



# Fraunhofer USA

## Center Midwest - Coatings and Diamond Technologies Division

### *International Internship – Electrochemical sensor development*

#### *Overview*

*Fraunhofer USA, Inc. Center Midwest is located on the campus of Michigan State University in East Lansing, Michigan. We are currently seeking highly motivated, reliable and technically competent individuals to join our electrochemistry team. Team members will conduct research both fabricating and utilizing carbon based materials for electrochemical measurement. Team members will also assist in instrumentation development through circuit design and software programming. As a team member, you will help design and conduct experiments, generate and present data in a meaningful report. We bridge the gap between academic research and industrial research. At times, you will also work with companies on current chemical measurement needs, and execute experiments based on a customer's need.*

#### *Current areas of research include:*

- *Solution based heavy metal detection such as Pb, Cd, As*
- *Fabrication of diamond macroelectrodes*
- *In vitro and in vivo sensor development for neurochemical measurement such as dopamine*
- *Electrochemical coatings to improve sensor sensitivity*
- *Antibody immobilized impedometric based sensors*
- *Low cost electrochemical instrumentation design and development*

#### *Responsibilities*

- *Electrochemical sensor fabrication, characterization and testing*

##### *Sensors include:*

- *Diamond based biochemical sensors with antibody immobilization*
- *Diamond-PEEK electrode*
- *Boron doped diamond microelectrodes*
- *Carbon fiber microelectrodes*
- *Gold based electrodes*
- *Data collection and reporting, processing collected data into meaningful reports*
- *Maintaining a detailed and accurate laboratory notebook*

#### *Requirements*

- *Completed a bachelor's degree in a natural science such as chemistry, chemical engineering, biosystems engineering etc.*
- *Experience working in a chemistry, biochemistry, biology, or similar laboratory*
- *Experience in data processing and manipulation such as MS Excel, Python or Matlab*
- *Interest in electrochemistry and/or biosensors*

#### *Contact:*

*Please send cover letters and resume's to [ccdadministration@fraunhofer.org](mailto:ccdadministration@fraunhofer.org), note: masters thesis projects are available, positions available June 2024*