CALL REFERENCE NUMBER : IE-09-2-4-F02-13104-3

Type of traineeship: 1 and 2; **based on the Rules governing the Traineeship Scheme**

Project Title	**Rietveld refinement of Diffraction data on complex hydrides**
Project Description	Background The traineeship offered falls under the research project "Hydrogen Safe Storage and Transport (HySaST)" which supports the penetration of hydrogen as alternative fuel in the energy and transportation sectors. In particular, the work proposed will make a contribution to the solid-state hydrogen storage task. This task assesses the performance and overall potential of a number of solid materials and compounds as hydrogen storage media by means of hydrogen sorption testing and micro-structural investigations. The traineeship A trainee is sought to assist in the analysis of diffraction data obtained on complex hydride materials. The tool to be used is crystallographic modelling by Rietveld methods. The aim is to determine the abundances of each phase, to refine the site occupancy and lattice parameters of the phases and to get an insight into possible hydrogenation mechanisms, reaction pathways and respective structural and compositional changes for the reversible storage of hydrogen. The successful candidate will be introduced to the concepts of crystallographic modelling and Rietveld methods and will be trained in using the respective software application. The aim is to assist in the production of reliable structure refinements and in the accurate determination of the phase fractions of the materials examined.
Qualifications/ Expertise needed	The candidate should be in preparation of a thesis for a university degree or Master's degree or PhD (as stipulated in the Rules governing the Traineeship Scheme) in the fields of science or engineering. The candidate should also have a strong interest in crystallography and computational methods. Finally, a good working knowledge of English is required.
Duration (min. 3 months- max. 12 months)	3 months
Location	Petten, The Netherlands
Scientific Responsible	P. Moretto / C. Filiou

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	Further information on project can be found at: *Institute for Energy, Action: HySaST (former SYSAF) 13104* *Web link: http://ie.jrc.ec.europa.eu/activities/SYSAF.php*
	Instructions on how to apply can be found at: *Institute for Energy http://ie.jrc.ec.europa.eu/jobs/trainees.php*