Function List:

[devloc,padloc,bx,by,bz,x,y,z,X,Y ]=**deviceplacement** (handles.ND,handles.devdata,handles.NP,handles.paddata,handles.multimatindex,layerthickness)

~~[dx,dy,NR,NC,Xg,Xp,Yg,Yp,zz]=~~**~~SysGeometry~~**~~(handles.ND,handles.NP,z,X,Y); % creates 3d spacing of systems~~

[Md,Mp,QQ]=**MaterialLocation**(handles.ND,handles.NP,devloc,padloc,NR,NC,bx,by,**dx**,**dy**,**Qdata**); % generates node locations for grid required basted on device and pad locations

[Mat,layercolors,dz]=**MaterialAssignment**(NR,NC,handles.NL,Md,Mp,handles.multimatindex,matbylayer,handles.matlist,handles.matcolors,layerthickness); % assigns material to each node of 3d systeme

[basex]=**meshgrid**(handles.ND,handles.NP,x,y,z,X,Y,bx,by,Xg,Xp,Yg,Yp,zz,layercolors,handles.multimatindex); %runs meshgrid function to calculate system mesh and plot visual grid

**colorchart**(handles.matlist,handles.matcolors); % displays material color chart from material library variables

~~[Q]=~~**~~HeatGenAssignment~~**~~(NR,NC,handles.NL,handles.multimatindex,Md,QQ); % builds heat generation matrix from gui input device locations~~

axes(handles.sysplot) % plots system on sysplot axis

cla reset; % resets axes if there is content already published on them

**Model**(handles.ND,handles.NP,x,y,z,bx,by,bz,layercolors,handles.multimatindex); % builds and plots 3d system model given user inputs

[Ttemp,Sstress]=**ThermalFunction**(handles.NL,NR,NC,h,Ta,dx,dy,dz,handles.kond,handles.cte,handles.E,handles.nu,Tproc,Mat,Q,sam); % runs Thermal Function to calculate node temperatures and stress throughout system

toc