Type: Minisymposium Contribution

High-order operator splitting methods for linear port-Hamiltonian systems

Tuesday, August 13, 2024 11:30 AM (30 minutes)

The lecture deals with numerical methods for solving port-Hamiltonian systems. The focus is on operator splitting methods. The aim is to derive high-order methods that preserve the port-Hamiltonian properties. Splitting methods with an order of three and higher have negative step sizes. As a result, the dissipation inequality is no longer preserved. Remedy create force-gradient methods. With the help of force-gradient terms, it is possible to construct fourth-order methods that only have positive step sizes and satisfy the dissipation inequality. Finally, the case of sixth order methods is explained.

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