

Subject: 4/29 Class Notes
From: Erich Herzig <eherzig@uw.edu>
Date: 4/29/20, 17:18
To: Ed Waddington <edw@uw.edu>

Hey Ed,

Here is my summary of today's class:

Discussion of HW #3

Transfer Functions cont.

Can be used to consider possible instabilities based on explicit, implicit, or Crank-Nicolson schemes and the dimensionless time step.

Some Matlab Demos :

Time steps on a tent function

First we looked at how to create the tent function using increasing numbers of cosine functions

Then we saw how the center value decreased with increasing time steps for the different time-splitting parameters

Time steps for a basic signal

We picked the time step, time-splitting parameters and the number of steps. Then, we saw how this curve diffused under stable and unstable conditions.

We use this to see what instability looked like, as well how things change with different time steps. We also looked to see if the fully implicit method was noticeably slower to converge to a steady state.

Best,
Erich