

2023-2025 ENGINEER HEAT TRANSFER OR OPTICS/VISUALIZATION FOR FUTURE SUPERCONDUCTING MAGNETS (W/M)



Work place

Institute	CEA Saclay (Paris, FR) – Department of Accelerators, Cryogeny and Magnetism
Department	The Accelerator, Cryogeny and Magnetism Department (DACM) is part of the Institute for Research on the Fundamental Laws of the Universe (IRFU) of CEA's Directorate of Basic Research. It is located in Saclay (Paris, FRANCE). The DACM, which is home to 76 research engineers and 46 technicians, aims to carry out, with the national and international community, research and development of excellence in the field of particle accelerators, cryogenic systems and superconducting magnets intended to fundamental research. For many years, the Laboratories for Superconducting Magnet (LEAS) and for Cryogeny and Test Station (LCSE) have played a major role in the design, construction and test of the cutting edge instruments needed for this research.

Job description

Science fields	Heat transfer, optics, fluid mechanics
Contract duration	2+1 years
Job level	B.S. or M.S. degree in Engineering or Physics with a PhD degree in a relevant field.
Job description	In the framework of an Equipex+ entitled PACIFICS (governmental funding), CEA/IRFU is in charge of the development of an experimental platform dedicated to the study of heat transfers in liquid helium (4.2 K @ 1 bar) under high magnetic fields . The visualization of various boiling phenomena in liquid helium and their thermal and dynamic quantification by adequate instrumentation will be performed in the cryogenic platform. The final objective is to better design the cooling of the next generation of high field HTS magnets (>20T) for various applications like fusion power plant development, MRI system for human body research or muon colliders . The engineer will have to define the visualization method, carry out the design of the entire system (thermal simulations, CAD, instrumentation), coordinate the manufacturing and assembly as well as define and participate in the validation tests. He will be in charge of the allocated budget to set-up the test station. This work will be carried out in collaboration with the French High Magnetic Field Lab (LNCMI-CNRS) and eventually in parallel of a doctoral work.
Profil	B.S. or M.S. degree in Engineering or Physics with a PhD degree in a relevant field. The candidate will have knowledge in heat transfer and/or optics (visualization measurement) and knowledge in fluid mechanics, instrumentation, metrology or cryogenics will be appreciated. The majority of the work requested will relate to the design and assembly of a platform. Willingness for practical work in the laboratory is desired and a certain ease in the use of CAD software and finite elements is recommended.
Langues	English (Intermediate), French proficiency is not mandatory
Starting date	Sept/Oct 2023

Contacts

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