

## Operator DEFI\_FIELD\_REDUCED

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The goal of the operator is to enrich an existing grid by groups (of meshes or nodes) which define a under-field called reduced field of integration (RID).

The operator rests on one or more `sd` result of the type `mode_empi` to determine nodes specific, called points of interpolation, by applying the method of discrete empirical interpolation (DEIM). The reduced field of integration is the whole of the meshes positioned in the vicinity of these points of interpolation.

The operator enriches the `sd` grid by creating two groups:

- UN groups meshes corresponding to the reduced field ;
- a group of nodes corresponding to the interface between the reduced field and the rest of the initial field.

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## 1 Syntax

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```
e-mail = DEFI_FIELD_REDUCED (  
    ♦ reuse = e-mail , [grid]  
    ♦ GRID = e-mail , [grid]  
    ♦ BASE_PRIMAL = base1, [mode_empi]  
    ♦ BASE_DUAL = base2, [mode_empi]  
    ♦ NOM_DOMAINE = nom_d, [l_Kn]  
    ♦ NOM_INTERFACE = nom_i, [l_Kn]  
    ◇ NB_COUCHE_SUPPL = / 0 [DEFECT]  
    /nb_couche, [I]  
    ◇ DOMAINE_INCLUS = _F (  
    ◇ GROUP_MA = lgma1, [l_gr_maille]  
    ◇ GROUP_NO = lgno1, [l_gr_noeud]  
    ),  
    ◇ TITLE = title, [l_Kn]  
    ◇ INFORMATION = /1, [DEFECT]  
    /2,  
)
```

## 2 Operands

### 2.1 OperandS **BASE\_PRIMAL** and **BASE\_DUAL**

- ◆ **BASE\_PRIMAL** = base1, [mode\_empi]
- ◆ **BASE\_DUAL** = base2, [mode\_empi]

Name ofS structureS data result of type mode\_empi to analyze to generate points of interpolation .

Both basesS base1 and base2 Scaculated using the operator **DEFI\_BASE\_REDUITE** [U4.67.01].  
The calculation of the base base1 rest on a field of temperature or a field of displacement.  
The calculation of the base base2 rest on a field of flow or a stress field.

### 2.2 Operand **GRID**

- ◆ **GRID** = e-mail, [grid]

The order will enrich a concept already existing grid with the new groups of nodes and meshes defined by **DOMAINE\_INCLUS** , **NOM\_INTERFACE** and **NOM\_ENCASTRE** .  
The keyword **GRID** is thus obligatory.

### 2.3 Operand **NOM\_DOMAINE**

- ◆ **NOM\_DOMAINE** = nom\_d

It is specified name of the group of meshes corresponding to the RID.

### 2.4 Operand **NOM\_INTERFACE**

- ◆ **NOM\_INTERFACE** = nom\_i

One specifies the name of the group of node S contained in the interface between the RID and the rest of the field.

### 2.5 Operand **NB\_COUCHE\_SUPPL**

- ◆ **NB\_COUCHE\_SUPPL** = nb\_couche, [ I ]

By default, the order builds group RID by selecting the meshes attached to the magic points (application of the dEIM, to see [R5.01.05]). When the keyword is used **NB\_COUCHE\_SUPPL** , one can increase the RID while taking nb\_couche additional elements around the initial RID. By default, nb\_couche =0 .

### 2.6 Operand **DOMAINE\_INCLUS**

- ◆ **DOMAINE\_INCLUS** = \_F (
  - ◆ **GROUP\_MA** = lgma1, [l\_gr\_maille]
  - ◆ **GROUP\_NO** = lgno1, [l\_gr\_noeud])

C E keyword optional factor makes it possible to put part of the grid in the RID even if L " algorithm of research of the magic points by dEIM (see [R5.01.05]) does not allow it. It is very useful in particular "to force" the integration of part of the limiting conditions in the RID. One can either add nodes, or to add meshes.

# Code\_Aster

Version  
default

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Responsable : ABBAS Mickaël

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