**Proximity Analysis – Matlab 2017b and newer**

\*AFTER fixed data 3-channel analysis

1. split\_outline\_overlay.ijm   
   Image J  
   Select parent directory
2. findIntensityMaxPoints.m  
   matlab  
   Makes object intensity maps  
   Select parent directory  
   \*will use Function: regionprops3.m (2017b and newer has it built in)
3. evaluate\_ObjCoupling.m  
   matlab  
   Uses alpha shapes to create 3D images  
   Pick your pair-wise comparison: gamma2 (channel2) vs Rim1 (Channel 3)  
   Pick what is compared to what: Channel2 vs Channel3 or Channel 3 vs Channel 2, ect…  
   C0 = 2  
   C1 = 3  
   Can re-run  
   \*Need functions in path: points\_in\_object.m and inhull.m  
     
   %% =============User entered parameters =================

c0 = 1; c1 = 3; % channel pair for analysis

cA = c0; % channel upon which to base proximity determination; nomenclature cA -> cN

xy\_um = 0.0321; % enter pixel size of original SIM image

z\_um = 0.15; % enter slice depth of original SIM stack

zmfac = 4; % enter zoom factor for subpixel segmentation

1. compileData\_objectProximity.m  
   matlab  
   CA = 3  
   CN = 2

%% =============User entered parameters =================

cA = 1; cN = 3; % channel pair analyzed; nomenclature cA -> cN

D\_threshold = 0.07; % distance threshold for proximity determination

1. generateProximityViz.m  
   Different 3D perspectives   
   CA = 3  
   CN = 2

%% =============User entered parameters =================

cA = 1; cN = 3; % channel pair analyzed; nomenclature cA -> cN

D\_threshold = 0.07; % distance threshold for proximity determination

1. generate\_alphaShapeViz.m  
   Shows Gephyrin (Channel 1) as well