

## On the Nonlinear Dynamics of Multicomponent Dynamical Systems

**Igor Mezic**

*Department of Mechanical and Environmental Engineering, University of California, Santa Barbara, USA*

We propose a framework for analysis of dynamical systems with a large number of heterogeneous coupled components. This framework is used to propose a graph-theoretic decomposition that exhibits a chain of vertically unidirectionally coupled levels and horizontally decoupled components within each vertical level. The decomposition is used to prove a number of results on asymptotic dynamics of coupled dynamical systems.

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