Operator **DEFI_COMPOSITE**

## 1 Goal

To determine characteristic materials homogenized of a multi-layer hull starting from the characteristics of each layer. Are taken into account the following characteristics:

- thickness,
- type of constitutive material,
- orientation of fibres compared to a reference axis.

This order produces a structure of data of the type to subdue. It is not usable in non-linear mechanics (**STAT_NON_LINE** and **DYNA_NON_LINE**).
2 Syntax

MUL [to subdue] = DEFI_COMPOSITE ( 

  ♦ SLEEP = _F ( ♦ THICK = EP , [R]
  ♦ MATER = MY , [mater_sdaster]
  ♦ ORIENTATION = / ORIEN , [R]
      / 0. , [DEFECT]

  )

  ◊ IMPRESSION = _F ( ◊ UNIT = / links , [I]
  .
      / 8, [DEFECT]

)
3 Operands

3.1 Keyword SLEEP

♦ SLEEP = _F

Keyword factor for the definition of a layer of the multi-layer composite on the basis of the sub-base to the roadbase.

3.1.1 Operand THICK

♦ THICK = EP

Thickness of the layer.

3.1.2 Operand MATER

♦ MATER = MY

The concept MY the material constitutive of the layer contains and is produced by the operator DEFI_MATERIAU under the keyword factor ELAS_ORTH.

Parameters of damping AMOR_ALPHA, AMOR_BETA and AMOR_HYST available in ELAS_ORTH are not taken into account by DEFI_COMPOSITE.

3.1.3 Operand ORIENTATION

♦ ORIENTATION = orien

Angle of the 1st direction of orthotropism (longitudinal direction or direction of fibres) in the tangent plan with the element compared to the 1st direction of the reference mark of reference defined in the operator AFFE_CARA_ELEM by the keyword factor HULL and the keyword ANGL_REP [U4.42.01].

By default orien is null, if not it must be provided in degrees and must be understood enters –90° and +90°.
3.2 Operand IMPRESSION

◊ IMPRESSION = _F (◊ UNIT = / links, [I]

This integer makes it possible to choose the logical unit of the file where the impression with the format will be done RESULT list of the homogenized coefficients. By default, the impression will be carried out on the logical unit associated with the logical file of unit 8.

4 Example

MULTI = DEFI_COMPOSITE

SLEEP = (_F (THICK = 1.E-3, MATER = MAT1, ORIENTATION = - 20.),
         _F (THICK = 2.E-3, MATER = MAT2, ORIENTATION = 10.),
         _F (THICK = 2.E-3, MATER = MAT2, ORIENTATION = - 10.),
         _F (THICK = 1.E-3, MATER = MAT1, ORIENTATION = 20.),)

Corresponds to the multi-layer one: