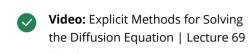
Introduction to Week Six

Numerical Solutions of PDEs

Direct Solution of Boundary Value Problems

Iterative Solution of Boundary Value Problems

Time-stepping Methods for Initial Value Problems





- Reading: FTCS Scheme for the Advection Equation
 10 min
- Video: Von Neumann Stability
 Analysis of the FTCS Scheme |
 Lecture 70
 14 min
- Reading: Von Neumann Stability
 Analysis of the FTCS Scheme for the
 Advection Equation
 10 min
- Video: Implicit Methods for Solving the Diffusion Equation | Lecture 71 8 min
- Reading: Implicit Discrete Advection
 Equation
 10 min
- Video: Crank-Nicolson Method for the Diffusion Equation | Lecture 72 13 min
- Reading: Lax Scheme for the Advection Equation
 10 min
- Video: MATLAB Solution of the
 Diffusion Equation | Lecture 73
- Reading: Difference Approximations for the Derivative at Boundary Points

 1 min
- Ungraded External Tool: The
 Diffusion Equation with No-Flux
 Boundary Conditions
 30 min

Quiz

Programming Assignment: Twodimensional Diffusion Equation

Farewell

Using a Second-Order Time-Stepping Method

Use the second-order Runge-Kutta method known as the modified Euler method to write a two-step process for solving the one-dimensional diffusion equation.

✓ Completed	Go to next item

△ Like	⊋ Dislike	Report an issue		