

Offer for 18 months of Post-Doctoral position

New gelling systems for ceramic shaping by Gelcasting

Mission: duration of 18 months from 1st May 2018

Research works lead at SPCTS laboratory aimed at study matter transformations taking place during ceramic and surface treatments processes. Based on the understanding of fundamental mechanisms, it is possible to develop innovative processes suitable for improved material properties and/or specific functionalities. In this context, SPCTS laboratory develops since more than ten years new ceramic shaping processes based on gelcasting of suspensions. Such process is well adapted to manufacture ceramic pieces with homogeneous microstructure, complex shape and good dimensional control.

This post-doctoral position will aimed at finding new non-toxic gelling compositions for improved green strength and dimensional control. Research work will consist first in searching for new chemical products, gelling ability, gel strength and second, to make gelcasting of suspensions and sintering experiments with different ceramic materials. Finally, as-obtained ceramics will be characterized in terms of microstructure, dimensions and mechanical properties. This work will be performed in the framework program of ANR French Agency for Research.

Candidate profile:

The candidate should have a PhD in chemistry or materials science. He should have skills in chemical synthesis, study of chemical reaction mechanisms and characterization of molecules. He should have also knowledge and/or skills in material processing science. Some specific skills will be appreciated:

- Polymerization from non-toxic agents;
- Characterization of molecules and polymers;
- Ceramic suspensions formulation;
- Elaboration of materials (metals, ceramics, etc.);
- Reporting, publications and speaking in English

Salary: > 1700€/month

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