

## Operator LIRE\_INTE\_SPEC

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### 1 Goal

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To see on an external file of the complex functions to create a matrix interspectrale.

The file user is coded in ASCII.

The functions read are of type `fonction_C`.

The produced concept is of type `interspectre`.

## 2 Syntax

```
int    [interspectre] = LIRE_INTE_SPEC

(
  ♦    UNIT      = / U [I]

      ◊    FORMAT = / 'ASTER'           [DEFECT]
              / 'IDEAS'
      ◊    FORMAT_C = / 'REEL_IMAG'
                      / 'MODULE_PHASE' [DEFECT]

      ◊    TITLE  = / title             [TXM]

      ◊    NOM_PARA = / 'DX'             [TXM]
                      / 'DY'
                      / 'DZ'
                      / 'DRX'
                      / 'DRY MARTINI'
                      / 'DRZ'
                      / 'TEMP'
                      / 'INST'
                      / 'X'
                      / 'Y'
                      / 'Z'
                      / 'EPSI'
                      / 'FREQ'         [DEFECT]
                      / 'SWEATERS'
                      / 'AMOR'
                      / 'ABSC'

      ◊    NOM_RESU = / nomresu         [KN]
                      / DSP             [DEFECT]

      ♦    PROL_DROITE = / 'CONSTANT'
                          / 'LINEAR'
                          / 'EXCLUDED'

      ♦    PROL_GAUCHE = / 'CONSTANT'
                          / 'LINEAR'
                          / 'EXCLUDED'

      ◊    Interpol  = / 'NOT'
                      / 'LOG'
                      / 'FLAX'         [DEFECT]

      ◊    INFORMATION = / 1             [DEFECT]
                          / 2
)

```

## 3 Operands

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### 3.1 Operand UNIT

◆ UNIT = U

Logical number of unit of the external file on which the reading is made.

### 3.2 Operand FORMAT

The format of reading defines:

- 'ASTER' by default,
- 'IDEAS' if one reads results obtained with IDEAS

### 3.3 Operand FORMAT\_C

Defines the format of reading for functions complexes S:

- 'MODULE\_PHASE' by default,
- 'REEL\_IMAG' real part and imaginary part.

### 3.4 Operand NOM\_PARA

The name of the parameter of the function (X-coordinate) defines. By default one takes 'FREQ'.

### 3.5 Operand NOM\_RESU

The name of the result of the function defines (ordered)

### 3.6 Operands PROL\_DROITE / PROL\_GAUCHE

◇ PROL\_DROITE =

The prolongation of the function on the right of field of definition of the variable defines.

◇ PROL\_GAUCHE =

The prolongation of the function on the left field of definition of the variable defines:

- 'CONSTANT'
- 'LINEAR' for a prolongation along the first definite segment (PROL\_GAUCHE) or of the last definite segment (PROL\_DROITE).
- 'EXCLUDED' if the extrapolation of the values apart from the field of definition of the parameter is prohibited.

### 3.7 Operand Interpol

◇ Interpol =

- 'LOG' interpolation logarithmic curve between two values of the field of definition.
- 'FLAX' linear interpolation between two values of the field of definition.

### 3.8 Operand INFORMATION

◇ INFORMATION =

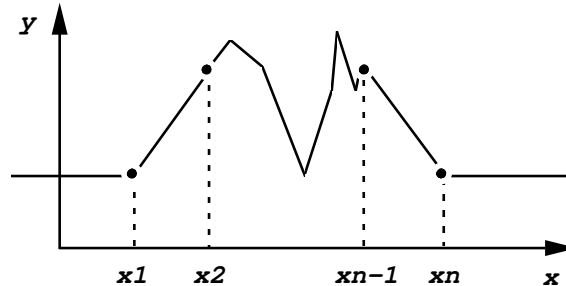
Specify the options of impression on the file MESSAGE.

- 1 impression of the attributes of the functions: many points of definition, names of the parameter and the result, as well as options of prolongation and checking

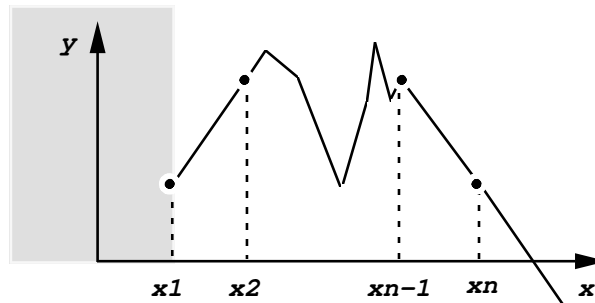
- 
- 2     like 1 more the list of the first 10 values of each function in the order ascending of the parameter

For example:

- `PROL_DROITE = 'CONSTANT'` ,      `PROL_GAUCHE = 'CONSTANT'`



- `PROL_DROITE = 'LINEAR'` ,      `PROL_GAUCHE = 'EXCLUDED'`



## 4 Phase of checking

Checking amongst values read by functions.

Checking amongst functions read.

## 5 Remarks of use

The functions associated with the matrix interspectrale are accessible to the user using the order `RECU_FONCTION [U4.32.03]` by using the keyword `INTE_SPEC`.

### 5.1 Syntax of the file

The information read on the file is made up of three parts:

- a keyword of head of imposed chapter: `INTERSPECTRE`.
- the keyword `DIM`, dimension of the matrix.
- 'subfiles defining 'complex functions. Each subfile starts with the keyword `FONCTION_C` and ends in `FINSF`.
- the file ends obligatorily in `END`.

## 5.2 Descriptor

### 5.2.1 Keyword describing caractéristiques matrix

- ◆ DIM = dim

Entirety makes it possible to define the dimension of the matrix.

**Note:**

|The sign '=' is obligatory.

### 5.2.2 Keyword describing one fonction\_C

**Notice preliminary:**

|the number of functions to be defined is equal to:  
 $N = (dim * (dim + 1)) / 2$ , since the matrix considered is 'SQUARE'.

Lbe N functions are defined by their indices I and J in the matrix. Only the higher triangular part of the matrix is defined, (indices (1.1); (1.2); (2.2); (1.3); ... (N, N)).

- ◆ FONCTION\_C
- ◆ I = whole index line of the function in the matrix.
- ◆ J = whole index column of the function in the matrix.
- ◆ NB\_POIN = whole number of points of FUNCTION
- ◆ VALUE = 3\*NB\_POIN realities must be present. The reading of the values is carried out line with line.

On each line are defined in the following order:

- the value of the parameter, the real part of the result, the imaginary part of the result (FORMAT = 'REEL\_IMAG'),
- or
- the value of the parameter, the module of the result, the phase of the result (FORMAT = 'MODULE\_PHASE')

**Note:**

|For the format MODULE\_PHASE, the phase is given in degree.

## 6 Example

Example of syntax of file user:

```
INTERSPECTRE
DIM = 2
FONCTION_C
I = 1
J = 1
NB_POIN = 4
VALUE =
      0.          10.          0.1
      10.         10.         0.1
      10.01       0.          0.
      100.        0.          0.

FINSF
FONCTION_C
I = 1
J = 2
NB_POIN = 4
VALUE =
      0.          2.          0.5
      10.         2.          0.5
      10.01       0.          0.
      100.        0.          0.

FINSF
FONCTION_C
I = 2
J = 2
NB_POIN =4
VALUE =
      0.          20.         0.1
      10.         20.         0.1
      10.01       0.          0.
      100.        0.          0.

FINSF
END
```

Example of syntax of the order:

```
AUTOSPC=LIRE_INTE_SPEC (      UNITE=19,
                              FORMAT=' MODULE_PHASE',
                              PROL_DROITE=' EXCLU',
                              PROL_GAUCHE=' EXCLU',
                              INTERPOL=' LIN'
                              )
```