**Convert Raw Spiking Data:**

tdt2mat('raws',’<filename> ',0,<channels>,'local','D:\EPhys\EPhys')

tdt2mat('raws','DA03\_25\_Jul\_2013',0,13:14,'local','D:\EPhys\EPhys')

**Convert Digital Channel Data:**

tdt2mat('digi',’<filename>',0,1,'local','D:\EPhys\EPhys')

tdt2mat('digi','DA03\_25\_Jul\_2013',0,1,'local','D:\EPhys\EPhys')

**Sync BHV & Laser Timepoints for Digital Data**

EF\_GetDigi(‘<filename>')

EF\_GetDigi('digi01.mat')

**Load Data**

load(‘<digifilename>’)

load (<’digi01.mat’)

DIG: beginning of each laser stimulation (each individual time)

DIGs: beginning of each burst of laser stimulation

DIGe: end of each burst of stimulation ?

**Spike Sorting**

EF\_SpikeSort( {<filename>}, [], 1)

EF\_SpikeSort( {<raws13.mat>}, [], 1)

**Neuron response analysis**

*Spike shape*

Plot (SpikeShapes\_XX{Y} )

EVENTS{1} – Licks

EVENTS{2} – Reward

EVENTS{3} – CSP

EVENTS{4} – CSM

EVENTS{5} – LASER0

EVENTS{6} – LASER1

EVENTS(7) – LASER\_ALL

*Neuron response to licking*

plot( EF\_XCorr(EVENTS {1},SpikeTimes{1},[-1 5], 10, 1000) )

plot( EF\_XCorr(EVENTS {1},SpikeTimes{2},[-1 5], 10, 1000) )

*Neuron response to reward*

plot( EF\_XCorr(EVENTS {2},SpikeTimes{1},[-1 5], 10, 1000) )

plot( EF\_XCorr(EVENTS {2},SpikeTimes{2},[-1 5], 10, 1000) )

*Neuron response to CSP*

plot( EF\_XCorr(EVENTS {3},SpikeTimes{1},[-1 5], 10, 1000) )

plot( EF\_XCorr(EVENTS {3},SpikeTimes{2},[-1 5], 10, 1000) )

*Neuron response to CSM*

plot( EF\_XCorr(EVENTS {4},SpikeTimes{1},[-1 5], 10, 1000) )

plot( EF\_XCorr(EVENTS {4},SpikeTimes{2},[-1 5], 10, 1000) )

*Neuron response to LASER0 ?*

plot( EF\_XCorr(EVENTS {5},SpikeTimes{1},[-1 5], 10, 1000) )

*Neuron response to LASER1 ?*

plot( EF\_XCorr(EVENTS {6},SpikeTimes{1},[-1 5], 10, 1000) )

*Neuron response to LASER\_ALL ?*

plot( EF\_XCorr(EVENTS {7},SpikeTimes{1},[-.5 .5], 1, 1000) )

plot( EF\_XCorr(EVENTS {7},SpikeTimes{2},[-.5 .5], 1, 1000) )

Raster Plots

*Cell 1*

EF\_RasterPlot (EVENTS{5},SpikeTimes{1},[-1 3],1000)

EF\_RasterPlot (EVENTS{5},EVENTS{7},[-1 3],1000,'figure',1,'char','rx')

*Cell 2*

EF\_RasterPlot (EVENTS{5},SpikeTimes{2},[-1 3],1000)

EF\_RasterPlot (EVENTS{5},EVENTS{7},[-1 3],1000,'figure',1,'char','rx')

EF\_RasterPlot (EVENTS{5},SpikeTimes{3},[-1 3],1000)

EF\_RasterPlot (EVENTS{5},EVENTS{7},[-1 3],1000,'figure',1,'char','rx')

Histogram Plots

*Cell 1*

plot( EF\_XCorrHist(EVENTS {7},SpikeTimes{1},[-.1 .1], .0001, 1000) )