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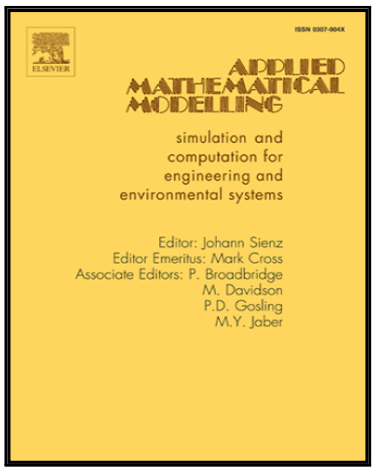

Substructuring tools for probabilistic analysis of instrumented nonlinear moving oscillator-beam systems

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Highlights

1. A novel substructuring-based state estimation method is developed.
2. This method is illustrated on a nonlinear vehicle-structure interaction system.
3. Free-interface method for coupled systems in relative motion is developed.
4. Adapted mesh partitioning to stochastic differential equation models of systems.
5. Rao-Blackwellized state estimators are formulated for the interaction system.

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