

## SUMMER SCHOLARS PROJECTS

**PROJECT CATEGORY:**

Sustainable Materials

**STARTUP:**

Chang Industrial / IP Studio

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**PROJECT TITLE:**

Graphene Oxide as a Sustainable Food Packaging Material

### PROJECT DESCRIPTION

Plastics and PFAS, *i.e.*, forever chemicals, are pervasive in food and beverage packaging because they are effective, low cost barrier materials necessary for preserving and protecting food. However, they are also unsustainable and unsafe; consumer demand backed by increasing government regulations are forcing their discontinuation. Yet a cost effective, sustainable replacement with the same essential properties has not yet emerged. We are looking for a proactive, committed individual to help develop graphene-oxide integrated into paper as a sustainable, long-term solution. Our current focus is sustainable disposable tableware, *i.e.*, paper plates, cups, and straws, as the minimum viable product. Future work will address longer term barrier challenges such as food freshness and storage.

### JOB EXPECTATIONS:

This opportunity includes the design and execution of experiments to optimize various material properties including concentration, temperature, and time, as well as application methodologies. The selected individual will be invited to engage in strategic discussions regarding the strategy and roadmap necessary for bringing the material to market in a safe, effective and timely way. Principal responsibilities include:

- Engage with the team to design an R&D strategy.
- Conduct experiments to optimize material performance.
- Keep detailed records of protocols, experiments, results, and analysis
- Present results and provide recommendations for future experiments to company leadership

### DESIRED EXPERIENCE:

- Currently enrolled in an undergraduate or graduate program chemistry, chemical engineering, environmental sciences, materials science, mechanical engineering, physics, or related field
- Some laboratory skills and experience with working with chemicals
- Familiarity with data analysis and processing
- Strong analytical and problem-solving skills
- Strong written and verbal communications skills
- Able to work in an adaptive and collaborative environment

**TIME COMMITMENT:**

This opportunity requires the equivalent of a full-time commitment of eight weeks. Flexibility in dates and hours can be accommodated.

**TRAINING MENTORING:**

Initial Meeting:

- Discuss the project goals and objectives, as well as the expectations for the internship.
- Project overview, including relevant background information, literature review, and experimental protocols.
- Training for safety and use of relevant equipment.

Weekly Meetings:

- The supervisor will be available as needed. However, in addition, weekly meetings will be held to discuss progress, any challenges encountered, and next steps.
- Supervisor will work with the intern to assess progress against overall product development goals and timelines.

Data Analysis and Interpretation:

- Supervisor will help intern learn and apply data analysis and statistical methods to interpret results.

Final Report and Presentation:

- The intern will be prepare a final report and give a final presentation to company leadership.
- The intern and supervisor will hold an exit meeting to debrief on the experience and value to both the intern and the company.