Code_Aster

Titre : Opérateur AFFE_CHAR_ACOU
Responsable : ABBAS Mickaël

Version default

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Clé : U4.44.04 Révision :
9142cad9d442

Operator `AFFE_CHAR_ACOU`

1 Goal

To affect boundary conditions acoustic constant. The affected values do not depend on any parameter and are complex values.

Product a structure of data of the type `char_acou`.

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2   Syntax

```
CH [char_acou]  =  AFFE_CHAR_ACOU

    (  ♦  MODEL       =   Mo                              [model]

    ♦ |  PRES_IMPO =  F  ( ♦ |  ALL    =   'YES'
                             |  NODE     =  lno           [l_noeud]
                             |  GROUP_NO =  lgno          [l_gr_noeud]
                             |  MESH     =  lma           [l_maille]
                             |  GROUP_MA =  lgma          [l_gr_maille]
                           ♦  NEAR     =  pre           [C]
                         )

       |  VITE_FACE =  _F  (  ♦  /  ALL    =   'YES'
                             /  MESH     =  lma           [l_maille]
                             /  GROUP_MA =  lgma          [l_gr_maille]
                           ♦   VNOR     =  vn            [C]
                         )

       |  IMPE_FACE =  _F  (  ♦  /  ALL    =   'YES'
                             /  MESH     =  lma           [l_maille]
                             /  GROUP_MA =  lgma          [l_gr_maille]
                           ♦  IMPE     =  Z             [C]
                         )

       |  LIAISON_UNIF=_F  (  ♦  /  NODE     =  lno            [l_noeud]
                             /  GROUP_NO =  lgno          [l_gr_noeud]
                             /  MESH     =  lma           [l_maille]
                             /  GROUP_MA =  lgma          [l_gr_maille]
                           ♦  DDL      =  'CLOSE'
                         )

    )
```

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3   Operands

3.1   Operand MODEL

♦   MODEL =   Mo

Name of the model whose grid supports the elements of acoustic calculation.

3.2   Keywords PRES_IMPO / VITE_FACE / IMPE_FACE

3.2.1   Goal

Keywords factors giving it natural of the conditions imposed on the specified elements (nodes, or groups of nodes, meshs or groups of meshs).

♦ | PRES_IMPO

Allows to impose the degree of freedom of pressure.

| VITE_FACE

Allows to specify the field speed vibratory imposed in loading on elements of border.

| IMPE_FACE

Allows to specify the map of impedance imposed in boundary condition on elements of border.

3.2.2   Operands ALL / NODE / GROUP_NO / MESH / GROUP_MA

Declaration of the topological entities to which the loadings are applied, boundary conditions.

3.2.3   Operands NEAR / VNOR / IMPE

CLOSE = pre

Value (complex) of the degree of acoustic freedom of pressure (only degree of freedom in acoustic modeling) imposed on the nodes or groups of specified nodes.

VNOR = vn

Value (complex) of the component on the normal **external** with the meshs or groups meshs specified, vibratory speed of the fluid.

IMPE = Z

Value (complex) of the acoustic impedance imposed on the meshs or groups of meshs specified.

3.3   Keyword LIAISON_UNIF

3.3.1   Goal

Keyword factor allowing to impose the same value (unknown) on degrees of freedom of a set of nodes.

3.3.2   Operands MESH / GROUP_MA / NODE / GROUP_NO

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These operands make it possible to define a list of n nodes N_i from which one eliminated the redundancies (for MESH and GROUP_MA, it is connectivities of the meshs).

3.3.3 DDL

This operand can be worth in acoustic modeling, only the text 'CLOSE', defining the only degree of freedom allowed, the acoustic pressure p .

The resulting imposed conditions are:

$$p(N_1) = p(N_i) \text{ for } i \in \{2, ..., n\}$$

4   Example

```
cha = AFFE_CHAR_ACOU ( MODEL = Mo,
                       VITE_FACE = _F ( MESH = m4,
                                        VNOR = ( 'IH' , 0.0135, 0. )),
                       IMPE_FACE = _F ( MESH = m5,
                                        IMPE = ( 'IH' , 442. , 0. )))
```

Note:

The complex values are provided under one of the two forms IH (real part, imaginary part) or MP (module, phase in degrees).