

Post-doc position

Mechanical properties of 3D-printed ceramic materials



Host laboratories :

- Matériaux Ingénierie et Science ([MATEIS](#)), Lyon, France.

MATEIS is a Materials Science laboratory that encompasses different fields, namely chemistry, physics and mechanics. The MATEIS laboratory studies three classes of materials (metals, ceramics and polymers), and their composites, incorporating their characteristics by volume and surface and their interfaces.

- Ceramics Synthesis and Functionalization Lab ([LSFC](#)), Cavallon, France.

The lab is a joint laboratory between CNRS and [Saint-Gobain](#): as such, our mission is to build expertise in the field of ceramic materials, progress in the understanding of related phenomena and explore emerging technologies, in domains related to Saint-Gobain's applications. Investigating material textures at various length scales is the central research focus in LSFC, both for porous and for dense materials.

Project description :

This project is part of the [AMITIE](#) European project which focuses on additive manufacturing of ceramics. The objective is to understand the mechanisms of failure of additive-manufactured ceramics, depending on the microstructure of the materials.

Fabrication of ceramic samples having different compositions (mainly zirconia, and also silico-aluminates, silicon carbide) and using different additive manufacturing techniques (such as robocasting or laser selective drying) will be performed. X-Ray tomography will allow precise imaging of the obtained microstructure. Characterization of the mechanical properties will be performed using high-end techniques such as in-situ testing under tomograph.

The post-doc will include several secondments to other AMITIE partner labs :

- Federal Institute for Materials Research and Testing, Berlin
- Technical University of Catalonia, Barcelona
- Polytechnical University of Torino.

Position :

18 months post-doctoral contract.

Location : Lyon, in France, for the first 6 months. Cavallon for the remaining 12 months, with several month-long missions abroad (1 to 2 months in Berlin, 1 month in Barcelona, 2 to 3 months in Torino).

Background and profile of the candidate :

The present position is open to a candidate with a previous experience in the field of materials science (preferably ceramic materials) and/or additive manufacturing and/or mechanical testing.

A PhD diploma is required, several publications in scientific journals are required.

Proficiency in English is required. Fluent French would be a plus.

Good interpersonal skills, ability to evolve in a multicultural team.

Taste for academic research and ability to interact with applied industrial R&D.

Contact : caroline.tardivat@saint-gobain.com