

Company Description

The proposed Ph.D. thesis will be jointly directed and supervised by the French atomic and alternative energies commission (CEA, Commissariat à l'énergie atomique et aux énergies alternatives) and the CEIT Technological Centre in Spain (CEA-LIST en Gif-sur-Yvette (near Paris) France) and CEIT in San Sebastian). The main part of the work will be hosted at the CEA Research Centre at Saclay, France with a couple of monthly stays at the CEIT institute in San Sebastian, Spain.

Information

 Deadline: 2024-03-31
 Category: Academia

 Country: France
 City: Paris

Company

Ceit



Main functions, requisites & benefits

Main functions

The proposed Ph.D. aims to contribute in the use of spectrum measurements for the characterisation of magnetic materials, notably steels. Accurate MBN measurements obtained from different microstructures using a dedicated setup (developed in the context of the Ph.D. work) will be analysed and compared with theoretical simulations based on tools previously developed by the host institute in order to Validate and fine-tune the models. Examine the classification of the considered microstructures in universality classes. Study the effect of the microstructure (grain size, dislocations) to the spectral features. Starting from well-known model materials (FeSi and FeCo), for which a great amount of published results exist and hence can be used as reference, the study will be then focused on some important industrial steel grades like the interstitial-free (IF) and low-carbon (LC) steels.

Requisites

Degree: Degree in Physics or Double Degree in Physics and Electronic Engineering and a Master. Language: English C1. French desirable. Software: Basic programming knowledge (ej. C, Phyton, Matlab). Other: The candidate is expected to have a solid understanding of electromagnetism as well as basic metallurgical notions and a familiarisation with standard laboratory equipment. Knowledge on solid-state physics will be also beneficial yet is not compulsory.

Benefits

Incorporation in technological centre at the forefront of technological knowledge, and with a clear vocation of service to society. Opportunities for growth and professional development, and a good work environment based on trust and teamwork. Thesis should be completed in 3 years, but may be extended to 4. Be a member of a top team, at the forefront of technological research and innovation, together with experienced researchers, other doctoral candidates and students. Opportunities for professional growth and development, and a good work environment based on trust and teamwork. Training: The candidate will be trained in the world of scientific research (writing scientific articles, patents and intellectual property, etc.), as well as other specific technical courses that are deemed necessary for the proper development of the thesis (e.g. programming languages, simulation programs, specific hardware, ...). Be a member of a top team, at the forefront of technological research and innovation, together with experienced researchers, other doctoral candidates and students.