Research Engineer in liquid metal processing and solidification

APERAM Alloys IMPHY is looking for a Research Engineer in liquid metal processing and solidification to reinforce the process department of its research centre (CRPC) located at Imphy (France).

The area of expertise of the position will cover metal liquid processing (ladle metallurgy, vacuum metallurgy), remelting processes (ESR, VAR) and solidification processes (ingot casting and continuous casting).

Missions

- Model and analyse liquid metal processing, remelting and solidification processes, using numerical simulation or developing analytical models. Transform modelling tools into predictive ones. Finely understand physical mechanisms that drive the processes

- Support the plant melting shop in order to solve complex issues (manufacturing route changes, crisis resolution) and contribute to the best industrial choices relative to processes by modelling them or carrying out metallurgical studies

- In accordance with the company strategy, develop his/her technical skills and a partners network, by:
    - keeping informed about scientific progress in his/her field (technical monitoring) and by attending scientific congresses
    - taking part in collaborative research projects with other industrial and/or academic partners

- Support the development of the CRPC experimental melting shop devices (VIM furnaces, experimental ESR, lab scale rolling mill) in terms of samples format capability and to turn them into physical modelling tools

- Eventually, supervise a team of a few technicians

To carry out these activities, he/she will lean on:

- internal stakeholders, particularly his/her research centre colleagues and the melting shop process team (internal customer)
- collaborations with academic and industrial partners
- numerical codes to model the solidification and remelting processes (Thercast®, SOLAR®)
- thermodynamics computing tools (ThermoCalc®, JMatPro®, CEQCSI®)
- experimental devices and machines (SEM, mechanical testing,…) operated by the research centre technicians. He/she will have to understand the operating principles of these tools and the results they provide.

Profile

The applicant, preferably a PhD doctor-engineer or engineer from a "Grande École" or a renowned University, recently graduated or with a first professional experience, must:

- have a substantial theoretical background in the field of engineering sciences (heat science, fluid mechanics, continuum mechanics) and metallurgy, as well as, ideally, in solidification and thermodynamics (typical schools: Écoles des Mines, Écoles Centrales, Phelma,…)
- have a first experience in numerical simulation using finite element and/or finite volume codes
- ideally, master at least one script coding tool (Scilab, Python…) in a Windows® environment
- master French and English
- be enthusiastic about research in an industrial context, curious and thorough
- have good communication skills

Contact : jonathan.dairon@aperam.com