

Operator LIRE_INTE_SPEC

1 Goal

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  = / 'LOG'
                / 'FLAX'           [DEFECT]

  ◇ INFORMATION = / 1             [DEFECT]
                  / 2
)
```

3 Operands

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 =

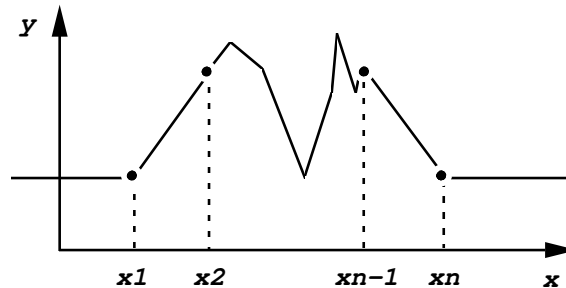
Specify the options of impression on the file MESSAGE.

- 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

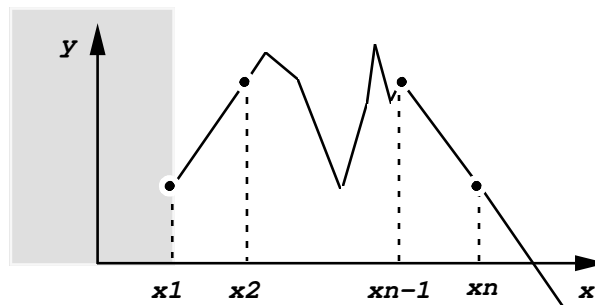
-
- 2 like 1 more the list of the first 10 values of each function in the order ascending of the parameter

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'
                              )
```