Abstract Submitted
for the MAR05 Meeting of
The American Physical Society

Computation through the development of synchrony in neural models JAN ENGELBRECHT, Boston College, JOHN HOPFIELD, Princeton University — We investigate integrate-and-fire models with an emphases on temporal order. Our goal is to demonstrate that simple models can perform non-trivial computations based on the development of synchrony. While the computational strategies are general, we realize our model in a sensory processing context, particularly olfaction, where we consider recognizing an odor in the presence of a background, using multiple sniffs. This introduces a time-dependent aspect in the stimuli where the advantages of temporal coding may become more apparent. Our synchrony-based computational strategy emphasizes the role of adaptation and also employs the general principle: "What moves together is an object."

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Date submitted: 07 Dec 2004 Electronic form version 1.4