Post-doctoral position at CEA (Grenoble)

Safe by design functional coating for interior and exterior with enhance radiation efficiency: a way to save building energy

WARM-ECOPAINT

In recent years, interior design practice has seen a dramatic shift with design strategies that now focus on providing healthy and sustainable environments for individual's to live, work and play in. Customers are beginning to understand their impact on the environment. The customer awareness is even not limited to interiors design and can be included in the general concept of Net Zero Energy Buildings (NZEBs) concept.

Energy (heat) saving can be achieved by using a large range of materials used both inside and on the outer shell of buildings. Efficient heat insulator materials are developed to reduce mainly thermal conductivity of walls.

Thermal insulator generally aim at trapping air into the insulator. One of the drawback is the thickness of the overall insulator. Aerogels structure, exhibiting a porosity of more than 90% in volume are interesting alternatives.

The Post-doctoral fellow will develop, using a safer by design approach, functional coatings with enhanced thermal conductivity properties by the use of aerogels particles. The development of silica-based aerogel particles using a green elaboration process will be mainly focussed, either on in-house functional particles or on the functionalization of commercially available particles. The potentialities offered by bio-sourced aerogels will be also investigated. The work will consist in the particles elaboration and their formulation within the functional coating. Experimental approach will be guided by numerical computation of the coating properties. Effective properties of the coating will be compared to other commercially available solutions. The coating will be aged using climatic chamber reproducing the UV and moisture (condensation) effects.

The candidate must hold a PhD thesis preferably in material sciences. Experience in relation with the targeted field of activities will be appreciatedd. The Post Doctorate candidate must be highly dynamic, sociable, feel comfortable to speak and write in English, be very autonomous and strongly motivated by collaborative and collective works.

The position is requested to perform the coating synthesis and the characterisation of the coating properties.

Location: CEA in Grenoble, France.

Duration of contract: 12 months
Starting date: November 2019

Contact: Olivier Renard
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Applications must be submitted in English by email:
- a Curriculum Vitae (2 pages max)
- a list of publications
- a cover letter (1 page)

Closing date for applications: 30/09/2019