%% \*\*\* 20201202 Right MVD rois temporal data Analysis \*\*\*\*

% \*\*\* Init

clear all; close all;

clearvars; clc;

% \*\*\* Load Motion Corrected Data \*\*\*\*\*\*

Fn\_Rmvd\_mc = '20201202\_RightMVD\_mc.acq';

load\_Rmvd = load(Fn\_Rmvd\_mc, '-mat');

Rmvd\_Data = squeeze(load\_Rmvd.Acquisition.Data);

Rmvd\_times = load\_Rmvd.Acquisition.T;

Rmvd\_data\_avg = squeeze(mean(permute(Rmvd\_Data, [2 1 3]), 3));

% \*\*\* Display Average Image \*\*\*

figure;

colormap(turbo); imagesc(Rmvd\_data\_avg); title('Right MVD PNS fUS Sequence Average');

% \*\*\*\* Load ROIs Data \*\*\*\*\*

rois\_mvd = '20201202\_RightMVD\_ROI\_Data\_1\_11\_0\_v3.txt';

load\_mvd = importdata(rois\_mvd);

mvd\_roi\_times = load\_mvd.data(:, 1);

mvd\_roi\_1 = load\_mvd.data(:, 2);

mvd\_roi\_2 = load\_mvd.data(:, 3);

mvd\_roi\_3 = load\_mvd.data(:, 4);

mvd\_roi\_4 = load\_mvd.data(:, 5);

mvd\_roi\_5 = load\_mvd.data(:, 6);

mvd\_roi\_6 = load\_mvd.data(:, 7);

mvd\_roi\_7 = load\_mvd.data(:, 8);

mvd\_roi\_8 = load\_mvd.data(:, 9);

mvd\_roi\_9 = load\_mvd.data(:, 10);

mvd\_roi\_10 = load\_mvd.data(:, 11);

mvd\_roi\_11 = load\_mvd.data(:, 12);

mvd\_roi\_12 = load\_mvd.data(:, 13);

mvd\_roi\_13 = load\_mvd.data(:, 14);

mvd\_roi\_14 = load\_mvd.data(:, 15);

mvd\_roi\_15 = load\_mvd.data(:, 16);

mvd\_roi\_16 = load\_mvd.data(:, 17);

mvd\_roi\_17 = load\_mvd.data(:, 18);

mvd\_roi\_18 = load\_mvd.data(:, 19);

mvd\_roi\_19 = load\_mvd.data(:, 20);

mvd\_roi\_20= load\_mvd.data(:, 21);

mvd\_roi\_21 = load\_mvd.data(:, 22);

mvd\_roi\_22 = load\_mvd.data(:, 23);

mvd\_roi\_23 = load\_mvd.data(:, 24);

mvd\_roi\_24 = load\_mvd.data(:, 25);

mvd\_roi\_25 = load\_mvd.data(:, 26);

mvd\_roi\_26 = load\_mvd.data(:, 27);

mvd\_roi\_27 = load\_mvd.data(:, 28);

mvd\_roi\_28 = load\_mvd.data(:, 29);

mvd\_roi\_29 = load\_mvd.data(:, 31);

mvd\_roi\_30 = load\_mvd.data(:, 32);

mvd\_roi\_31 = load\_mvd.data(:, 33);

nRois = 31;

% % \*\*\* Display Results

for nr = 1 : nRois

mvd\_title = strcat('RightMVD PN Stimulation on/off Activation: ROI - ', ' ', num2str(nr));

mvd\_roi\_hdr = strcat('Temporal Plot: ROI- ', num2str(nr));

mvd\_stim\_data = eval(strcat('mvd\_roi\_', num2str(nr)));

% \*\*\*\*\* MVD Trial Stimulation ON and OFF Epoch Matices \*\*\*\*\*

mvd\_stimOFF\_1 = mvd\_stim\_data(24 : 92);

mvd\_stimOFF\_2 = mvd\_stim\_data(127 : 195);

mvd\_stimON\_1 = mvd\_stim\_data(93 : 128);

mvd\_stimON\_2 = mvd\_stim\_data(196 : 243);

mvd\_stimON = [mvd\_stimON\_1(1 : 36) mvd\_stimON\_2(1 : 36)];

mvd\_stimOFF = [mvd\_stimOFF\_1(1 : 67) mvd\_stimOFF\_2(1 : 67)];

mvd\_bsline = mean(mean(mvd\_stimOFF((57 : 67), :)));

mvd\_stimON\_norm = 100\*((mvd\_stimON - mvd\_bsline) / mvd\_bsline);

mvd\_stimOFF\_norm = 100\*((mvd\_stimOFF - mvd\_bsline) / mvd\_bsline);

mt\_off = 1 : 67; mt\_on = 67:102;

% \*\*\* Display Results

figure; hold on;

subplot(212); plot(mvd\_stim\_data); title(mvd\_roi\_hdr); ylabel('PD (a.u.)'); xlabel('time (s)');

xline(1,'--r',{'OFF'}); xline(93,'--g',{'ON'}); xline(128,'--r',{'OFF'}); xline(196,'--g',{'ON'}); xline(243,'--r',{'OFF'});

subplot(211);

shadedErrorBar(mt\_off, mvd\_stimOFF\_norm', {@mean,@std},'lineprops','-b','transparent',1, 'patchSaturation',0.1);

shadedErrorBar(mt\_on, mvd\_stimON\_norm', {@mean,@std},'lineprops','-r','transparent',1, 'patchSaturation',0.1);

xline(1,'--r',{'StimOFF'});

xline(67,'--g',{'StimON'});

title(strcat(' ', mvd\_title));

xlabel('time (s)'); ylabel('% Chanage'); xlim([0 102])

hold off;

end