



Wednesday, February 15, 2012.

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Geometric time integration with absorbing boundary conditions: a case study for the wave equation

Abstract:

This talk is concerned about the confluence of two subjects of the numerical solution of time evolution PDEs: numerical methods that preserve geometric properties of the flow and the use of absorbing boundary conditions to reduce the computation to a finite domain. This confluence is studied with special attention to the time stability of the resulting full discretization. For this, the stability regions of the time integrators are revisited. Since geometric methods are not always **A**-stable, it is necessary a suitable behaviour of the real part of the eigenvalues of the spatially discretized problem to avoid in practice any time instability. A deep study is carried out for the case of the one dimensional wave equation discretized with finite differences, showing that this suitable behaviour happens. Some numerical experiments confirm the previous results.

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Default Data

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Building Sabatini (2nd Floor)

Address

Avda. de la Universidad 30

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