

## Abstract:

I will be deriving and discussing two fourth-order time stepping schemes (Implicit-Explicit and Exponential Time Differencing) as well as the papers in which they first appeared (Trefethen-Kassan, Ascher-Ruth-Wetton). I will then show them in use through simulations of the 2D Kuramoto-Sivashinsky Equation and the Allen-Cahn equation.