TEXAS STATE

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Differential Equations and Applied Math Seminar

Dr. Ray Treinen, Texas State University

12-1pm October 8th, 15th, and 22nd, 2021

Zoom and in Derrick 233

Title: Using Chebfun to approximate solutions of Differential Equations

Abstract: We will have a three-week workshop where we explore ODEs using Chebfun. Chebfun is a package for Matlab and is open source. It makes solving many problems involving ODEs into writing just a few lines of fairly simple code, and provides extreme accuracy of the numerical approximation. The underlying technology uses a Chebyshev polynomial approximation for the solution of the problem at hand. Later in the semester we will explore how this works.

We will run this workshop at an extremely inclusive level. If you know what an ODE is, then you'll fit in just fine. If you are teaching Math 3323, then this could give you a nice tool to use with your students. If you are a student, then please come have fun with us as we learn about this easy-to-use tool.

We will be using Matlab and we will look at "Exploring ODEs" by Trefethen, Birkisson, and Driscoll. Links to these resources are found on the DEAM website. We will be in a computer classroom, but it might be nice if you bring your own machine so you can keep exploring!

Interested faculty, and especially both graduate and undergraduate students are encouraged to attend.