Abstract

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$x_j -$
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$N =$
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$N =$
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$x?$
y
$\dot{x}_i =$
$f_1(x_i, y_i) +$
$\epsilon_1 g_i(\mathbf{x})$
$\dot{y}_i =$
$f_2(x_i, y_i) +$
$\epsilon_2 g_i(\mathbf{y})$
$\mathbf{x} =$
$(x_1, \ldots, x_N) \in$
R^N
$\mathbf{y} =$
$(y_1, \ldots, y_N) \in$
R^N

$E_{Na})$
$-$
$g_K y_i(x_i-$
$E_K))/C,$
$f_2(x_i, y_i) =$
$(n_\infty(x)-$
$y_i)/\tau,$
x
y
$m_\infty(x_i)$
$n_\infty(x_i)$
$_\infty(x_i) =$
$\frac{1}{1+\exp((x_{1/2,m}-x_i)/k_m)},$
$n_\infty(x_i) =$
$\frac{1}{1+\exp((x_{1/2,n}-x_i)/k_n)}.$
$\tau =$
0.16
$C =$
$1/$
$E_L =$
$-80 g_L =$
$8/$
$E_{\mathrm{Na}} =$
60
$g_{\mathrm{Na}} =$
$20/$
$E_{\mathrm{K}} =$
-90
$g_{\mathrm{K}} =$
$10/$
$x_{1/2,m} =$
-20
$k_m =$
15
$x_{1/2,n} =$
-25
$k_n =$
5
$I =$
$2.0/$
$?$
$?$
x
$(x-$
$E_{\mathrm{Na}})$
x
y
$(x-$
$E_{\mathrm{K}}) >$
0
$?$
$I =$
2.0
$\epsilon_1 =$
$\epsilon_2 =$
0
$??$
$\mathbf{x}_s^{\mathrm{unc}}$
$W^s(\mathbf{x}_s^{\mathrm{unc}})$
$W^u(\mathbf{x}_s^{\mathrm{unc}})$
x
$x =$
0
y
$y =$
0
$W^s(\mathbf{x}_s^{\mathrm{unc}})$
ex-
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gion
$_2.0.png Phase portrait of the excitable uncoupled units. The green dot represents the stable node of the system, the red dots repre$
$I =$
2.0
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$N =$
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$N =$
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x_i-
y_i
i
$k_i =$