

# College of Engineering

# **Project Overview**

This project aimed to develop a high-performance Lithium-Oxygen (Li- $O_2$ ) battery for aviation application, building on a prototype provided by our sponsor. We focused on optimizing power output for aviation, enhancing key components such as the cathode structure and catalyst to improve efficiency, stability, and compatibility. To support accurate testing and analysis, we also designed a specialized chamber, ensuring reliable performance metrics and paving the way for scalable  $Li-O_2$  battery applications.





# Meet the Team



Gas Diffusion Laver











Lithium Protection

# About the Lab

Electrochemical Energy (e<sup>2</sup>) Lab: This lab at SDSU is ran by Dr. Lingping Kong (<u>lkong@sdsu.edu</u>) and it focuses on establishing the scientific foundation and prototype material systems for the nextgeneration of high-energy and high-power electrochemical energy storage devices.





# **Rational Design of Bipolar** Stacking Li-O, Batteries with **Ultrahigh Energy Density**

# Manufacturing

# System Level Diagram









# Testing



### Acknowledgements

Our team would like to thank Dr. Shaffar for being our advisor for our Senior Design and all the hard work and mentorship he has given us throughout. We would also like to thank Dr. Kong for sponsoring our project and giving us a place to learn about Electrochemistry and guiding us through the creating of this battery. Additionally, we would like to thank Dr. Ko for being our mentor in the lab and helping us in every aspect.

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