



## Starting with Z-cracks

**Do you want to learn how to analyze fatigue cracks? Would you like to accurately predict crack paths and propagation kinetics? Discover how to use Z-cracks, the module for 3D fracture mechanics simulation.**

This one-day training course is intended for engineers and researchers who already have relevant experience in fracture mechanics. The goal of this training is to demonstrate the

capabilities of the Z-cracks module to perform static crack analysis and crack propagation simulations.

### LEVEL



**Beginner**

### PREREQUISITES



**A good basic knowledge of fracture mechanics is required.**

### GOALS



- **Understanding of Z-cracks' principles and simulation workflow**
- **Setup of static crack and crack propagation simulations**
- **Launching computations**
- **Visualization, interpretation and analysis of results**
- **Introduction to advanced user capabilities**

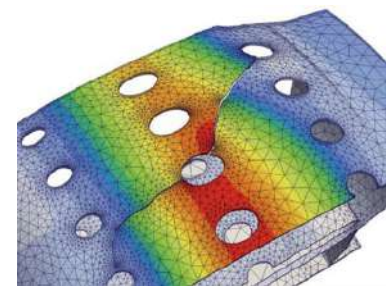
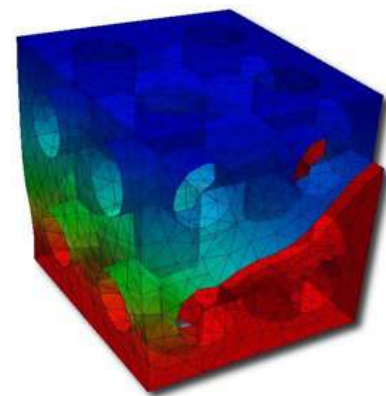


TRAINING	DURATION	PRICE TAXES NOT INCL.	PARTICIPANTS
In-company	1 day	1400 € per training	1 to 3 people

**Contact us to set the course date and location.**

**DAY 1 >** 8.30 a.m. to 12.00 p.m. & 1.30 p.m. to 5.00 p.m.

<b>Introduction</b>	<ul style="list-style-type: none"> <li>• Presentation of Transvalor</li> <li>• Course goals</li> </ul>
<b>Simulation workflow and setup</b>	<ul style="list-style-type: none"> <li>• Quick review of software installation (Linux, Windows), environment variables, connection to external FE solvers</li> <li>• Presentation of Z-set distribution (documentation, tests base)</li> <li>• Running scripts</li> <li>• Presentation of Z-cracks' GUI and main principles</li> <li>• Getting started: importing models</li> <li>• Crack definition and insertion, remeshing principles and strategies</li> <li>• Stress intensity factors: setup of SIF analysis</li> <li>• Propagation analysis: setup and propagation laws</li> <li>• Z-cracks' scripts presentation</li> <li>• Application to tutorials</li> </ul>
<b>Computation</b>	<ul style="list-style-type: none"> <li>• Launching simulations, multicore execution</li> <li>• Computation restart procedure</li> </ul>
<b>Results analysis</b>	<ul style="list-style-type: none"> <li>• Results files</li> <li>• Results visualization, curves visualization</li> <li>• Results merging and animations</li> </ul>
<b>Advanced capabilities</b>	<ul style="list-style-type: none"> <li>• Advanced options</li> <li>• Non-linear material models</li> <li>• Contact between cracks lips</li> <li>• User propagation laws</li> <li>• Complex loading histories</li> <li>• Scripts for automated simulations</li> </ul>
<b>Conclusions</b>	<ul style="list-style-type: none"> <li>• Questions and course assessment</li> </ul>



Numerical simulation of a cracked combustion chamber under thermomechanical fatigue loading

