Master thesis opportunity

Optimizing selectivity and lifetime of hydrogen peroxide generators

Would you like to gain industrially-relevant skills at a fast-growing startup? HPNow offers a master thesis project at its R&D laboratories in collaboration with DTU. The right candidates will have the possibility to combine the master thesis work with a student job at HPNow.

The challenge

HPNow's hydrogen peroxide generating devices rely on catalyzed electrodes, separated by a proton conducting membrane. To increase the performance and lifetime of these devices an in-depth understanding of membrane-catalyst interface is key. Through expanding our knowledge on the electrode properties at the micro and nanoscale, we can improve key merit parameters such as efficiency, throughput and lifetime. The goal of this project is to understand and exploit the underlying properties that dictate electrode performance.

The approach

- Electrochemical testing of electrodes at a prototype scale with commercially relevant performance.
- Characterization of electrodes with techniques such as scanning electron microscopy to image the microstructure, X-ray Photoelectron Spectroscopy for chemical composition and Inductively Coupled Plasma – Mass Spectrometry for high sensitivity measurement of the aqueous output.
- Benchmarking with state-of-the-art in the field.

Who we are looking for

You are a student in physics, chemistry or chemical engineering. You have already gained some initial experience in a laboratory environment. You like driving a project from start to finish and are result-oriented, always paying attention to details without losing the big picture. You are fluent in English and enjoy working in an international environment.

Your development

We offer the opportunity to gain valuable practical experience while using your skills to solve complex challenges. The insight developed through this project will be directly applicable to HPNow's products, and you will get a comprehensive overview of how electrochemistry and analytical techniques are used to develop disruptive technology.

Questions: Please email Rasmus Frydendal, CTO – rafr@hpnow.dk

Thesis place: HPNow Denmark (R&D laboratories) and DTU Lyngby.

Please send your application to info@hpnow.dk. Attach your CV and a copy of your transcript of records.

About HPNow

At HPNow we believe in natural solutions for water and air purification. That is why we are pioneering a novel environmentally friendly disinfection technology with strong potential across fields as varied as agriculture, hospital room disinfection and drinking water purification. Our products help create more sustainable food, healthy air and safe water while impacting the bottom line of our customers.