

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 produit 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

```
MU1 [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`.

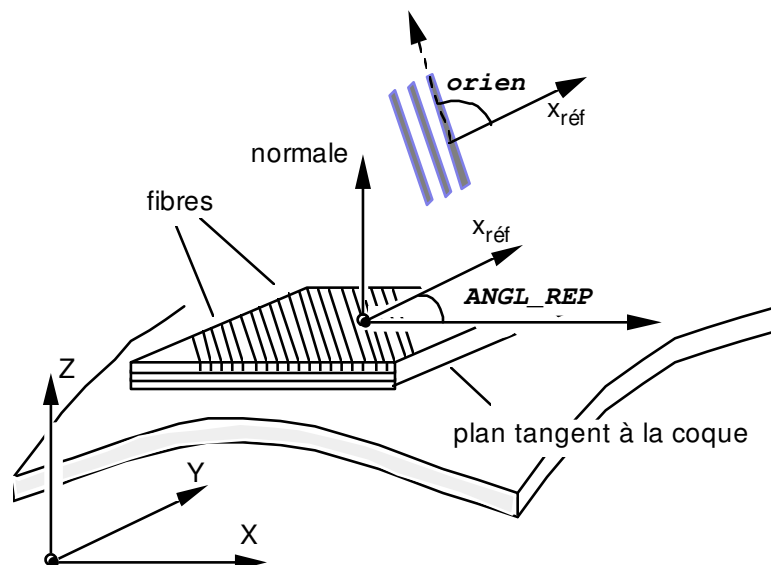
Parameters of damping `AMOR_ALPHA` , `AMOR_BETA` and `AMOR_HYST` available in `ELAS_ORTH` are not taken into account by `DEFI_COMPOSITE` .

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 $+90^\circ$.



3.2 Operand IMPRESSION

```
◇ IMPRESSION = _F ( ◇ UNIT = / links, [I]
                    / 8, [DEFECT]
```

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:

