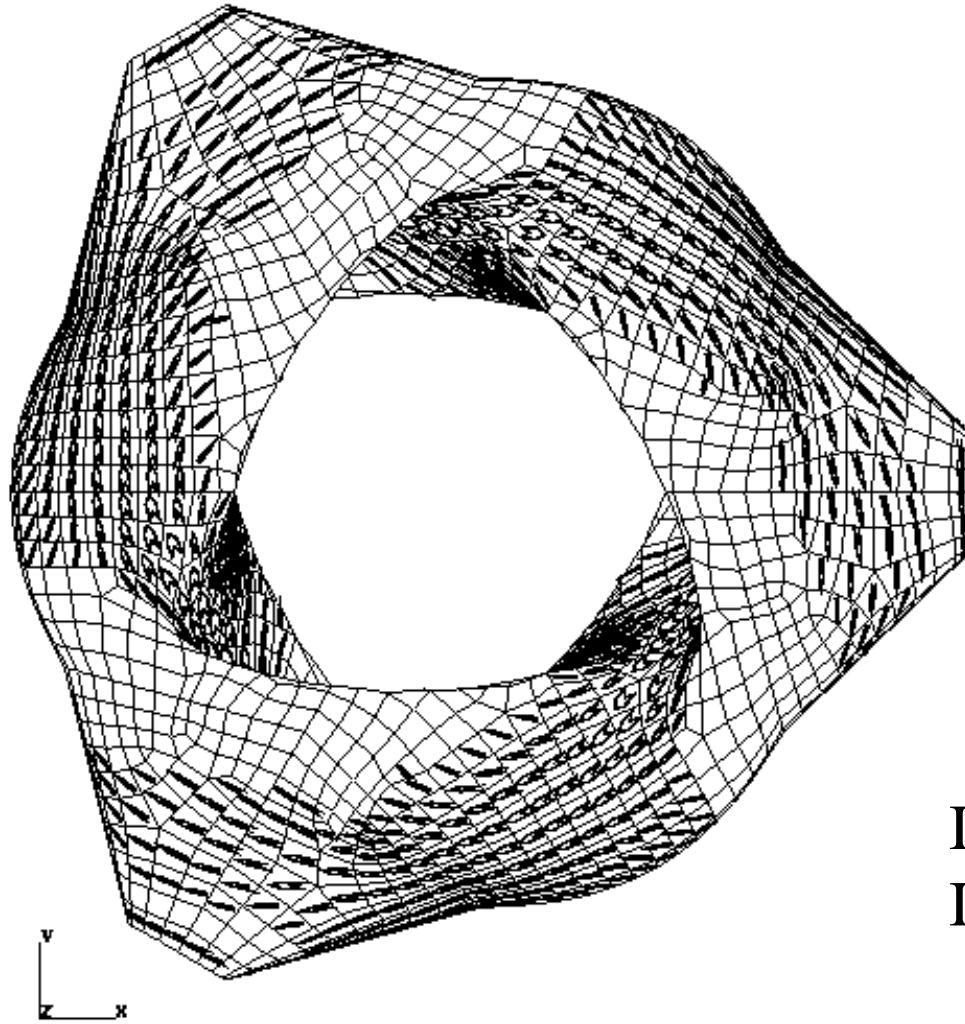# Status on Preliminary Disruption Analysis
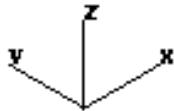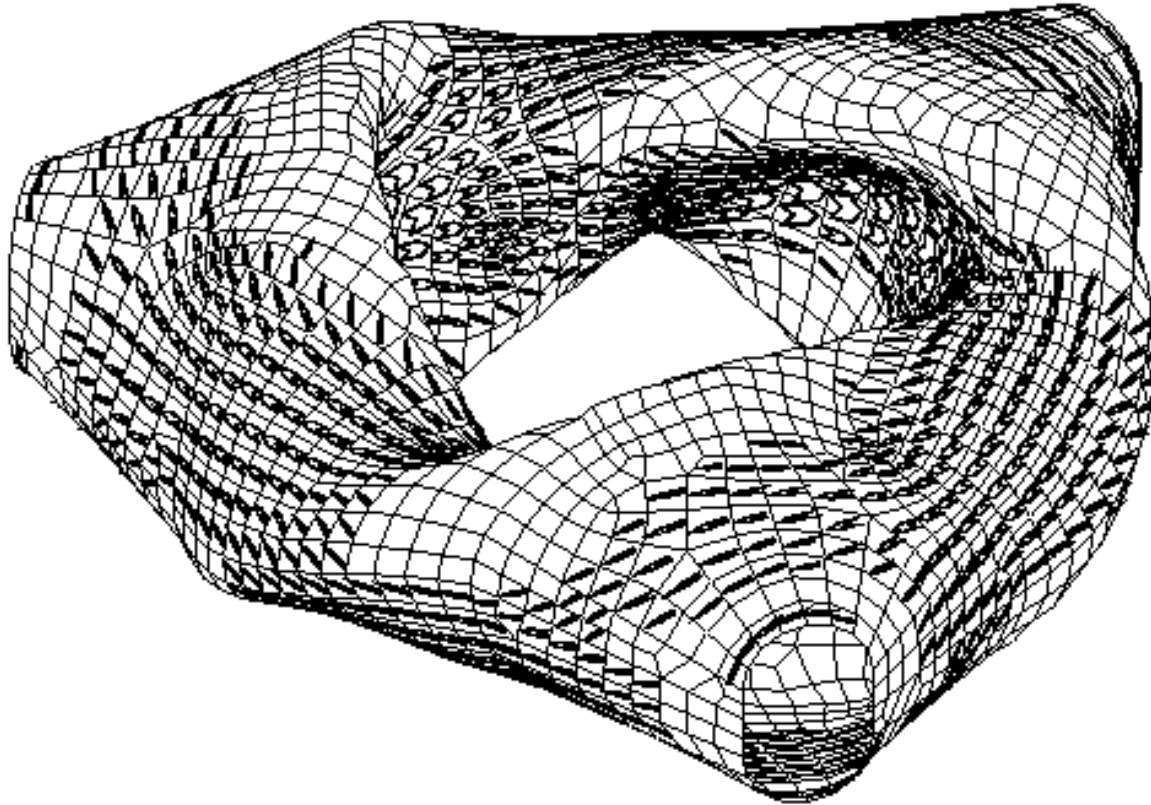
- Simplified Spark Model of VV used
  - 1017 design at 1.4 m
  - 3 Periods, only NB Ports Included, 0.25" thick Inco 625
- Inductive (Flux Preserving) Solution
  - Plasma current assumed to disappear instantaneously
  - 175 KA Plasma current represented by single filament along axis
  - Diamagnetic Flux not included
- Forces calculated for Full Field (1.7 Tesla)
  - from Coil Field (Modular, TF, PF at S3 state)
  - and Self Field of VV eddy currents
- ANSYS static structural model used to assess results
  - Compared to Vacuum Pressure Results
  - Dynamic Load Amplification not included
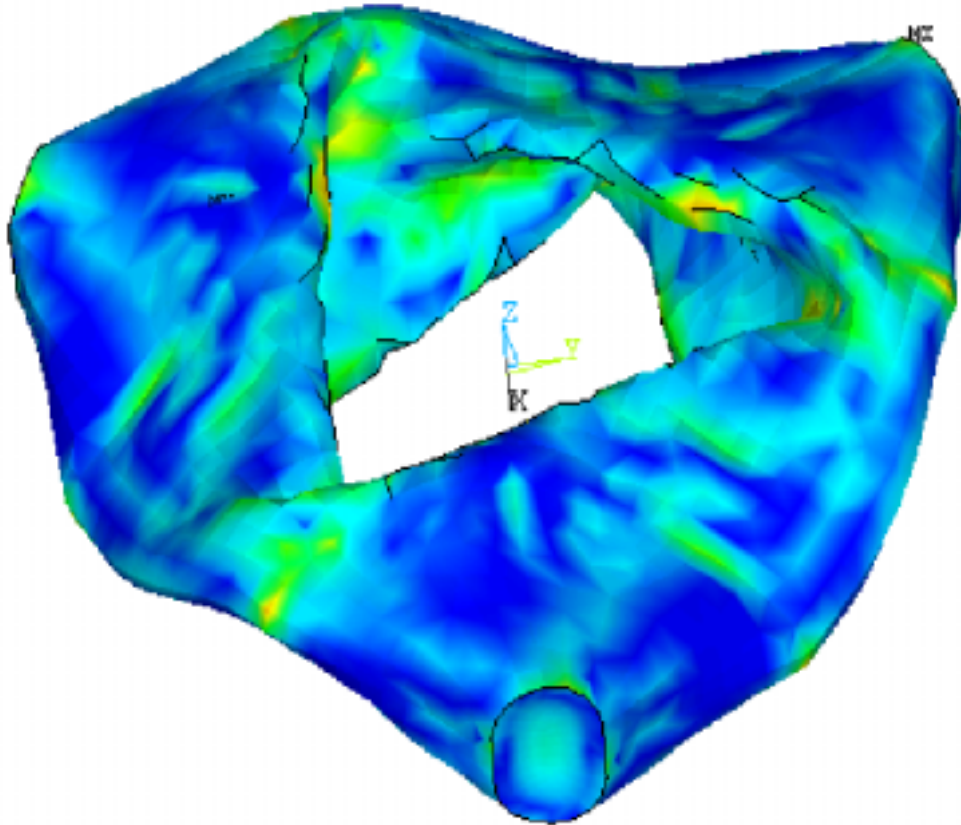
Spark Inductive Solution

I, toroidal = 1.74e5 amps
I, poloidal = 0.41e5 amps

Spark Inductive Solution
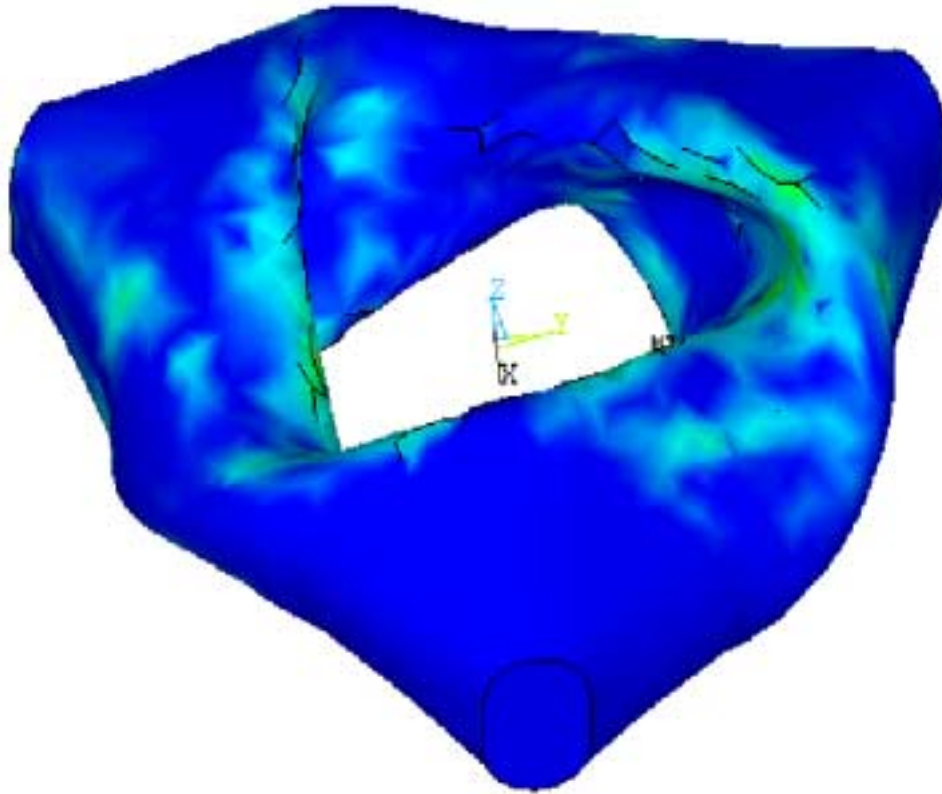
Vacuum Pressure Only

ANSYS 5.6.2
MAY 16 2001
11:44:29
NODAL SOLUTION
STEP=1
SUB =1
TIME=1
SEQV   (AVG)
PowerGraphics
EFACET=1
AVRES=Mat
DMX =.003413
SMN =.317E+07
SMX =.152E+09

.317E+07
.197E+08
.363E+08
.529E+08
.695E+08
.861E+08
.103E+09
.119E+09
.136E+09
.152E+09

NCSX VV 11383 1.4m .25" Inco 625

22.0 ksi Max
Von Mises

175 KA Disruption at 1.7 Tesla
(No Vacuum Pressure)

ANSYS 5.6.2
MAY 16 2001
11:28:07
NODAL SOLUTION
STEP=1
SUB =1
TIME=1
SEQV   (AVG)
PowerGraphics
EFACET=1
AVRES=Mat
DMX =.009647
SMN =.101E+07
SMX =.184E+09
.101E+07
.213E+08
.416E+08
.619E+08
.822E+08
.102E+09
.123E+09
.143E+09
.163E+09
.184E+09

NCSX VV 11383 1.4m .25" Inco 625

26.7 ksi Max
Von Mises