Mathematics Colloquium

Carol Woodward

Monday, April 25, 2022
Time: 4:00 p.m.
Location: Weber 223

Title: Time Integration Methods and Software for Scientific Simulations

Abstract: Time-dependent systems are at the heart of numerous scientific applications requiring simulation. While single rate, fixed step size time integration methods have been used for decades, adaptive step methods and schemes that can efficiently evolve problems with multiple time scales have not yet been fully engaged in many science applications. In this talk, I will overview current adaptive methods and discuss new multirate methods that address multiphysics problems. The SUNDIALS time integration software library will be presented as a vehicle for getting innovative numerical mathematics into applications. Lastly, I will present examples of use of SUNDIALS in scientific applications on state-of-the-art computers.

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