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Response

March 8, 2022

1 Major comments Reviewer 1

On n-n notation. As suggested by the reviewer, we've changed the notation from $n - n$ to $n : n$ to denote the type of burst solution.

2 Minor comments Reviewer 1

2.1 Changes to the nullclines plot

In order to reduce the number of figures we have merged figures 1 and 5, and adjusted added a paragraph describing the non-zero constant synaptic conductance case at the end of the methods part.

3 Release delay

Due to the changes to the single cell model parameters, i.e. reducing the applied current from $I = 6\mu\text{A/cm}^2$ to $I = 3.8\mu\text{A/cm}^2$, the v-nullcline moved down along the w-nullcline. This made the system become more excitable, that is the subcritical Andronov-Hopf bifurcation point where the fixed point changes stability moved from $\bar{g} = 0.038$ to $\bar{g} = 0.0038$. As a consequence, the release delay seen previously is now negligible for all $n : n$ solutions, see figure fig. 1.

[width=0.8]release-delay.pdf

Figure 1: Numerically computed graph of the release delay as a function of $\bar{g}$

References