DIGIMU®

Starting with DIGIMU®

Discover and learn how to use DIGIMU®, your simulation solution for microstructural changes.

This training teaches you how to use our DIGIMU® software to simulate microstructural changes during metal forming processes at the mesoscopic scale, via representative elementary volumes (REVs).

You will work on various grain growth and dynamic recrystallization models.
At the end of this day, you will also know how to analyze the results of these computations.

LEVEL

Beginner

PREREQUISITES

A good knowledge of microstructure and recrystallization is required.

GOALS

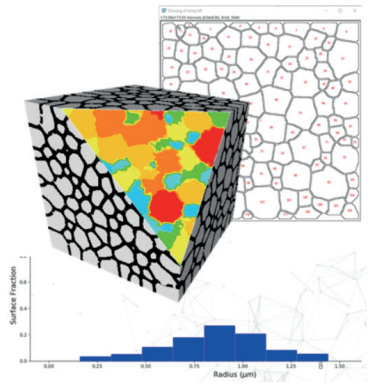
- **Mastering the graphical user interface**
- **Modeling grain growth by capillarity at the grain scale (several millimeters) via 2D and 3D Representative Volume Elements (RVE).**
- **Modeling grain growth with or without second phase particles**
- **Importing grain distribution from experimental data**
- **Recover the thermomechanical path from a FORGE® simulation**
- **Predicting microstructural changes occurring during thermomechanical processes and heat treatments of metal alloys**
- **Modeling dynamic and post-dynamic recrystallization**
- **Analyzing simulation results**

TRAINING	DURATION	PRICE EXCL. TAX	PARTICIPANTS
In-company	1 day	1300 € per training	1 to 3 people

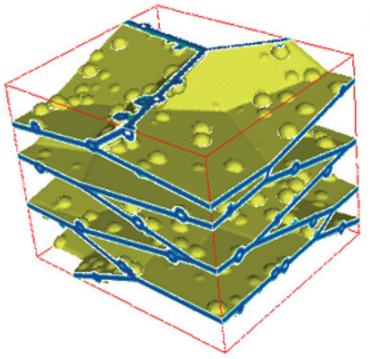
Contact us to set the course date and location.

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

Introduction	▫ Transvalor presentation ▫ Course goals
Setup data of tutorial case: grain growth	▫ Project concept ▫ Simulation parameters ▫ Process temperature and time ▫ Storage frequency ▫ Storage of grain size distribution data ▫ Polycrystal generation tool ▫ Micrograph ▫ Material file ▫ AAA remeshing: Automated Adaptive Anisotropic
Computation	▫ Quick launch, stop, restart computation
Result analysis	▫ Displaying results: grain boundary evolution, equivalent grain sizes, grain coordination (number of neighbors) ▫ Grain size step distribution ▫ Curve patterns: grain size evolution, number of grains ▫ Animations, export
Additional tutorials	▫ Grain boundary pinning phenomeNO (Smith Zener Pinning) ▫ Dynamic recrystallization - post-dynamic recrystallization ▫ Dynamic recrystallization - 4-pass post-dynamic recrystallization ▫ SRX static recrystallization: nucleation and grain growth of recrystallized grains in a deformed matrix
Features	▫ Import of a thermomechanical path from FORGE® ▫ Chaining simulation
Industrial case result analysis	▫ Interpreting results: grain boundaries, distance to grain boundary, dislocation density, energy, equivalent grain diameter ▫ Grain size distribution (histograms, cutting planes) ▫ User routines: a quick overview of user routines in DIGIMU® 4.0.
Material file identification	▫ Quick overview of the parameter identification procedure
Conclusions	▫ Questions and course assessment



3D and 2D polycrystal modeling



Grain boundary evolution and nucleation during forging

A NEW GENERATION SIMULATION EXPERIENCE

TRANSVALOR