

Operator POST_COQUE

1 Goal

To extract from the efforts or the deformations on the elements hulls at a given moment. These extractions take place on whole of points introduced by the user by their coordinates and their position into the thickness.

This order produces one `table` containing a line by point of postprocessing.

2 Syntax

```
[table] = POST_COQUE (

    # keyword simple

    ♦ RESULT = resu, / [evol_elas]
              / [evol_noli]

    ◇ / NUME_ORDRE = / nuor, [I]
      / INST = / inst, [R]

    ♦ CHAM = / 'EFFORT',
            / 'DEFORMATION',

    # keyword factor

    ♦ COOR_POINT =
      _F ( ♦ COOR = (X, there, Z, H), [1_R]
          ), )
```

3 Operands

3.1 Operand RESULT

◆ RESULT = resu,

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

3.2 Operands NUME_ORDRE / INST

◇ / INST: moment of calculation of postprocessing

/ NUME_ORDRE: sequence number of the fields post-treaties

If nor INST nor NUME_ORDRE are not informed, by default one will treat the field corresponding to the first calculated moment.

3.3 Operand CHAM

◆ CHAM = / 'EFFORT'
/ 'DEFORMATION'

'EFFORT' : field EFGE_ELNO containing 8 components:

- 3 efforts of membrane N_{xx}, N_{yy}, N_{xy}
- 3 bending stresses M_{xx}, M_{yy}, M_{xy}
- the 2 efforts cutting-edges T_x, T_y

'DEFORMATION' : field containing the 6 components of the tensor of the deformations.

The deformations in the thickness are calculated starting from the deformations generalized of average 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 deformations of membrane indicate,
- ($\kappa_{xx}, \kappa_{yy}, \kappa_{xy}$) the deformations of inflection indicate,
- (γ_x, γ_y) the deformations associated with transverse shearings indicate.

The deformations 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 Keyword factor COOR_POINT

◆ COOR_POINT = _F (

3.4.1 Operand COOR

◆ COOR= (X, Y, Z, H,)

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

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

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

If CHAM = 'EFFORT', h is ignored, the efforts being calculated by integration of the constraints in the thickness. If the user returns one h not no one one transmits a message of alarm to indicate that he is not taken into account.

4 Example

4.1 Data

```
= 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 CALCULATE THE 12/21/2009 AT 14:29: 33 OF TYPE  
#TABLE_SDASTER  
ENTITLE      NOM_CHAM      NUME_ORDRE  INST      ABSC_CURV      COOR_X  
COOR_Y      COOR_Z      NXX      NYY      NXY      MXX      MY  
MXY      QX      QY  
1.coupe1      EFGE_ELNO      1  5.00000E-01  0.00000E+00  5.00000E-01  
5.00000E-01  0.00000E+00  0.00000E+00  0.00000E+00  0.00000E+00  1.39225E+03  
1.71917E+02  7.31598E+01  0.00000E+00  0.00000E+00  
1.coupe2      EFGE_ELNO      1  5.00000E-01  0.00000E+00  4.00000E-01  
4.00000E-01  0.00000E+00  0.00000E+00  0.00000E+00  0.00000E+00  1.60861E+03  
2.21319E+02  4.51512E+01  0.00000E+00  0.00000E+00  
1.coupe3      EFGE_ELNO      1  5.00000E-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  0.00000E+00  1.00000E-01  
1.00000E-01  0.00000E+00  0.00000E+00  0.00000E+00  0.00000E+00  1.96526E+03  
3.14826E+02  2.63826E+00  0.00000E+00  0.00000E+00
```