Operator CALC_PRESSION

1 Goal

To create a nodal field corresponding to the normal constraints of interface on a definite zone. This field is calculated starting from the tensor of the constraints of Cauchy and the field of normal on the surface considered. The stress field calculated corresponds then to:

$$p=(\sigma . \underline{n}) . \underline{n} \quad (1)$$

where $\underline{n}$ is the normal on the surface considered and σ the tensor of the constraints of Cauchy. This field can be useful to reach the state of stress for the interface in various problems of mechanics (contact, breaking process…).

2 Syntax

```
near   [cham_no] = CALC_PRESSION

                (  ♦  GRID  = e-mail,                          [grid]
                    ♦  RESULT   = resu,                          / [evol_elas]
                                                                 / [evol_noli]
                   ♦  GROUP_MA  = l_grma,                          [l_gr_maille]
                   ♦  INSTANT   = inst,                            [R]
                   ♦  GEOMETRY  =  /   'DEFORMED',
                                   /   'INITIAL',
                   ◊  MODEL     = modi,                            [model]
                   ◊  INFORMATION     =  / 1,
[DEFECT]
                                         / 2,
                )
```

3 Operands

3.1 Operand GRID

♦ GRID = e-mail,

One informs the grid with the format aster associated with the model considered. This grid is used to calculate the field of normal to the interface.

3.2 Operand RESULT

♦ RESULT = resu,

One informs the structure of data result of the evol_noli type or evol_elas resulting from the resolution of the problem mechanics considered. The structure of data result must contain the fields nodal of the constraints of Cauchy SIEF_NOEU calculated as a preliminary by the operator CALC_CHAMP (cf [U4.81.04]).

3.3 Operand GROUP_MA

♦ GROUP_MA = l_grma,

One informs the list of the groups of meshs defining the interfaces considered.
In the case of facets plunged in volume, the user has the possibility thanks to the order MODI_MAILLAGE/ORIE_PEAU_3D/GROUP_MA_VOLU or MODI_MAILLAGE/ORIE_PEAU_2D/GROUP_MA_SURF to reorientate correctly the normal.

3.4 Operands INST

♦ INST = inst,

One informs the moment of calculation considered for postprocessing.

3.5 Operands GEOMETRY

♦ GEOMETRY = / 'DEFORMED', [DEFECT]
/ 'INITIAL'

One informs the configuration about which the field of normal is calculated, this keyword is obligatory.

3.6 Operands MODEL

◊ MODEL = modi,

One informs the model considered, this keyword is optional if the structure of data result contains single model.

3.7 Operand INFORMATION

◊ INFORMATION =/ 1 , [DEFECT]
/ 2 ,

Level of impression.