



INTERNSHIP OFFER

Ref. No. CH-2024-000039

Internship Host Information

Internship Host: Paul Scherrer Institut
Forschungsstrasse 111
5232 Villigen PSI
Switzerland

Website: www.psi.ch

Location of placement: Villigen PSI
Nearest airport: Zurich
Working hours per week: 42.0
Working hours per day: 8.4

Number of employees: 2200
Business or products: Research

Student Required

General Discipline: PHYSICS;CHEMISTRY AND CHEMICAL ENGINEERING;MATERIAL SCIENCES AND ENGINEERING

Completed years of study: 2

Field of Study:

Student status requirements: Enrolled during internship; with EU/EFTA passport also possible between BSc and MSc

Language required: English Good (B1, B2)

Required Qualifications and Skills: Laboratory Work

Other requirements: EU/EFTA passport required

Student in Chemistry, Material Science or Physics
Practical experience in chemical/material science laboratory, ideally with gloveboxes

Internship Offered

The Paul Scherrer Institute PSI is the largest research institute for natural and engineering sciences within Switzerland. We perform cutting-edge research in the fields of future technologies, energy and climate, health innovation and fundamentals of nature. By performing fundamental and applied research, we work on sustainable solutions for major challenges facing society, science and economy. PSI is committed to the training of future generations. Therefore, about one quarter of our staff are post-docs, post-graduates or apprentices. Altogether, PSI employs 2200 people.

Project: Understanding electrolyte-dependent gassing behavior of LMFP as next-generation positive electrode material
Continuous efforts have been practiced on pursuing energy storage systems with high energy density, long lifespan, and low cost. Among them, Li-ion batteries have conquered the portable electronics market and are widely employed for electric transportation.
As the demand for low-budget electric vehicles with long cruising ranges is increasing, the energy density of the current state-of-the-art electrode material LiFePO₄ (LFP), advantageous from an environmental and economical point of view, no longer satisfies the needs. An alternative olivine cathode material, LiMnPO₄ (LMP), shares the same theoretical capacity as LFP and comes with the benefit of a higher operational voltage of 4.1 V, resulting in a 21% increase in energy density. However, due to the material's low conductivity and structural instability, LiMnPO₄ suffers from low capacity retention. The combination of LFP and LMP, a solid solution called LiMnxFe1-xPO₄ (LMFP), has therefore attracted global interest in the industry and in academia. Your project involves the assembly of cells with pre-made LMFP electrodes followed by electrochemical characterization and contributes to our effort of elucidating the electrolyte-dependent gassing behavior of LMFP cells, a critical input for durability and safety considerations.

Number of weeks offered: 12 - 12
Working environment: Research and development
Within the months: 01-SEP-2024 - 20-DEC-2024
Gross pay: 2100 CHF / Month
Or within: -
Deduction to be expected: approx. 10 % Social security AHV/IV
Company closed within: -
Payment method / time of first / payment:
Latest possible start date: 01-OCT-2024

Accommodation

Canteen at work: Yes

Expected type of accommodation: Guest house
Estimated cost of lodging: 900 CHF / Month

Accommodation will be arranged by: Employer
Estimated cost of living incl. lodging: 1750 CHF / Month

Additional Information

EU/EFTA passport required

Nomination Information

Deadline for nomination: 05-MAY-2024

Date: 18-APR-2024
On behalf of receiving country: IAESTE Switzerland