

Mathematics and Physics Seminar Series



Announcing

A Seminar Presentation
on Thursday

February 8, 2018

at 3.00 pm - 4.00 pm in

North Hall 102

at The University of New Haven

Exponential Time Differencing for Nonlinear Advection-Diffusion-Reaction Systems

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Abstract: We describe exponential time differencing algorithms (ETD) for nonlinear parabolic partial differential equations of advection-diffusion-reaction type. These are recently developed for the purpose of efficient computation through avoidance of Newton iteration at each time step. In the algorithm development, operator splitting ideas are introduced, which is an additional advantage of ETD schemes.

We discuss several test problems indicating solid performance of the algorithm, and we finish with various applications from areas such as bio-mathematics, ocean wave simulation and nonlinear optics(Nonlinear Schroedinger Equation), and financial engineering.

Further Information

For further information, please contact Dr. Yasanthi Kottegoda at the Department of Mathematics and Physics, Office: Maxcy 315, 203-932-1206, YKottegoda@newhaven.edu.