

# Fast Synapsis Hindmarsh-Rose

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## Introduction

This document shows the results from two programs that simulates the fast synapsis between two Hindmarsh-Rose neurons

## Parameters

The parameters choosed are inspired on the article [Network Stability from Activity-Dependent Regulation of Neuronal Conductances](#)

The **Table 3** of the article shows the values of maximal conductance, and we can see that *LP* neuron and *PY* neuron have a both values between them. So neuron1 will be *LP* and neuron2 *PY*, being  $g_{fast_1} = 0.02$  and  $g_{fast_2} = 0.005$ .

It is also mentioned on the same article that  $S_{fast} = 0.2mV$  and  $V_{fast} = -50mV$ , this values (passed to V) are equal to  $S_{fast} = 0.0002mV$  and  $V_{fast} = -0.05mV$ .

## Graphs

On the following pages are the graphs for the different simulations:

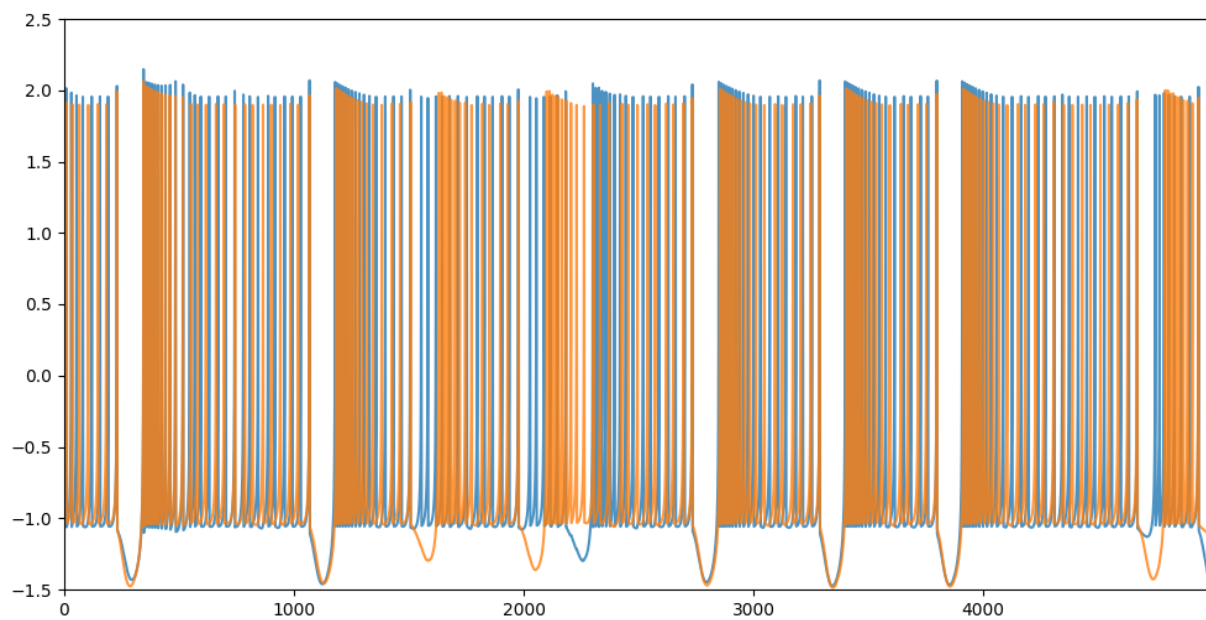


Figure 1: Simulation regular

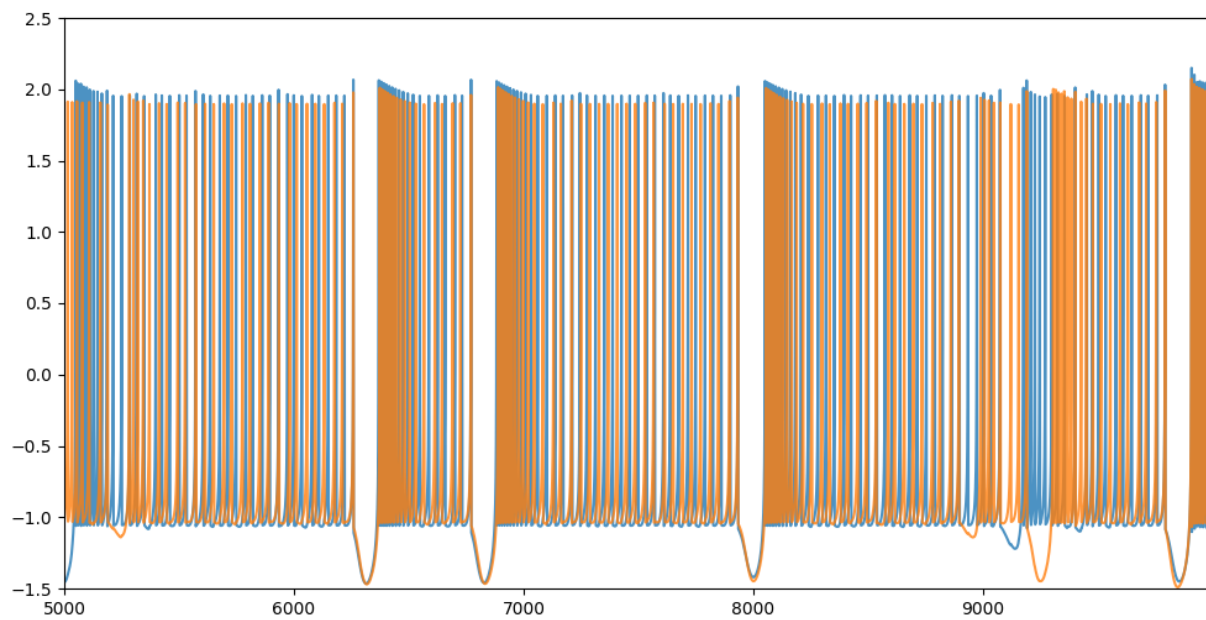


Figure 2: Simulation regular continue

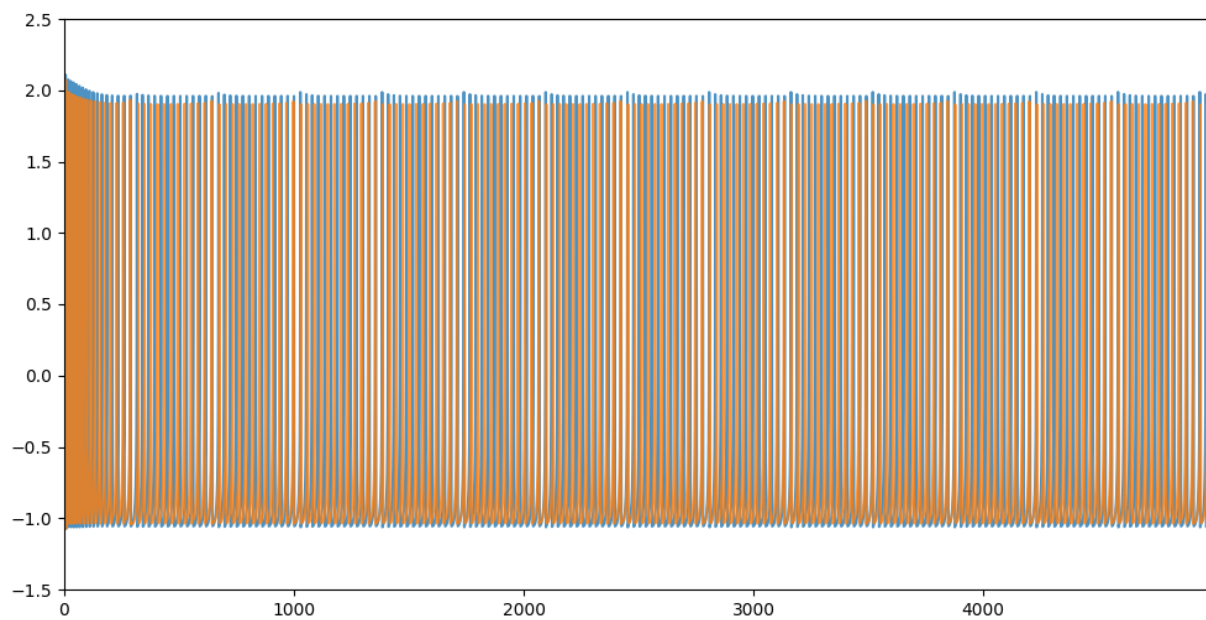


Figure 3: Simulation chaotic

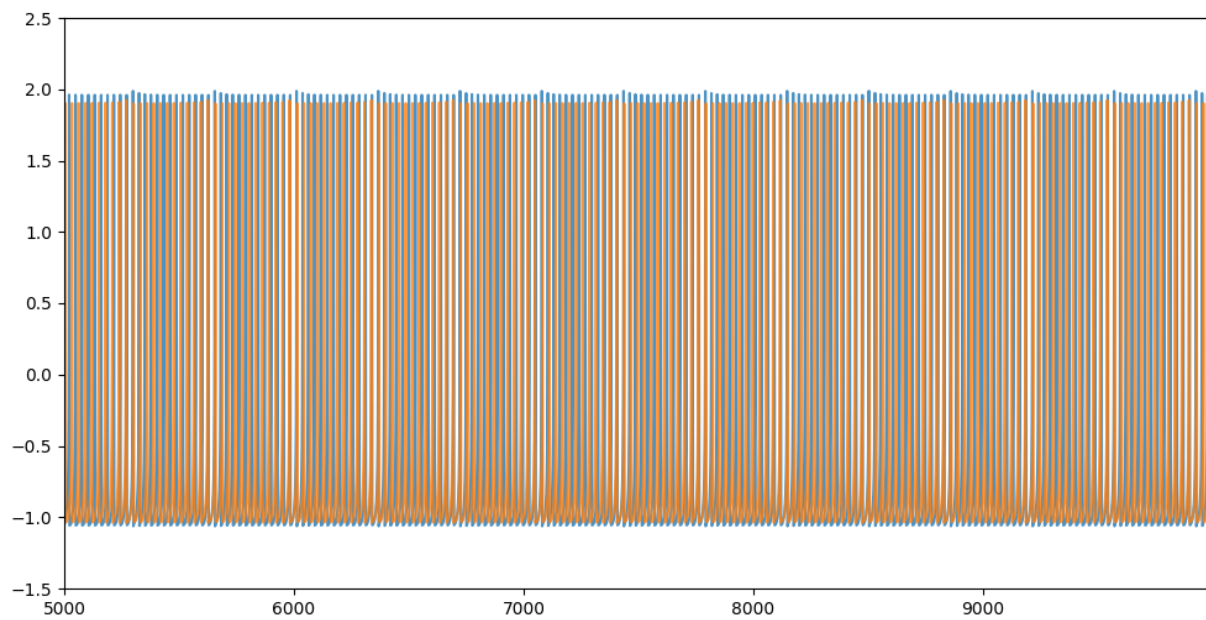


Figure 4: Simulation chaotic continue