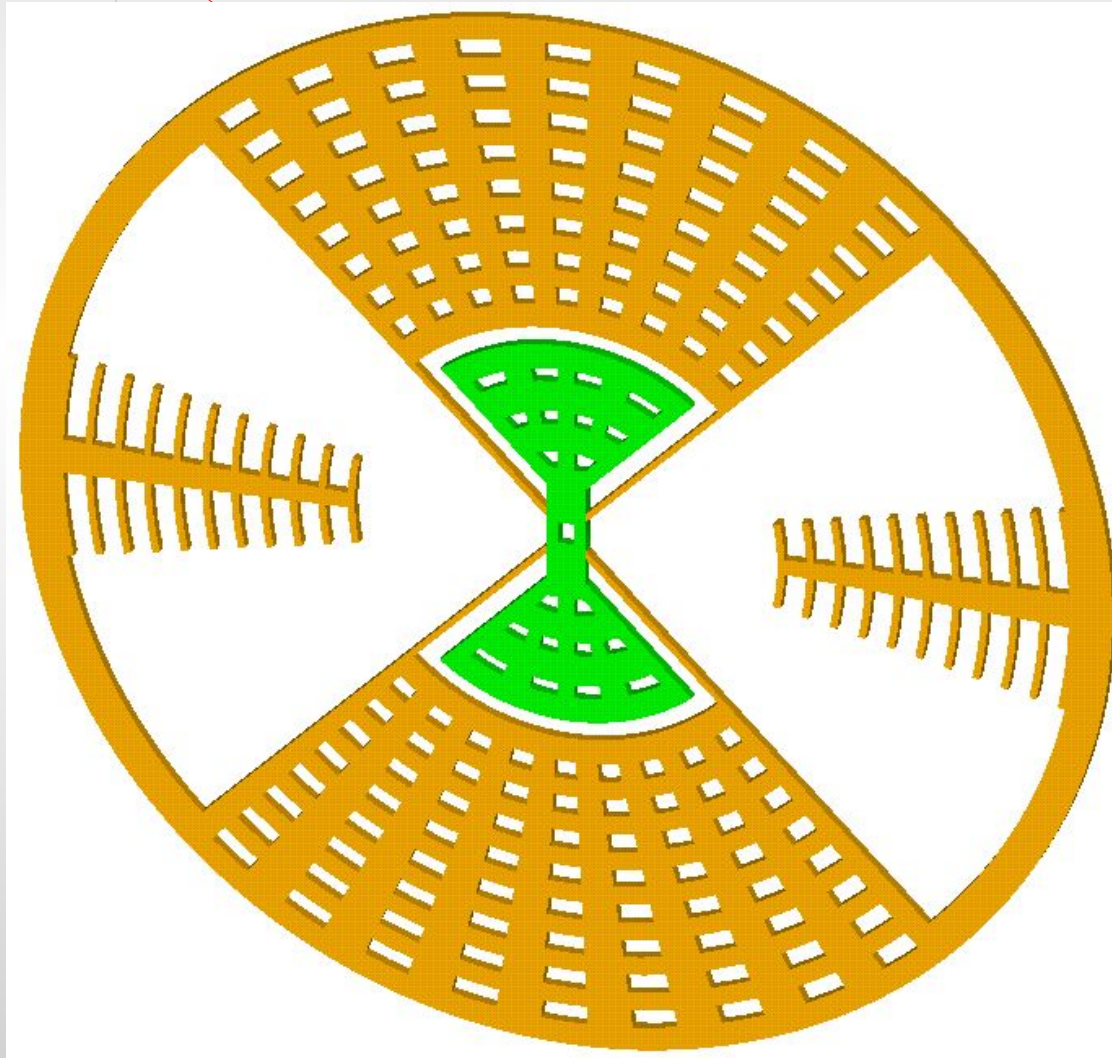


Finite element modeling and modal analysis of micromechanical gyroscope sensitive element

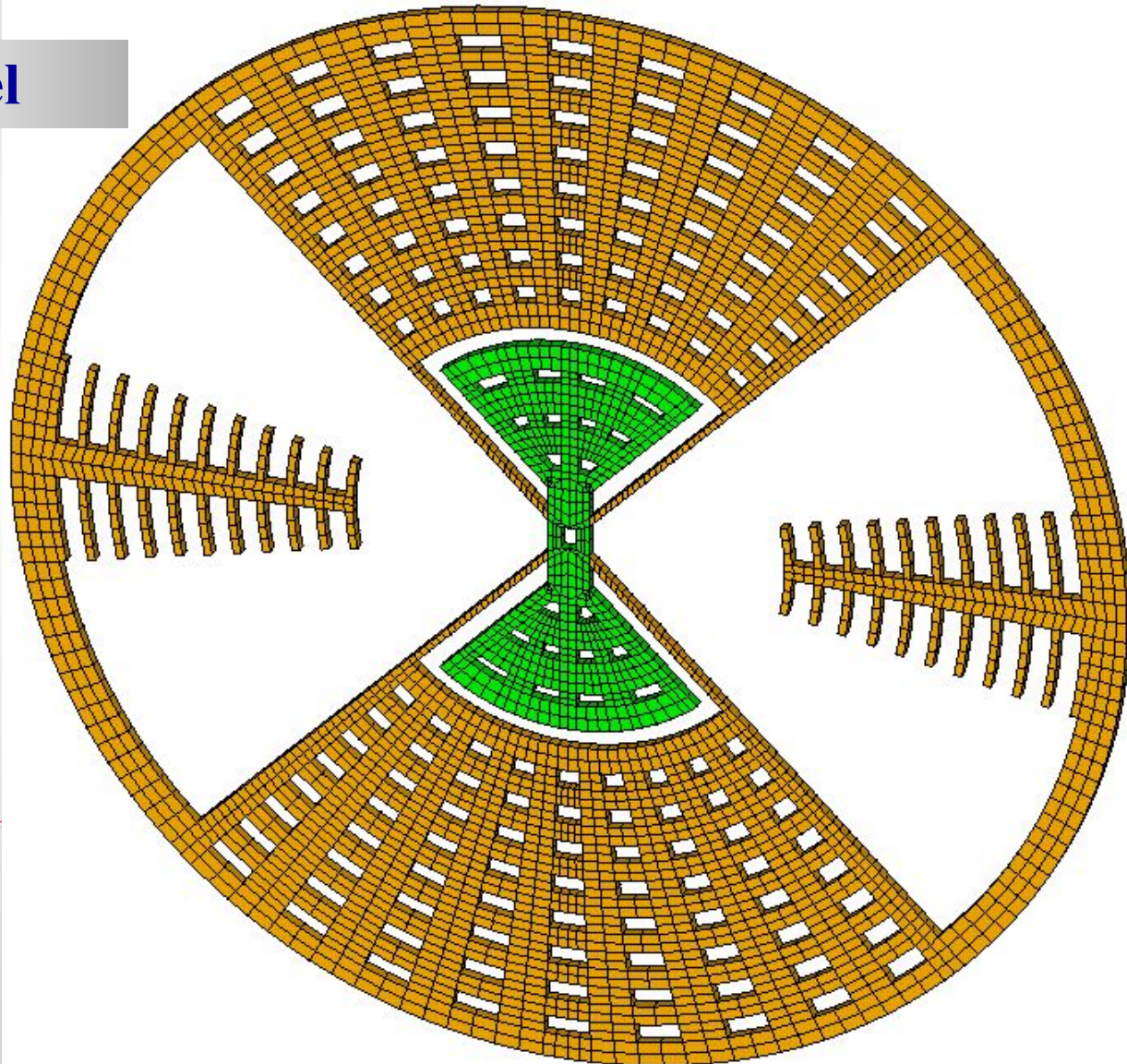
3D model



Finite element modeling and modal analysis of micromechanical gyroscope sensitive element

3D FE model

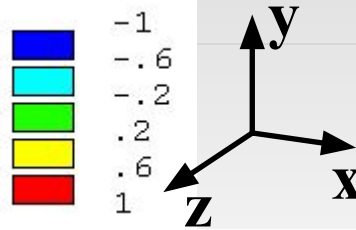
NE = 3328
NDF = 88416



Finite element modeling and modal analysis of micromechanical gyroscope sensitive element

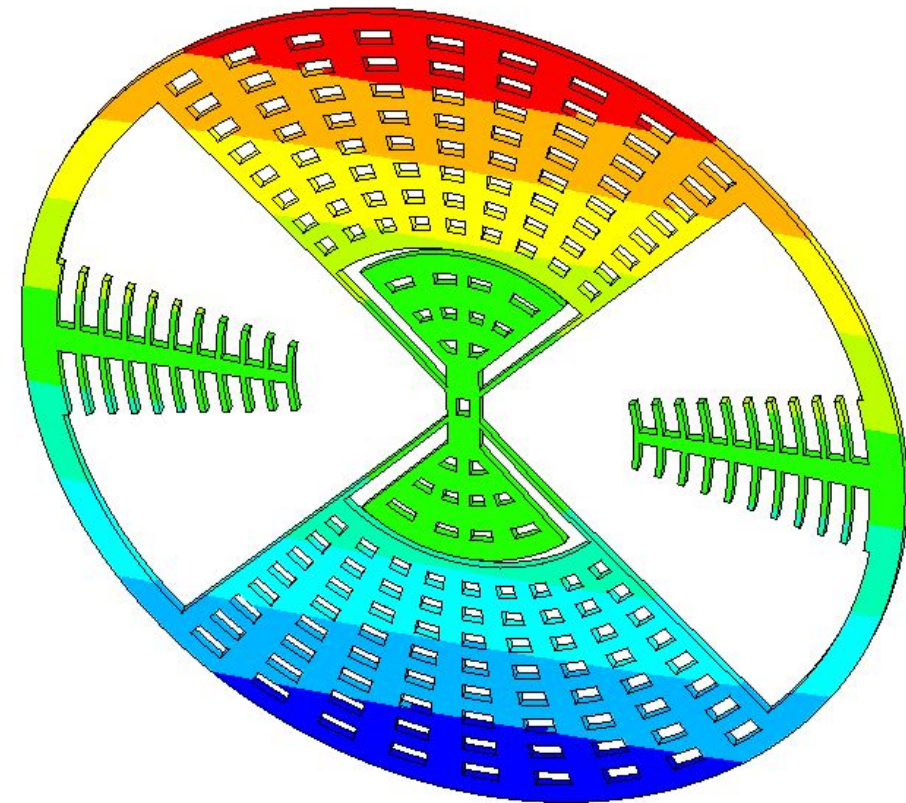
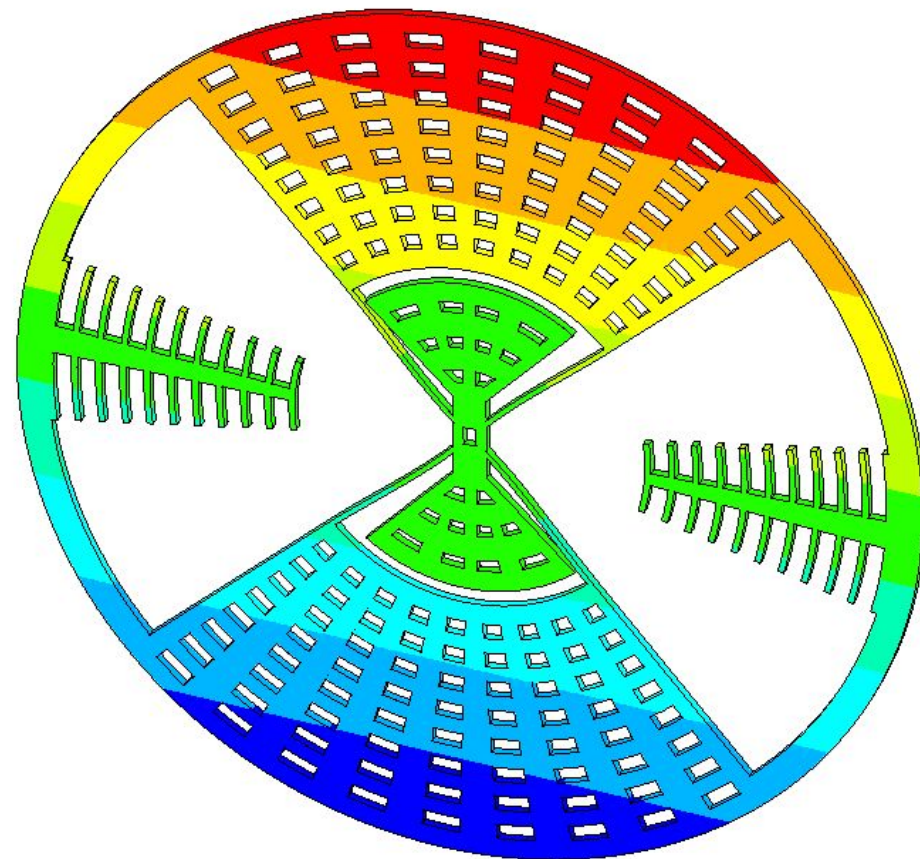
First natural mode

F_1



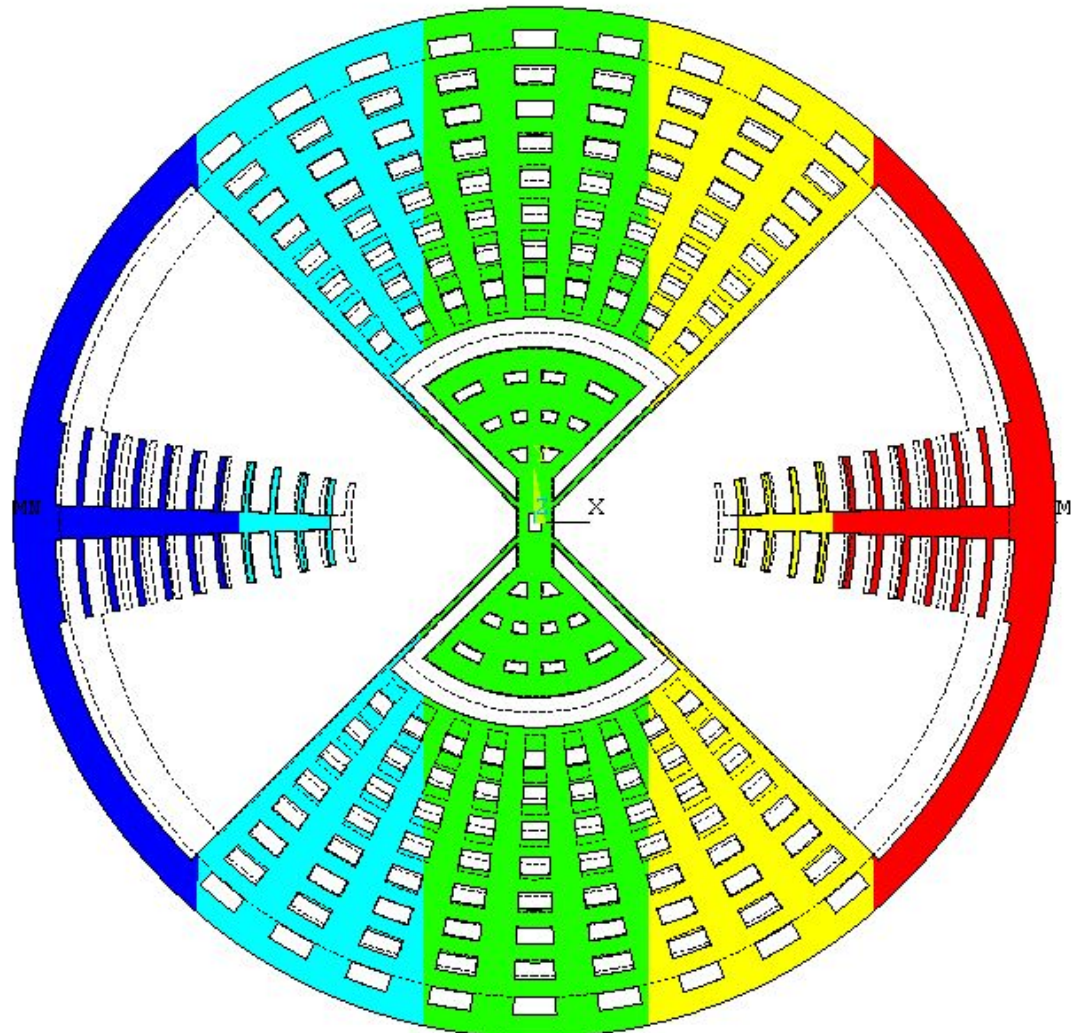
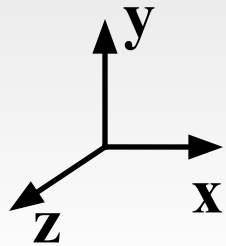
Second natural mode

F_2



Finite element modeling and modal analysis of micromechanical gyroscope sensitive element

Displacements U_x

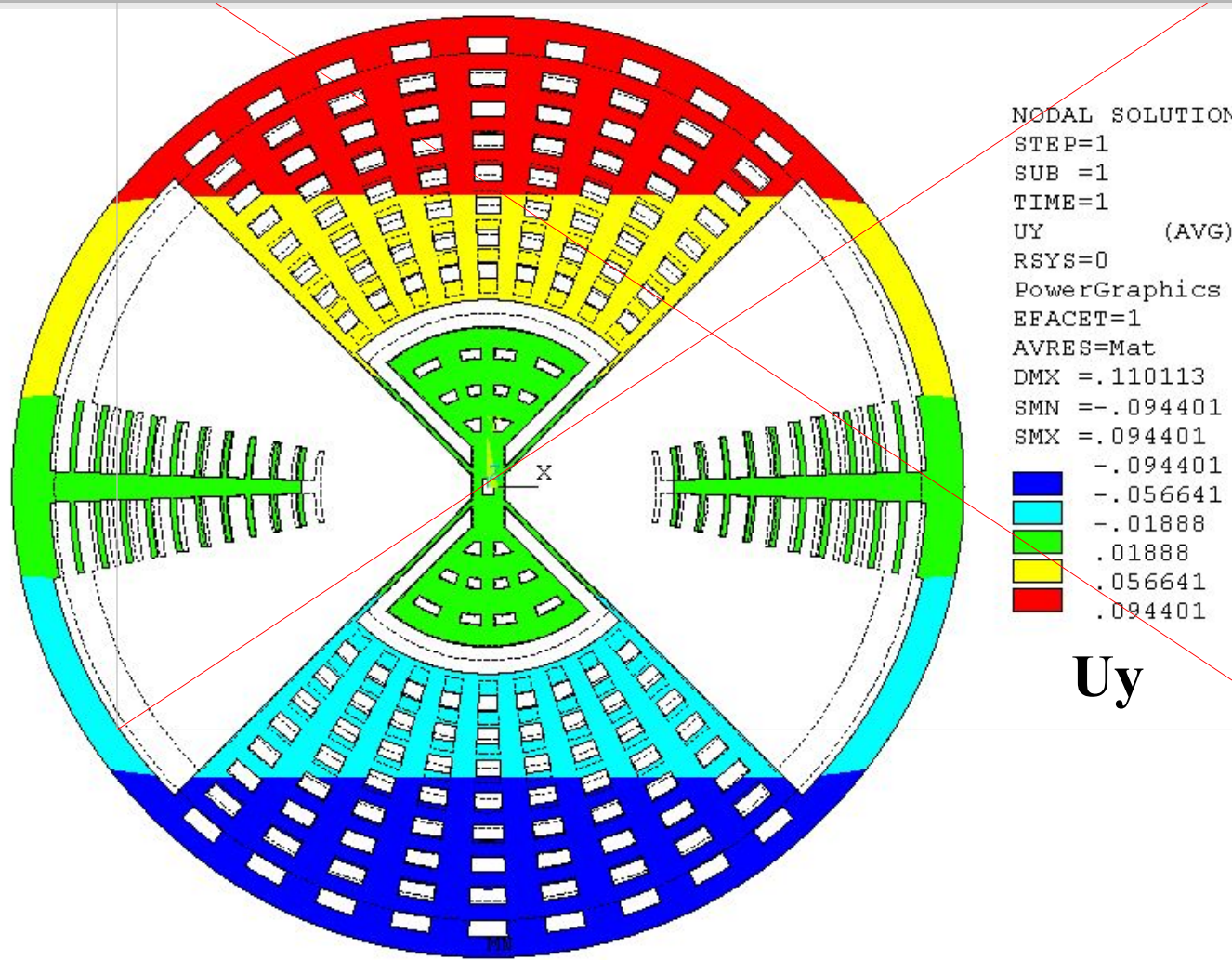
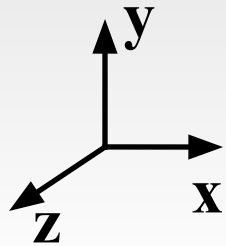


```
NODAL SOLUTION
STEP=1
SUB =1
TIME=1
UX      (AVG)
RSYS=0
PowerGraphics
EFACET=1
AVRES=Mat
DMX =.110113
SMN =-.107595
SMX =.107595
      .107595
      -.107595
      -.064557
      -.021519
      .021519
      .064557
      .107595
```

U_x

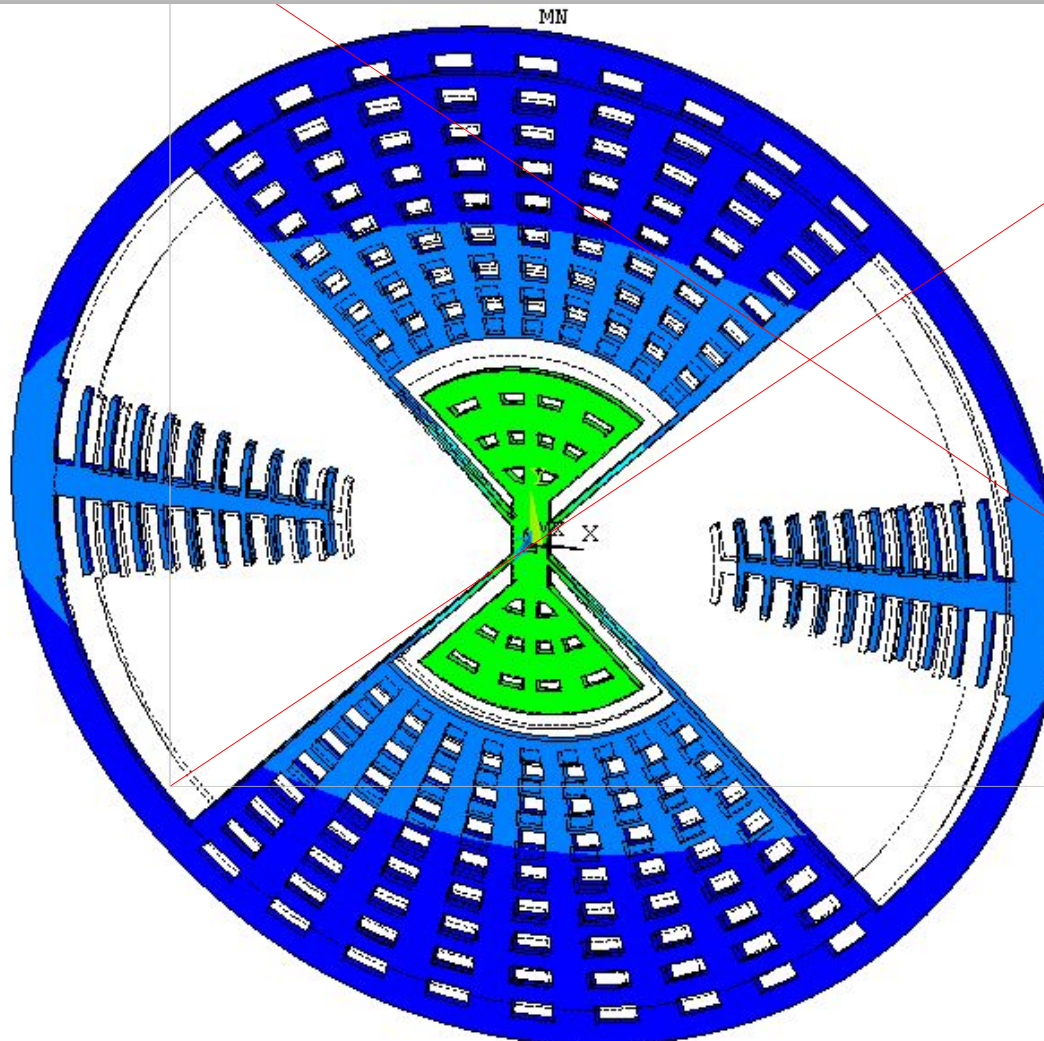
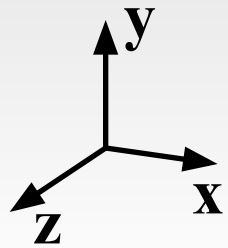
Finite element modeling and modal analysis of micromechanical gyroscope sensitive element

Displacements U_y



Finite element modeling and modal analysis of micromechanical gyroscope sensitive element

Displacements U_z



NODAL SOLUTION
STEP=1
SUB =1
TIME=1
UZ (AVG)
RSYS=0
PowerGraphics
EFACET=1
AVRES=Mat
DMX =.110113
SMN =-.027966
SMX =.002564
-.027966
-.02186
-.015754
-.009648
-.003542
.0

U_z

Finite element modeling and modal analysis of micromechanical gyroscope sensitive element

Influence of deformed state arising at sensitive element manufacturing on a spectrum of natural frequencies

	without account of deformed state	with account of deformed state ($T = 20^{\circ}\text{C}$)
1 st natural frequency	F_1	$0.994^* F_1$
2 nd natural frequency	F_2	$0.995^* F_2$