

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`.

2 Syntax

```
CH [char_acou] = AFFE_CHAR_ACOU
(
  ◆ MODEL = Mo [model]
  ◆ | PRES_IMPO = F (
    ◆ | ALL = 'YES'
    | GROUP_NO = lgno [l_gr_noeud]
    | GROUP_MA = lgma [l_gr_maille]
    ◇ SANS_GROUP_NO = lgno 1
    [l_gr_noeud]
    ◇ SANS_GROUP_MA = lgma 1
    [l_gr_maille]
    ◆ NEAR = pre [C]
  )
  | VITE_FACE = _F (
    ◆ / ALL = 'YES'
    / GROUP_MA = lgma [l_gr_maille]
    ◆ VNOR = vn [C]
  )
  | IMPE_FACE = _F (
    ◆ / ALL = 'YES'
    / GROUP_MA = lgma [l_gr_maille]
    ◆ IMPE = Z [C]
  )
  | LIAISON_UNIF = _F (
    [l_gr_noeud]
    ◆ / GROUP_NO = lgno
    / GROUP_MA = lgma [l_gr_maille]
    ◆ DDL = 'CLOSE'
  )
)
```

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 meshes).

- ◆ | 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 / GROUP_NO / GROUP_MA / SANS_GROUP_NO / SANS_GROUP_MA

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

Those are imposed on the nodes or meshes given by the keywords ALL, GROUP_MA, GROUP_NO Tout while possibly excluding thanks to the keywords SANS_*.

Attention keywords SANS_* are available only for the keyword PRES_IMPO.

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 specified nodes.

VNOR = vn

Value (complex) of the component on the normal **external** with the meshes specifiedES, the vibratory speed of the fluid.

IMPE = z

Value (complex) of the acoustic impedance imposed on the meshes specifiedES.

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 GROUP_MA / GROUP_NO

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

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:

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

4 Example

```
cha = AFFE_CHAR_ACOU ( MODEL = Mo,  
                       VITE_FACE = _F ( GROUP_MA = Gm4,  
                                         VNOR = ( 'IH' , 0.0135, 0. ) ),  
                       IMPE_FACE = _F ( GROUP_MA = Gm5,  
                                         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).