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## Operator DEFI\_INTERF\_DYNA

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### 1 Drank

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To define the interfaces of a structure and to affect a type to them.

Employee in the frame of methods of modal recombination, or dynamic substructuring per modal synthesis. Also count, without calculating them (task carried out by the operator DEFI\_BASE\_MODAL [U4.64.02]), the static deformed shapes corresponding to the definite interfaces.

Product a data structure of the `interf_dyna_clas` type.

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## 2 Syntax

```
inter [interf_dyna_clas] = DEFI_INTERF_DYNA

( ◆NUMÉRIQUE_DDL = nu ,
  [nume_ddl]

    ◆INTERFACE =_F ( ◆NOM = "nom_int", [kN]

                    ◆TYPE = "MNEAL",
                          / "CRAIGB",
                          / "CB_HARMO",
                          / "AUCUN", [DEFAULT]

                    ◆/NOEUD=' lno',

  [l_noeud] /GROUP_NO = ' lgn', [l_gr_noeud]

            ◆MASQUE=' lddl', [l_cmp]

            ),

    ◆FREQ =/val_freq , [R8]
          /1 , [DEFAULT]

    ◆INFO =/1 , [DEFAULT]
          /2 ,

  )
```

## 3 Operands

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### 3.1 Operand NUME\_DDL

◆NUMÉRIQUE\_DDL = nu

Name of the concept nume\_ddl of structure.

### 3.2 Key word INTERFACES

◆INTERFACE

Key word factor for the definition of the interfaces.

#### 3.2.1 Operand NOM

◆NOM = "nom\_int"

Name of the interface. **It is compulsory for each interface.** So for an occurrence of the key word factor INTERFACES any name is not given, then this occurrence comes to supplement the definition of the interface previously named (concatenation of the list of the nodes following those already existing). This makes it possible to NOEUD use the key keys and GROUP\_NO for the same interface, or to give various arguments to key keys MASQUE and DDL\_ACTIF within the same interface.

#### 3.2.2 Operand TYPE

◆TYPE =

It makes it possible to specify the kind of modal base corresponding to the interface.

"MNEAL":

interface corresponding with a modal base of the type MAC-NEAL which understands eigen modes and attach modes. The attach modes are not entered, with the interface, that on the not blocked and not masked degrees of freedom.

"CRAIGB":

interface corresponding with a modal base of the type CRAIG-BAMPTON which understands constrained eigen modes and modes. The constrained modes are not entered, with the interface, that on the degrees of freedom blocked by dualisation and not masked.

"CB\_HARMO":

interface corresponding with a modal base of the harmonic type CRAIG-BAMPTON which understands constrained eigen modes and harmonic modes (imposed harmonic unit displacement). The frequency used is that given in argument of the key word frequency "FREQ".

The harmonic constrained modes are not entered, with the interface, that on the degrees of freedom blocked by dualisation and not masked.

"AUCUN":

free interface. No static deformed shape will be calculated; modal base will comprise only eigen modes.

### 3.2.3 Operands NOEUD/GROUP\_NO

◇NOEUD = "lno"

ordered List of the nodes of the mesh composing the interface. The use of the key keys NOEUD and GROUP\_NO is exclusive in the same occurrence of the key word factor INTERFACES.

◇GROUP\_NO = "lgnno"

ordered List of the nodes groups of the mesh composing the interface. The final list of the nodes is obtained by concatenation of the nodes groups in the order given by the user, at the time of the definition of the groups.

### 3.2.4 Operand MASQUE

◇MASQUE = "lddl"

List of the d.o.f. for the current nodes which should not generate static deformed shapes (d.o.f. masked).

### 3.3 Operand FREQ

◇FREQ = val\_freq

Value of the frequency used for the computation of the harmonic constrained modes.

### 3.4 Operand INFO

◇INFO =

Level of information provided in the file "MESSAGE":

- 1 step of printing,
- 2 writing of the definitions of the interfaces (kind, nodes), and of the listed static deformed shapes (allows to check the list of the static deformed shapes before their computation itself).

### 3.5 Case of a node common to several interface

When a node is common to several interfaces (for example the center of a circular structure), that often leads to a singular system in the computation of the eigen modes of complete structure. One circumvents this problem by eliminating the common node. That led of course to an error on the total modes but if the mesh is rather fine, it is not sensitive (see the case test SDLS01).

## 4 Example

an example of use of the command is given in the documentation of operator DEFI\_SQUELETTE [U4.24.01].