1067-92-824 **Kresimir Josic*** (josic@math.uh.edu), Department of Mathematics, University of Houston, Houston, TX 77204-3008, **Robert Rosenbaum** (josic@math.uh.edu), University of Houston, Department of Mathematics, Houston, TX 77204-3008, and **James Trousdale**, Department of Mathematics, University of Houston, Houston, TX 77204-3008. *Mechanisms that modulate the transfer of spiking correlations.*

Correlations between the spiking activity of neurons impact the dynamics and information carried by neuronal networks. A fundamental problem in the study of correlations is that of correlation transfer: Given that neurons receive correlated inputs, what is the correlation between their outputs? Many recent studies have addressed this question by approximating the inputs by Gaussian noise. Such models are obtained in the limit of a large number of inputs with infinitesimal postsynaptic response amplitudes.

We address the problem of correlation transfer by modeling input spike trains as point processes and where each input spike elicits a finite postsynaptic response. Ideas from renewal theory provide intuitive insights into the mechanisms behind correlation transfer in drift and fluctuation dominated regimes. This approach also allows us to model synaptic noise and recurrent coupling in a natural way, and treat excitatory and inhibitory inputs separately. We find that the effects of synaptic noise and excitatory"to"inhibitory correlations, which are often ignored when inputs are modeled as Gaussian noise, can significantly reduce output correlations. (Received September 15, 2010)