Post-doc position
Aging of Ni-20Cr powders used in the production of alloys by additive manufacturing. Impact on microstructure, electrochemical behavior and electrical properties

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Expected start: October 2019 ï January 2020
Duration: 24 months
Application deadline: 15 September 2019
Remuneration: Between EUR 2100 and EUR 2300 net month salary, according to experience

Keywords: Additive manufacturing, powder aging, Ni-20%Cr alloys, microstructure, corrosion, electrical properties

Short description of the project
The objective of this work concerns the impact of the aging of Ni-20% Cr powders on the microstructural characteristics and the electrical and electrochemical properties of the materials obtained after additive manufacturing by melting powder bed (PBF). Depending on the parameters of elaboration and the evolution of the characteristics of the powders, criteria of acceptability will be determined in order to find optimal windows of use for the development of this alloy by additive manufacturing. This work will be done in a Norman collaborative project (CLIP FAM project) which brings together several academic actors (CRISMAT Caen, GPM Rouen, ...) and industrial (Arianegroup, Volume-e, ...) of the territory.

Post-docôs mission
Depending on the profile chosen, the candidate will be in charge of the elaborations of samples additive manufacturing, the systematic analysis of the properties of the powder and the study of its aging over time, microstructural analyzes (DRX, MEB / EBSD, MET), electrochemical measurements (electrochemical corrosion, alloy passivity mechanisms) and / or the characterization of electrical properties.

Profil
- PhD in materials science with a good background in metallurgy
- Good knowledge of characterization tools of microstructures of metallic alloys
- Knowledge of electrochemical corrosion and / or electrical measurements

Experience in additive manufacturing of metals or electron microscopy would be an asset.

The financial support of the Normandy region and the European Region Development Fund for this project is greatly acknowledged.