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Zhisheng Shuai* (shuai@ucf.edu), Department of Mathematics, University of Central Florida, Orlando, FL 32816. *Graph Design and Reduction to Global Lyapunov Functions in Mathematical Biology*. Preliminary report.

The graph-theoretic approach has become a standard method to construct global Lyapunov functions for large-scale differential equation systems. Appropriate graph/network design and reduction is the key in the successful application of the approach. We illustrate these graph/network techniques using various biological models in the literature. (Received September 24, 2017)