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Martin Golubitsky* (mg@uh.edu), Department of Mathematics, University of Houston, Houston, TX 77204-3008. *Symmetry Breaking and Synchrony Breaking.*

A coupled cell system is a network of interacting dynamical systems. Coupled cell models assume that the output from each cell is important and that signals from two or more cells can be compared so that patterns of synchrony can emerge. Network architecture is a graph that indicates which cells have the same phase space, which cells are coupled to which, and which couplings are the same. We ask: Which part of the qualitative dynamics observed in coupled cells is the product of network architecture and which part depends on the specific equations?

In our theory local network symmetries replace symmetry as a way of organizing network dynamics, and synchrony-breaking replaces symmetry-breaking as a basic way in which transitions to complicated dynamics occur. Some of the theory and some of the more interesting examples will be presented. The results presented include work with many co-authors including Ian Stewart, Toby Elmhirst, Reiner Lauterbach, Maria Leite, Nick McCullen, Tom Mullin, Matt Nicol, and Andrew Torok. (Received August 06, 2007)