

# ARTIFICIAL INTELLIGENCE DAY

irCer

**March 14, 2025**

Amphi 4, CEC

**MACHINE LEARNING, DEEP LEARNING,  
DATA ANALYSIS, DATA TREATMENT,  
DESIGN AND OPTIMIZATION,  
SIMULATION AND PREDICTION**

# PROGRAM

9:45 - 10:00

## Introduction

Philippe Thomas & Assil Bouzid

10:00 - 11:00

## Machine learning feedback: meta-parameters and repeatability (Invited)

Jean-Luc Charles

Retired from Arts & Métiers ParisTech, I2M-DuMAS-MPI, UMR 5295 CNRS, F-33405 Talence, France

11:00 - 11:30

## Significant breakthrough in the correlation between local silica structure and improved 3D processes c(2)-c(3) in multimode fibers by multivariate analysis of vibrational data

Dan-Esli Bouyou Bouyou,  
Maggy Colas

11:30 - 12:00

## Control of 3D-printing by micro-extrusion in the elastic regime assisted by artificial intelligence

Fabrice Rossignol, Julien Gerhards

12:00 - 12:30

## Deep neural networks for ultra-fast analysis of X-ray diffraction data

Arthur Souesme,  
René Guinebretière,  
Alexandre Boulle

12:30 - 2:00 pm

Lunch break

2:00 - 3:00

## Nucleation phenomena in liquid metals: what can be gained from machine learning? (Invited)

Johannes Sandberg<sup>1,2,3</sup>, Thomas Voigtmann<sup>2,3</sup>, Rémi Molinier<sup>4</sup>, Emilie Devijver<sup>5</sup>,  
Noel Jakse<sup>1</sup>

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3:00 - 3:30

## Machine learning for the construction and validation of atomistic models of complex amorphous Si-C-N ceramics

Fabien Mortier, Assil Bouzid, Olivier Masson,  
Samuel Bernard and Sylvian Cadars

3:30 - 4:00

## GEOMIND: A hybrid generative artificial intelligence for geopolymers design and optimization

Sébastien Rousseau, Assil Bouzid,  
Ameni Gharzouni

4:00 - 4:30

Coffee break

4:30 - 5:00

## Methodology for 3D reconstruction from FIB images of a ceramic microstructure using deep learning tools

Damien André

5:00 - 5:30

## Data-efficient general-purpose machine learning potentials: application to glassy materials

Firas Shuaib, Olivier Masson, Philippe Thomas,  
Assil Bouzid

5:30 - 5:45

Conclusion