

!!!!!!! Define governing equation!!!!!!!!!!!!!!!!!!!!

START\_EQUATIONS\_SET

MODEL\_ID

SOLID

CLASS

EQUATIONS\_SET\_ELASTICITY\_CLASS

TYPE

EQUATIONS\_SET\_FINITE\_ELASTICITY\_TYPE

SUBTYPE

EQUATIONS\_SET\_TRANSVERSE\_ISOTROPIC\_ACTIVE\_SUBTYPE

END\_EQUATIONS\_SET

!!!!!!! Define governing equation!!!!!!!!!!!!!!!!!!!!

START\_PROBLEM

MODEL\_ID

SOLID

CLASS

PROBLEM\_ELASTICITY\_CLASS

TYPE

PROBLEM\_FINITE\_ELASTICITY\_TYPE

SUBTYPE

PROBLEM\_NO\_SUBTYPE

END\_PROBLEM

!!!!!!! Define Region !!!!!!!!!!!!!!!!!!!!!!!!!!!!!

START\_REGION

REGION\_ID

SOLID

! ----- MORE PARAMETERS TO BE ADDED LATER -----!

END\_REGION

!!!!!!! Define Material Fields !!!!!!!!!!!!!!!!!!!!!

START\_MATERIAL\_FIELD

MATERIAL\_FIELD\_ID

SOLID

MATERIAL\_FIELD\_PARAMETERS

6.352e-10, 3.627 , 2.756e-5 , 43.373 , 0.000 !! parameter values

END\_MATERIAL\_FIELD

!!!!!!!!!!!!!!!!!!!!!! Fiber Field !!!!!!!!!!!!!!!!!!!!!!!

START\_FIBER\_FIELD

FIBER\_FIELD\_ID

SOLID

FIBER\_FIELD\_PARAMETERS

0.785398163, 0, 0

END\_FIBER\_FIELD

!!!!!!!!!!!!!! Define Geometric Field !!!!!!!!!!!!!!!

START\_GEOMETRIC\_FIELD

GEOMETRIC\_FIELD\_ID

SOLID

!!!! rest functionailites will be added later

END\_GEOMETRIC\_FIELD

!!!!!!!!!! Define CONTROL LOOP!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!

START\_CONTROL\_LOOP

CONTROL\_LOOP\_ID

1

TYPE

CONTROL\_LOAD\_INCREMENT\_LOOP\_TYPE

INCREMENTS

50

END\_CONTROL\_LOOP

!!!!!!!!!!!!!!!!!!!!!! solver settings !!!!!!!!!!!!!!!!!!!!!!!

START\_SOLVER\_SETTINGS

EQUATION\_SET\_SOLVER\_TYPE

SOLVER\_LINEAR\_DIRECT\_SOLVE\_TYPE

PRECONDITIONER

NONE

EQUATION\_SOLVER\_MAXITER

1000

EQUATION\_SOLVER\_TOLERANCE

1e-6

NEWTON\_MAX\_ITERATIONS

100

**NEWTON\_TOLERANCE**

1e-6

**END\_SOLVER\_SETTINGS**

!!!!!!!!!!!!!!!!!!!! Defining cartesian coordinates !!!!!!!!!!!!!!!!!!

**START\_COORDINATE\_SYSTEM**

**CARTESIAN\_SYSTEM\_ID**

SOLID

**TYPE**

COORDINATE\_RECTANGULAR\_CARTESIAN\_TYPE

**END\_COORDINATE\_SYSTEM**

!!!!!!!!!!!!!!!!!!!! DEPENDENT FIELD !!!!!!!!!!!!!!!!!!!!!!!!!!!!!

**START\_DEPENDENT\_FIELD**

**DEPENDENT\_FIELD\_ID**

SOLID

**TYPE**

FIELD\_U\_VARIABLE\_TYPE

**NUM\_OF\_COMPONENTS**

4

**END\_DEPENDENT\_FIELD**

!!!!!!!!!!!!!!!!!!!! MESH DEFINITION !!!!!!!!!!!!!!!!!!!!!!!!!!!!!

**START\_MESH**

**MESH\_ID**

SOLID

**TOPOLOGY**

REGULAR\_MESH\_TYPE !!! default type is regular

**GEOMETRIC\_PARAMETERS**

1, 1, 1

**NUMBER\_OF\_ELEMENTS**

2, 2, 2

**END\_MESH**

!!!!!!!!!!!!!!!!!!!! DEFINE BASIS !!!!!!!!!!!!!!!!!!!!!!!!!!!!!

**START\_BASIS**

**BASIS\_ID**

SOLID

**COMPONENTS**            !!! no. of DOFs each node  
4

**PRESSURE\_BASIS**  
LINEAR\_LAGRANGE\_INTERPOLATION

**BASIS**  
QUADRATIC\_LAGRANGE\_INTERPOLATION

**END\_BASIS**

!!!!!!!!!!!!!!!!!!!!!! START BOUNDARY CONDITIONS !!!!!!!!!!!!!!!!!!!!!!!

**START\_BOUNDARY\_CONDITIONS**

**BOUNDARY\_CONDITIONS\_ID**  
SOLID

**DIRICHELET**   !!!! [ TYPE , LOCATION , COMPONENTS , VALUE ]  
SURFACE,        FRONT, 010,            0  
SURFACE,        BOTTOM, 001,           0  
SURFACE,        LEFT, 100,            0  
SURFACE,        RIGHT, 100,           1.2

**NEUMANN\_CF**   !!!!   tractions [ TYPE , LOCATION , COMPONENTS , VALUE ]  
!SURFACE,        RIGHT, 110,           0.2

**NEUMANN\_PRESSURE**   !!!! [ TYPE , LOCATION, VALUE ]  
!SURFACE,        RIGHT, 1.0

**END\_BOUNDARY\_CONDITIONS**

**STOP\_PARSING**