

Modeling 3D_ABSO

Summary:

This document describes for modeling 3D_ABSO :

- degrees of freedom carried by the finite elements which support modeling,
- the related meshes supports,
- supported loadings,
- nonlinear possibilities,
- CAS-tests implementing modelings.

Modeling 3D_ABSO (Phenomenon: MECHANICS) corresponds to finite elements whose meshes supports are surface. They make it possible to take into account the condition of absorbing border of solid volumes.

1 Discretization

1.1 Degrees of freedom

Modeling	Degrees of freedom (with each node top)
3D_ABSO	DX : following displacement X DY : following displacement Y DZ : following displacement Z

1.2 Meshes supports of the matrices of rigidity

The meshes supports of the finite elements can be quadrangles or triangles. The elements are isoparametric.

Modeling	Mesh	Interpolation	Remarks
3D_ABSO	TRIA3	linear	
	TRIA6	quadratic	
	QUAD4	linear	
	QUAD8	quadratic	
	QUAD9		

1.3 Meshes supports of the loadings

The same ones as previously.

2 Supported loadings

The loading available is the following:

- `'ONDE_PLANE'`
Allows to impose a seismic loading by plane wave.

3 Non-linear possibilities

3.1 Laws of behaviors

The only relation of behavior, available under `DYNA_NON_LINE`, for this modeling, under `BEHAVIOR` is the relation `'ELAS'`.

3.2 Deformations

Only linearized deformations keyword `'SMALL'` under `DEFORMATION` are available.

4 Examples of implementation: CAS-tests

- Non-linear dynamics
SDLV120A [V2.04.120]: Analysis of the propagation of one compression wave in an infinite elastic bar (absorption of the wave at the border of the grid).
SDLV121A [V2.04.121]: Propagation, reflection and absorption of a wave plane in a solid mass modelled in the shape of a column 1D.