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# Coherent response of the Hodgkin-Huxley neuron in the high-input regime

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Our aim is to analyze the response of the Hodgkin-Huxley neuronal model subjected to a large number of uncorrelated stochastic excitatory and inhibitory post-synaptic spike trains. The model is examined in the silent dynamical regime below the saddle-node bifurcation. The response of the neuron is examined by considering statistical indicators (interspike-intervals distributions and their first moments) and dynamical indicators (autocorrelation functions). The main result resides in the coexistence of two different coherence resonances: one occurs at quite low noise and is related to the coherence of subthreshold oscillations around the rest state; the second one (at intermediate noise variance) is associated with the regularization of the sequence of spikes emitted by the neuron.