

**Double coherence resonance in the FitzHugh-Nagumo  
neuron model driven by discrete correlated noise**

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We study the influence of correlations among discrete stochastic excitatory or inhibitory inputs on the response of the FitzHugh-Nagumo neuron model. For any level of correlation the emitted signal exhibits at some finite noise intensity a maximal degree of regularity, i.e., a coherence resonance. Furthermore, for either inhibitory or excitatory correlated stimuli a *Double Coherence Resonance* (DCR) is observable. DCR refers to a (absolute) maximum coherence in the output occurring for an optimal combination of noise variance and correlation. All these effects can be explained by taking advantage of the discrete nature of the correlated inputs.