

Operator POST_COQUE

1 Drank

To extract from the forces or the strains on the elements shells at a given time. These extractions take place on sets of points introduced by the user by their coordinates and their position into the thickness. This command produces an `array` line containing one by point of postprocessing.

2 Syntax

```
[array] = POST_COQUE      (  
  
    # key word simple  
  
    ◆RESULTAT=resu          ,          /      [evol_elas]  
                                /      [evol_noli]  
  
    ◇/NUMÉRIQUE_ORDRE=/nuor  ,          [I]  
        /INST                =          inst,  [R]  
  
    ◆    CHAM=/              "FORCE",  
                                /"DEFORMATION",  
  
    # factor key word  
  
    ◆    COOR_POINT          =  
        _F ( ◆    COOR=      (X, there, Z, H, ),  
[l_R]  
  
                                ), )
```

3 Operands

3.1 Operand RESULTAT

◆ RESULTAT = resu,

Name of a result concept of the evol_elas type or evol_noli.

3.2 Operands NUME_ORDRE / INST

◇ / INST: time of computation of postprocessing

/ NUME_ORDRE: sequence number of the fields post-treaties

If neither INSTS nor NUME_ORDRE are indicated, by default one will treat the field corresponding to the first calculated time.

3.3 Operand CHAM

◆ CHAM = "FORCE"
/ "DEFORMATION"

"FORCE": EFGE_ELNOcontenant field 8 components:

- 3 forces of membrane N_{xx}, N_{yy}, N_{xy}
- 3 bending stresses M_{xx}, M_{yy}, M_{xy}
- 2 shears T_x, T_y

"DEFORMATION": field containing the 6 components of the tensor of the strains.

The strains in the thickness are calculated starting from the generalized strains of mean surface DEGE_ELNO ($e_{xx}, e_{yy}, e_{xy}, \kappa_{xx}, \kappa_{yy}, \kappa_{xy}, \gamma_x, \gamma_y$) where:

- (e_{xx}, e_{yy}, e_{xy}) the strains of membrane indicate,
- ($\kappa_{xx}, \kappa_{yy}, \kappa_{xy}$) indicate the strains of bending,
- (γ_x, γ_y) indicate the strains associated with the transverse shears.

The strains in the thickness (tensor 3D) are obtained by the formulas:

- $\epsilon_{xx} = e_{xx} + h \kappa_{xx}$
- $\epsilon_{yy} = e_{yy} + h \kappa_{yy}$
- $\epsilon_{xy} = e_{xy} + h \kappa_{xy}$
- $2\epsilon_{xz} = \gamma_x$
- $2\epsilon_{yz} = \gamma_y$

3.4 Factor key word COOR_POINT

◆ COOR_POINT = _F (

3.4.1 Operand COOR

◆ COOR = (X, there, Z, H,)

x, y, z : coordinates of the point, positioned on neutral fiber

h : position of the point in the thickness of the shell

($-e/2 \leq h \leq +e/2$, where e is the thickness)

If CHAM = "FORCE", h is ignored, the forces being calculated by integration of the stresses in the thickness. If the user returns h non-zero one to indicate transmits an alarm message which he is not taken into account.

4 Example

4.1 Given

```
= POST_COQUE (RESULTAT=resu, CHAM=' EFFORT',  
              INST=0.5,  
              COOR_POINT= ( _F (COOR= (.5, .5, 0. ,),),  
                _F (COOR= (.4, .4, 0. ,),),  
                _F (COOR= (.3, .3, 0. ,),),  
                _F (COOR= (.2, .2, 0. ,),),  
                _F (COOR= (.1, .1, 0. ,),),  
                )  
              )  
IMPR_TABLE (TABLE=tab)
```

4.2 Result

#ASTER 10.01.02 CONCEPT .9000036 LE CALCULATES 12/21/2009 A 14:29: 33 OF TYPE

#TABLE_SDASTER

INTITULE	NOM_CHAM	NUME_ORDRE	INST	ABSC_CURV	COORD_X
COORD_Y	COORD_Z	NXX	NYX	MYX	MYZ
MYX	QX	QY			
1.coupe1	EFGE_ELNO	1	5.00000	E-01 0.00000	E+00 5.00000
E-01 5.00000	E-01 0.00000	E+00 0.00000	E+00 0.00000	E+00 0.00000	E+00 1.39225
E+03 1.71917	E+02 7.31598	E+01 0.00000	E+00 0.00000	E+00 1.coupe	
2 EFGE_ELNO	1 5.00000		E-01 0.00000	E+00 4.00000	E-01
4.00000	E-01 0.00000	E+00 0.00000	E+00 0.00000	E+00 0.00000	E+00 1.60861
E+03 2.21319	E+02 4.51512	E+01 0.00000	E+00 0.00000	E+00 1.coupe3	
EFGE_ELNO	1 5.00000		E - 01 0.00000E	+00 3.00000E	- 01
3.00000E	- 01 0.00000E	+00 0.00000E	+00 0.00000E	+00 0.00000E	+00 1.77859E
+03 2.64092E	+02 2.45955E	+01 0.00000E	+00 0.00000E	+00 1.coupe4	EFGE_ELNO
1 5.00000E		-01 0.00000E+00	2.00000E-01	2.00000E-01	
0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	1.89431E+03	2.95034E+02
1.07022E+01	0.00000E+00	0.00000E+00	1.coupe5	EFGE_ELNO	
1	5.00000E-01		0.00000	E+00 1.00000	E-01 1.00000
0.00000	E+00 0.00000	E+00 0.00000	E+00 0.00000	E+00 1.96526	E+03 3.14826
E+02 2.63826	E+00 0.00000	E+00 0.00000	E+00		