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 (  ♦ / GROUP_NO = lgno [l_gr_noeud]
    / 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 specified, the vibratory speed of the fluid.

IMPE = Z
Value (complex) of the acoustic impedance imposed on the meshes 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 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:

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

4 Example

```plaintext
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).