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Spatially structured oscillations in a two-dimensional excitatory neuronal network with synaptic depression

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Abstract ... *in vivo*. ...

Keywords ...

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1 Introduction

... *in vivo* ... *in vitro* ... *in vitro* ...

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t r (.1) t

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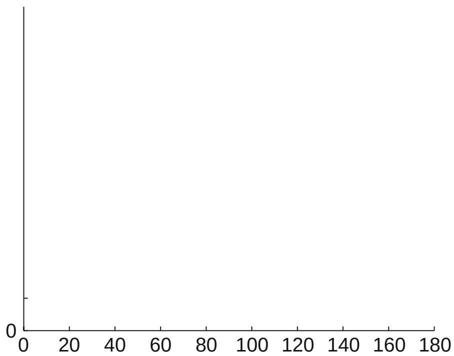
($\leq u \leq$ + −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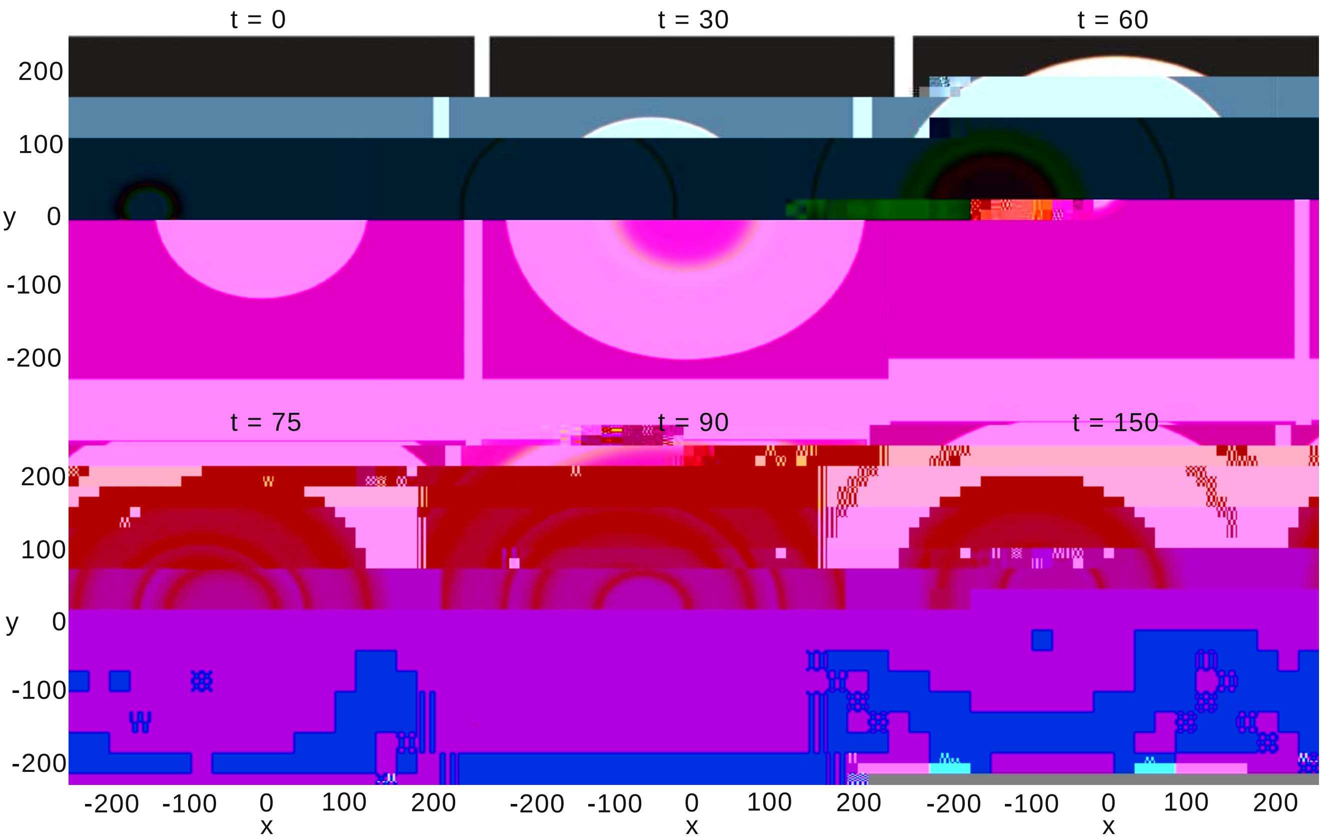


Fig. 7

t t r t t

r t r t rt r r (.1)

$$L_h \quad \frac{u_{ij}^{k+} - u_{ij}^{k}}{t} + u_{ij} + \quad _{ij} t \quad = M q_{ij} f u_{ij} .$$

$$\frac{q_{ij}^{k+} - q_{ij}^{k}}{t} = \frac{- q_{ij}}{} - \quad q_{ij} f u_{ij} . \qquad (.)$$

r $i = \ldots . N_x$ $j = \ldots . N_y$, L_h t t -
r r t r r t r . (.1),
u_{ij} q9.7(57(y)Tj /F1 1 Tf 10 0 0p0n-0 6.9999 202.083 597.0,)T.m3e64 597.sl 202.08310609.5(the)-209(linear)m 0 Tc3line75c

$H, u -$. t t t r (u)
r / t t $, u. q = ,$ . . T t t t
t t t r t

$$J, . = \frac{-}{/ \; -\_/}$$ (.)

t r r t r r t r t r. t t r t t t r r r t t t , t t t t t t f t r t r .

t r (u /), r t t

$$/ = -u + q.$$ (.)

$$/ = , - q - q.$$ (.)

t (u,q) = (+ , +) t, r + . t t t t r- t t

$$J, u. q. a = \frac{-}{/ \; -, +}.$$ (.)

r t t t t t t t . T r r , t t , t t t + , t r . 1 . t t r t t t t t t t . r, / + , t t t t, t t t t t r rt r rr t t t t t t t t - t t . t = + ,

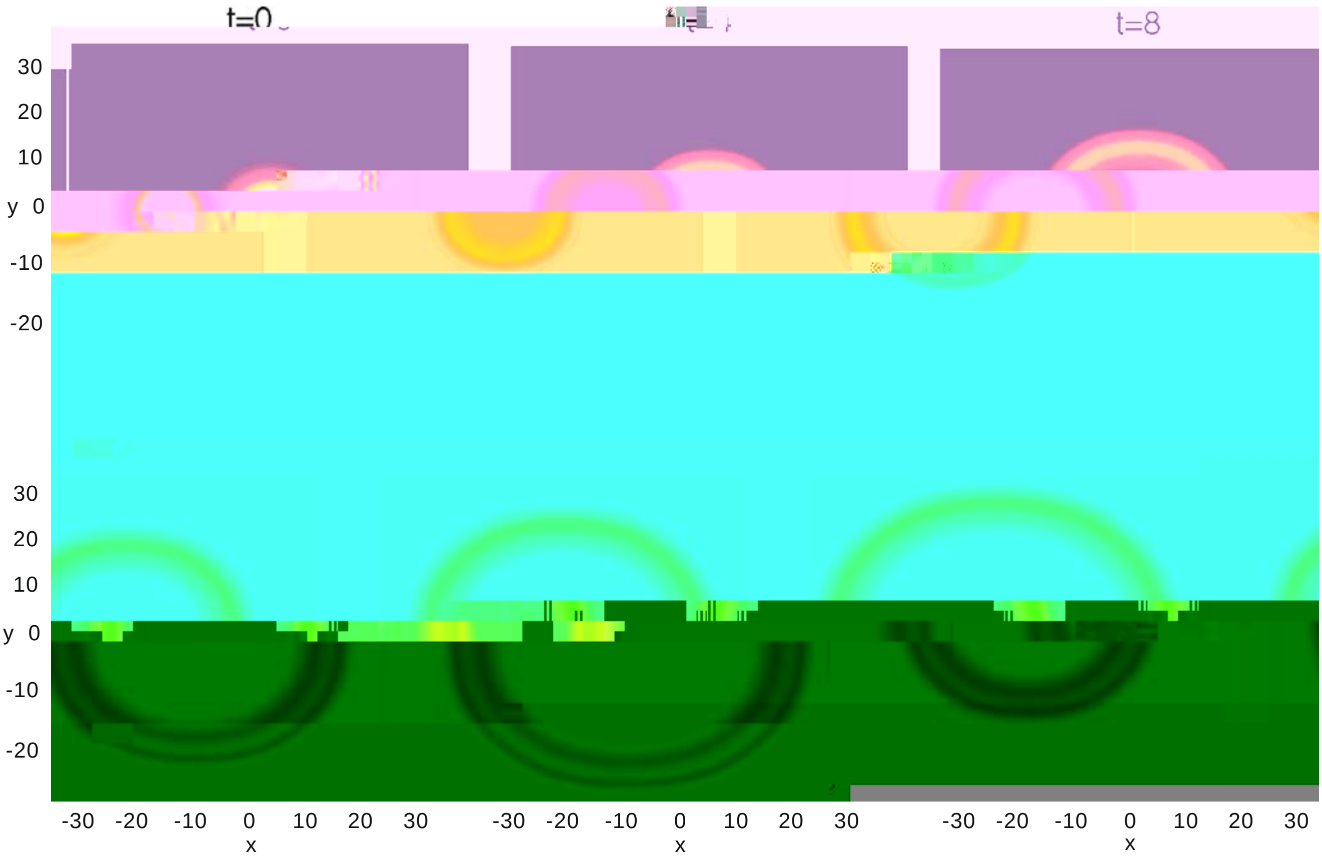


Fig. 13 S... u, x. y.

t t t r (.1) r r tr r t t t , r t (r 00). T , t t

$$a.r = a \quad J \quad J \quad . \qquad (\ .1\ )$$

r t t - r r tr r J , z t t r t . T tr t t r t r t r r t r t t t r t (.), t r r tr r (.). T t r (.1) t t t t t t (.) t (.1), tt $r = a$, t t t

$$a \quad \frac{}{\quad + s} J \quad J \quad = \frac{a}{s} I \ sa \ K \ sa .$$

r I t t t rt . T , t t r t t t r a

$$+ \quad = \quad a . \qquad (\ .1\ )$$

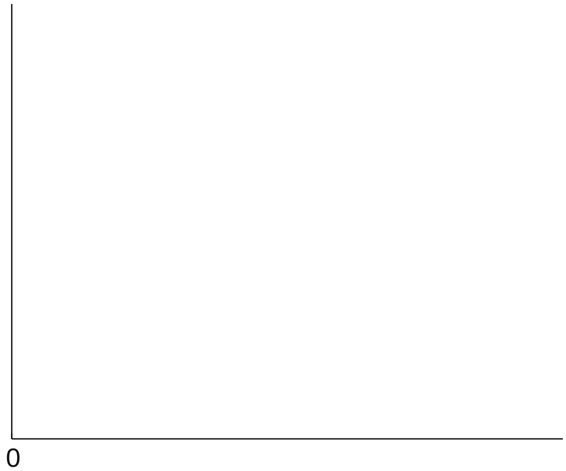
t

$$a \equiv a. a$$

$$= - aI\ a\ K\ a - \frac{a}{} I \ a\ K\ a \qquad (\ .1\ )$$

t t r a r tr t r .1 . N r t t r t , t t r t r t r r r r t t t t . t r t t (t . 00 t . 00)

t t r tr t r- r t r r t t , t t t r t, t t - t t r t r . - r t t t (t r tr t 001 r 00 t . 00), r r t r t . r, r t t - (tr . r 00), r r t t . t t r r r rt r t t . r . t t r t tr . t sign rt r t , t - = + t t . T t t r r .



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Acknowledgements T ... rt ... rt ... t N t ... S ... (S-0 1) ... r N -C1-01 - ... S ... T ... (ST). C ... rt ... rt ... t ... S ... t ... C r ... r ... r ... t.

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