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Response of traveling waves to transient inputs in neural fields

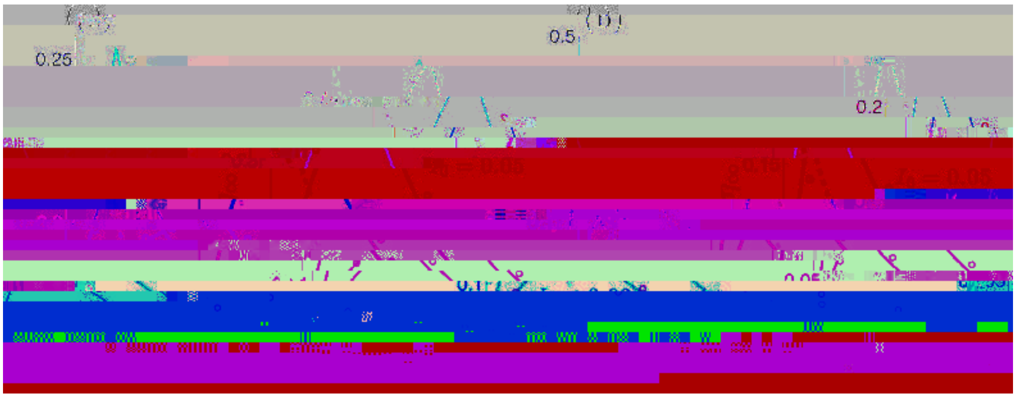
Department of Mathematics, University of Pittsburgh, Pittsburgh, Pennsylvania 15260, USA

A. Wave response function: Adjoint

$(I(x,t) = 0)$, ( ) $u(x,t) = U(x - ct)$ c, ( ) $f \in C$ $f'' > 0$, ( ) $u + f(u)$ $u_0 < u < u$ u_0, ( ) $w \in C$ $\int_{-\infty}^{\infty} w(x)dx < \infty$. ( ) ( ) ( ) ( ) 0 ( ) $u(x,t) = U(\xi)$, $\xi = x - ct$, $I(x,t) = 0$,

$$cU' = U + \int_{-\infty}^{\infty} w(\quad) f(U(\quad)) d \quad . \qquad ( )$$

( ) $0 < I(x,t)$, $I(x,t) =$i8203 0151(30 0 1 scn (11.5814(1.358 TD 0.0592 90.610< - (o.4177 -1()] w 9 0 . 4 9 9 6 =



[illegible] ∞ [illegible] $\Delta = 0$, [illegible] $\Delta =$ [illegible]

Δ, $\in (\quad \Delta, \quad)$,

$$cU = U + A \int (\quad) d \quad . \qquad (\quad)$$

$$U(\quad) = \frac{\quad c \quad + \quad + \quad}{c +} . \qquad (\quad)$$

$U(\quad \Delta) = U(\quad) =$, ( ) c Δ

$$\frac{A \quad c}{c +} = , \qquad (\quad)$$

$$\frac{A \quad + \quad + c \quad +}{c +} = . \qquad (\quad)$$

( ) ( ),

$$\frac{A(\quad \Delta \quad)}{c +}(\quad c \quad) = 0.$$

$\Delta =$

$Be^{/c}$

$$V( ) = H(+.) + e^{/c} + e^{/c} + e^{(+)/c} + H(. + \Delta) + e^{/c} + e^{/c} + e^{(\Delta)/c}.$$

$= .$ Δ $=$

$$\sum_{n=} e^{n /c} = - \frac{}{c}.$$

$$c\, C(.) (+.) + c\, C(\Delta) (+. \Delta) = 0,$$

$$C(.) = \frac{c}{\Delta}(+ \Delta)$$

$$C(\Delta) = \frac{c}{\Delta}(\Delta +).$$

$=$

$$V( ) = H(+.) + \frac{(/c)}{} e^{(+)/c}$$

$$H(+ \Delta .) + \frac{(/c)}{} e^{(\Delta)/c}.$$

$I(,t) = I_0 (t),$

$$\infty = \frac{I_0 \int V( )d}{\int \frac{dU( )}{d} V( )d} = 0, \quad ( )$$

( ), ( )

$$\infty = I_0 \frac{\mathcal{P}_+(_p) \quad \mathcal{P}(_p)}{A \quad (\Delta)} \quad (0)$$

$$\mathcal{P}_+(_p) = \begin{cases} \mathcal{H}_+ e^{(+ _p)/c}, & _p > \Delta \\ \mathcal{H} e^{(+ _p)/c} + \mathcal{E}(.), & _p < \Delta \end{cases}$$

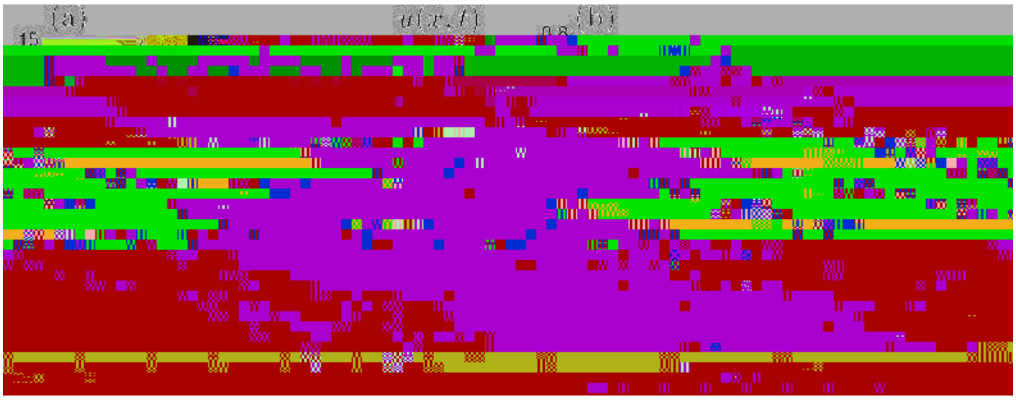
$$\mathcal{P}(_p) = \begin{cases} \mathcal{H}_+ e^{(\Delta _p)/c}, & _p > p_+ \\ \mathcal{H} e^{(\Delta _p)/c} + \mathcal{E}(\Delta), & _p \in (p , p_+) \\ \mathcal{H} e^{(\Delta _p)/c}, & _p < p \end{cases}$$

$p = .$ Δ Δ

$$\mathcal{H} = \frac{}{c} \quad \frac{\Delta}{c},$$

$$\mathcal{E}( ) = e^{(_p \Delta)/c}.$$

0 0.



[illegible] ([illegible]) [illegible] ([illegible]) [illegible] $I(x,t) = I_0 (t - t_p)$. ( ) [illegible] $u(x,t)$ [illegible] $t_p =$

I_0 $= U_s(\ /\ )\ I_0$,

$$I_0 = A \qquad \frac{}{A} + \qquad (\ )$$

$= A$

$I_0 + \ > \ , I_0 > A$

$$I(\ ,t) = I_0(t)H(\ + \Delta_I),$$

U_s

$\Delta_s \quad \Delta_u$.

$$I_0 > A \quad \frac{(\ /A)}{} \quad , \qquad (\ )$$

$$\Delta_I = \Delta_s \quad \Delta_u = \quad (\ /A) \ . \qquad (\ )$$

V. CONCLUSION

[illegible] *in vivo* [illegible]

ACKNOWLEDGMENTS

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