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Continuity across bifurcations of stochastic Morris Lecar output distributions

Using the stochastic Morris Lecar model neuron, type II, with ion channel noise,we investigate the inter-spike interval distribution as increasing levels of applied current drive the model through a sub-critical Hopf bifurcation. We show that the parameter of the exponential tail of the ISI distribution is continuous over the entire range of plausible applied current, regardless of discontinuities in the phase-portrait of the model. Further, we show that the seldom-considered distribution of number of consecutive spikes is geometric with associated parameter similarly continuous as a function of applied current over the entire input range.