1014-92-736   **Eric T Shea-Brown*** (`ebrown@math.nyu.edu`), Courant Institute, New York University, 251 Mercer St., New York, NY 10012, **Kresimir Josic** (`josic@math.uh.edu`), Dept. of Mathematics, University of Houston, 651 PGH, Houston, TX 77204, and **Martin Golubitsky** (`mg@math.uh.edu`), Dept. of Mathematics, University of Houston, 651 PGH, Houston, TX 77204. *How architecture restricts spiking patterns in networks of phase oscillators.*

Patterns of neural spikes – rhythmic or irregular – encode sensory information and drive motor actions. When individual cells in the neural network producing these spikes are described by phase oscillators, the network architecture plays a surprisingly strong role in restricting what patterns can be produced and what features of these patterns are preserved over time. We apply the coupled cell theory developed by Stewart, Golubitsky, Pivato, and Torok to identify these restrictions, and discuss the possible consequences for neuroscience and neural modelling. (Received September 23, 2005)