



Differential Equations and Applied Math Seminar

Dr. Ray Treinen, Texas State University

11am-12pm October 11th, 2019

336 Derrick Hall

Title: Spectral Methods V

Abstract: We will look at Spectral and Pseudospectral Methods for numerically computing solutions of certain problems.

We continue this series of lectures with some stability considerations for approximating solutions of partial differential equations. We will discuss stability regions for some numerical methods for approximating solutions to ordinary differential equations. We will then apply these ideas to the method lines. This will introduce a discussion of nonnormal matrices and pseudospectra.

Our primary source material is Trefethen's *Spectral Methods in Matlab*, supplemented by Trefethen & Embree *Spectra and Pseudospectra* and Lambert's *Numerical Methods for Ordinary Differential Systems*.

Interested faculty and graduate students are encouraged to attend.