

Operator DEFI_PART_FETI

1 Drank

This operator allows to carry out the partitioning of a model or a mesh.

In the case of a model, data structure `SDFETI` is generated, authorizing a resolution with FETI solver.

2 Syntax

```

SDFETI = DEFI_PART_FETI (
    ♦/MAILLAGE=maillage , [mesh]
    /. MODELE=modèle , [models]
    ♦ NBPART=nbpart [I]
    ◇ METHODE=/ "SCOTCH" [DEFAULT]
    /"PMETIS"
    /"KMETIS"
    ◇ LOGICIEL= `chemin.exe' [TXM ] ◇
    NOM_GROUPE_MA=/ " SD", [DEFAULT ]/
    ngma [TXM ] ◇
    TRAITER_BORDS=/ " YES" [DEFAULT ]/
    " NON ◇
    CORRECTION_CONNEX="/" NON" [DEFAULT ]/"
    YES" ◇
    GROUPAGE=_F (♦
    GROUP _MA= grma , [l_gr_maille ]),
    ◇
    =_F EVALUATING (♦
    GROUP _MA= grma , [L _gr_maille] ◇
    POIDS= / p, [I ]/
    1)
    , ◇
    NOM_GROUPE_MA_BORD=ngmab [TXM ] ◇
    EXCIT=_F (◇
    CHARGE = char_meca or char_cine_meca,),
    .
    ◇
    INFO=/1 , [ DEFAULT ] /
    2 , )

```

Operands

3 Operand

3.1 MAILLAGE ♦

`/MAILLAGE=maillage` Name

of the partition mesh. In this case,

data structure SDFETI N" is not generated. The computation with FETI solver is thus not possible. Operand

3.2 MODELS /

`MODELS =modèle` Name

of the partition model. In this case,

data structure SDFETI is generated, authorizing a resolution with FETI solver Operand

3.3 METHODE ♦

```
METHODE = " SCOTCH" "  
          PMETIS" "  
          KMETIS" Makes it possible
```

to define the partitionnor used. Mongrel

is developed by G. Karypis and V. KUMAR at the university from Minnesota, in Mineapolis:
<http://www-users.cs.umn.edu/~karypis/metis>

[Two](#)

algorithms are available. Scotch tape

is developed at the University of Bordeaux-I by F. Pellegrini:
http://www.labri.fr/Perso/~pelegrin/scotch/scotch_fr.html

[Operand](#)

3.4 LOGICIEL ♦

`LOGICIEL=chemin.exe` This

command is optional. If it is omitted, the executable ones will be taken in the directory of the tools of Aster. If it is present, then it defines the complete path towards the executable one of the partitionnor, on the object computer. Note:

She

| is taken into account only for the METIS method because SCOTCH is integrated into Code_Aster in the shape of a library at the compile time. Operand

3.5 NBPART ♦NBPART

`= nbpart` Many

subdomains wished by the user. The number of subdomains is an integer equal to or higher than 2. Definite

Warning : The translation process used on this website is a "Machine Translation". It may be imprecise and inaccurate in whole or in part and is provided as a convenience.

3.6 operand NOM_GROUP_MA

◇NOM _GROUP_MA=ngma

the prefix of the names of the mesh groups defining the subdomains. By default, this one is "SD".
Operand

3.7 TRAITER_BORDS ◇TRAITER

_BORDS="/YES "/NON
 " Makes it possible

to carry out a particular processing with meshes of edges (with the meaning geometrically include in another mesh) before partitioning: those are withdrawn from the partition mesh then reinjected after partitioning. This processing allows bearing certain difficulties of the partitionnor, who can in certain cases separate a mesh from edge of his mesh father. Operand

3.8 CORRECTION_CONNEX ◇CORRECTION

_CONNEX="/YES "/NON
 " not

- connexity of a subdomain can generate difficulties convergence of seeing plantings of the algorithm of resolution of FETI. Option

CORRECTION_CONNEX makes it possible to check the connexity of the subdomains. In the case of one or several subdomain NON-related, of under additional fields is generated from each NON-related block. The subdomains thus obtained can be unbalanced in terms of many elements. Operand

3.9 GROUPAGE ◇ GROUPAGE

=_F (GROUP ,_MA= grma), Makes it possible

to generate a partitioning in which meshes mesh group "grma " will be obligatorily placed in the same subdomain. Operand

3.10 EVALUATING ◇POIDS

_MAILLES=_F (GROUP ,_MA= grma , POIDS
 = p,), By
 default

, all meshes have a weight of 1. This factor key word allows meshes to assign to definite by a mesh group a weight given by the user. This option makes it possible to generate subdomains of which the number of meshes is not equivalent. One of the interests is to be able to generate smaller subdomains where one predicts than computation will be more difficult (zone of plasticization, etc...). Operand

3.11 NOM_GROUP_MA_BORD \diamond NOM

`_GROUP_MA_BORDS=ngmab . [TXM] If`

`TRAITER_BORDS = "YES"` (meshes from edges are withdrawn from the partition mesh), this optional key word makes it possible, if it is present, not to reinject meshes edges in the subdomains, but to create other mesh groups containing only meshes edges of each subdomains. The use

of this functionality leads to a SD FETI which N "is not compatible with FETI solver, and N" has that a role of graphic checking of edges of the subdomains. Operand

3.12 EXCIT \diamond EXCIT

`=_F (CHARGE = tank _meca or char_cine_meca,), List`

of the loadings applied to the model. These loadings are necessary for the creation of the data structure SD FETI used in FETI solver. Operand

3.13 INFO Level

of printing. If:
INFO : 2 : times

- computations, the number of meshes
- of edges, the number of meshes
- by subdomains. Example

4 SDFETI

```
= DEFI_PART_FETI (MODELS
= models      NB_PART
=16, EXCIT
= (_F (      CHARGE=CH1      ), _F (CHARGE
      =CH2),), METHODE
= ' SCOTCH', CORRECTION
  _CONNEX=' OUI', INFO=
  2,)
```