Internship offer for Engineer/Master 2 student

Modeling the drying process of a lithium-ion battery negative electrode.

Context :

The proposed work is part of the “Ecole de la Batterie” initiative (https://ecoledelabatterie.fr/). Lithium-ion batteries are composed of two electrodes, one negative and one positive, a separator, and an electrolyte. The negative electrode consists, for most lithium-ion batteries, of copper current collector coated with graphite as the active material, carbon black as a conductive additive, carboxymethyl cellulose (CMC) and styrene-butadiene rubber (SBR) as binders.

The active material, binders, and additives are dispersed in water to form a slurry. This slurry is then coated onto copper foil using a slot die process. The solvent is evaporated using an infrared dryer and hot-air dryers. The dried electrode forms a porous graphite network. This drying step is crucial for the electrode’s performance. The overall project involves adapting a paper-functionalization pilot line for the manufacturing of negative electrodes

Objecrives:

The objectives of the study is to simultate the drying kinetics of the slurry on the coating pilot line. First, hot-air drying will be considered, followed by infrared drying. The challenge of this work lies in accounting for the porous medium and the associated capillary phenomena during drying.

The simulationmust be carried out using Python or MATLAB.

Candidate profile:

- Student with solid knowledge in programming/simulation, thermodynamics, and heat transfer
- Good autonomy and strong communication skills
- A good level of English is an asset

Additional information:

- Internship location: LGP2, 461 rue de la papeterie, 38400 Saint-Martin-d’Hères
- Internship start date : From January 2026
- Duration: 5 to 6 months
- Compensation according to current regulation

To apply, please send a CV and a cover letter to:

LUNEAU Julie julie.luneau@lgp2.grenoble-inp.fr
PASSAS Raphaël raphael.passas@lgp2.grenoble-inp.fr
MARTIN Céline celine.martin@lgp2.grenoble-inp.fr