Galerkin Methods to Neural Networks

Professor Jinchao Xu, Pennsylvania State University
Department of Mathematics



In this talk, I will first present a recently developed uniform framework, known as Extended Galerkin (XG) method, for derivation and analysis of many different types of Galerkin methods, including conforming, nonconforming, discontinuous, mixed and virtual finite-element methods. I will then discuss the question (with some answers and some open problems) if it is possible to give a universal construction and analysis of convergent finite element methods for elliptic boundary value problems. Finally, I will discuss the function class given by deep neural networks and its relationship with finite element and applications to solution of partial differential equations.

Thursday

**October
3rd**

4:30pm - 5:30pm

LeConte 412