Characterization, modeling, and development of an innovative fuel cell

The training focuses on the characterization of a fuel cell and the establishment of a test bench to measure the performance of the cell (voltage, current, power, efficiency). An electrolyzer is installed within the NPAL (North Lebanon Alternative Power) laboratory as a source of hydrogen production which will be stored in specific tanks.

The second step consists of developing a mathematical model to simulate the behavior of the fuel cell and carry out measurements under different conditions (temperature, pressure, gas flow, etc.).

Finally, the last step will be an analysis of the data obtained to identify the strong and weak points of the cell, based on the results of the characterization and modeling, and propose solutions for improving the fuel cell.

Required Skills :

• knowledge of fundamental concepts of electrochemistry and fuel cells

• Ability to model electrochemical systems

• Experience in programming (Matlab)

• Ability to write scientific reports

Training place:

• The internship takes place within the NPAL (North Lebanon Alternative Power) laboratory.