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## Differential Equations and Applied Math Seminar

Dr. Chunmei Wang, Texas State University

11am-12pm February 10th, 2017

330 Derrick Hall

**Title:** Weak Galerkin Finite Element Method (WG-FEM)

**Abstract:** Weak Galerkin (WG) is a finite element method for PDEs where the differential operators (e.g., gradient, divergence, curl, Laplacian etc.) in the weak forms are approximated by discrete generalized distributions. The fundamental difference between the weak Galerkin finite element method and other existing methods is the use of weak functions and weak derivatives (i.e., locally reconstructed differential operators) in the design of numerical schemes based on existing weak forms for the underlying PDEs. Weak Galerkin is a natural extension of the classical Galerkin finite element method with advantages in many aspects. Due to its great structural flexibility, the weak Galerkin finite element method is well suited to most partial differential equations by providing the needed stability and accuracy in approximation. In this talk, the speaker will focus on the second order elliptic equation, for which WG will be applied and explained in detail.

Interested faculty and graduate students are encouraged to attend.