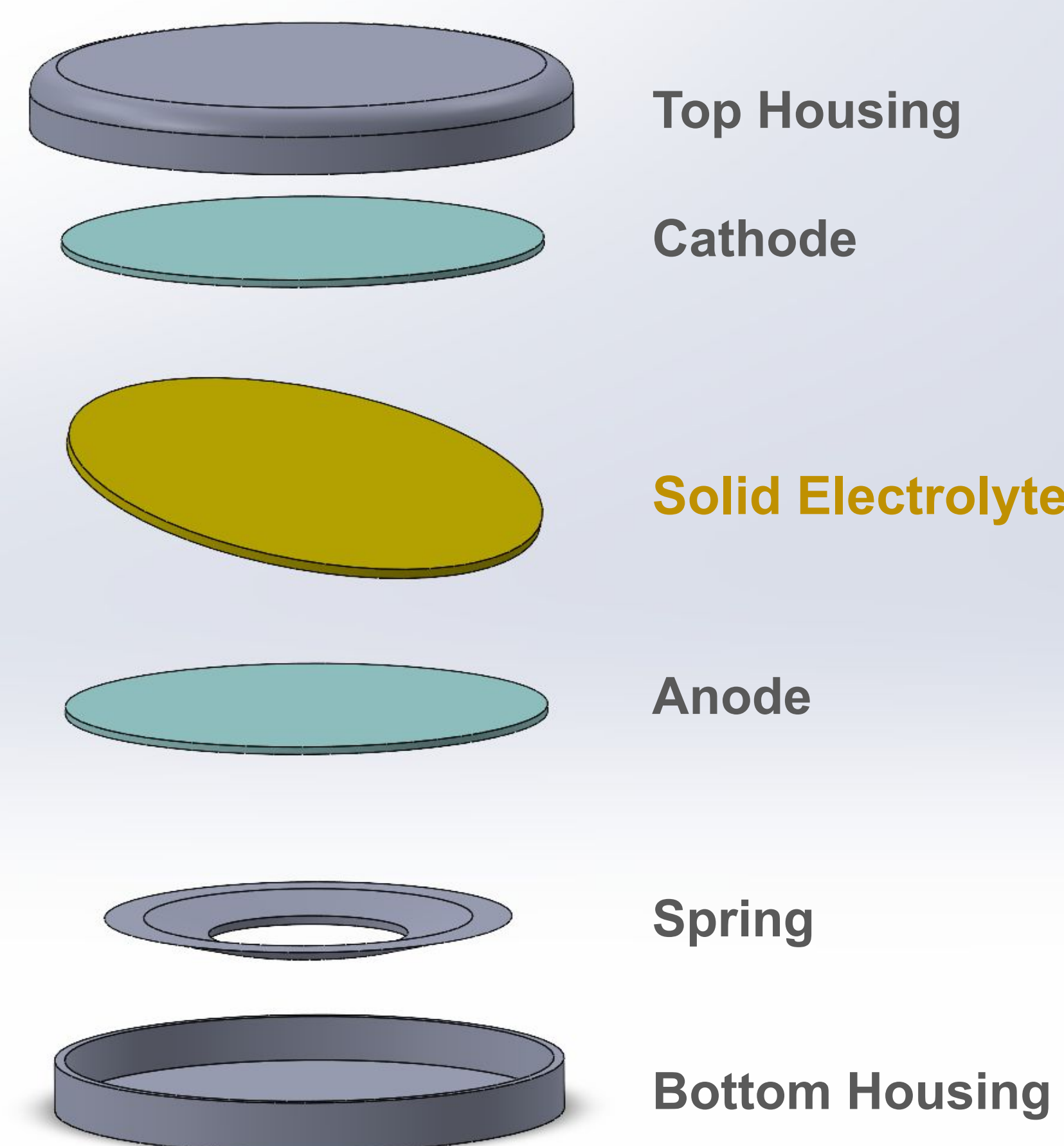


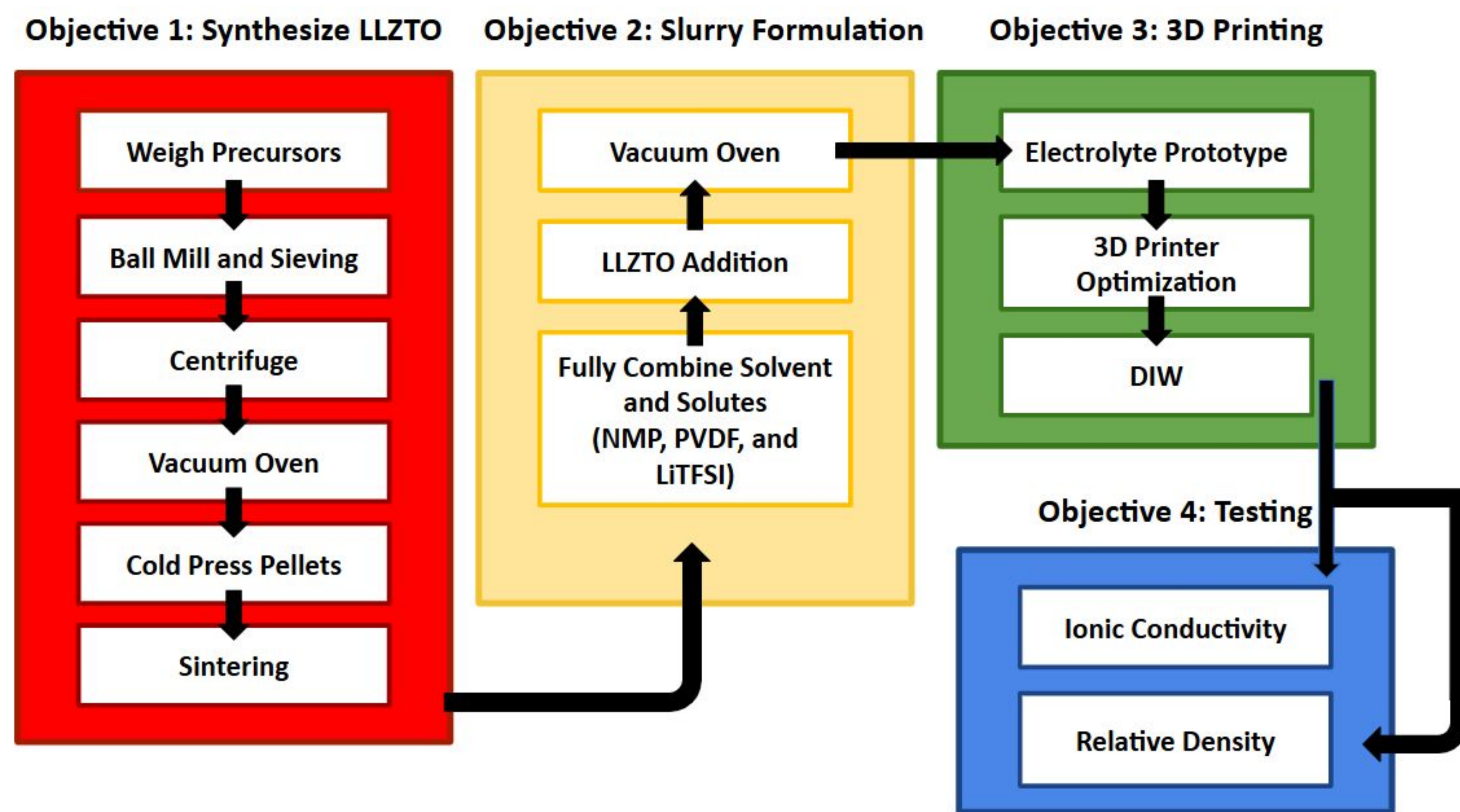
CERAMIC 3D PRINTING OF SOLID STATE BATTERY

Project Overview

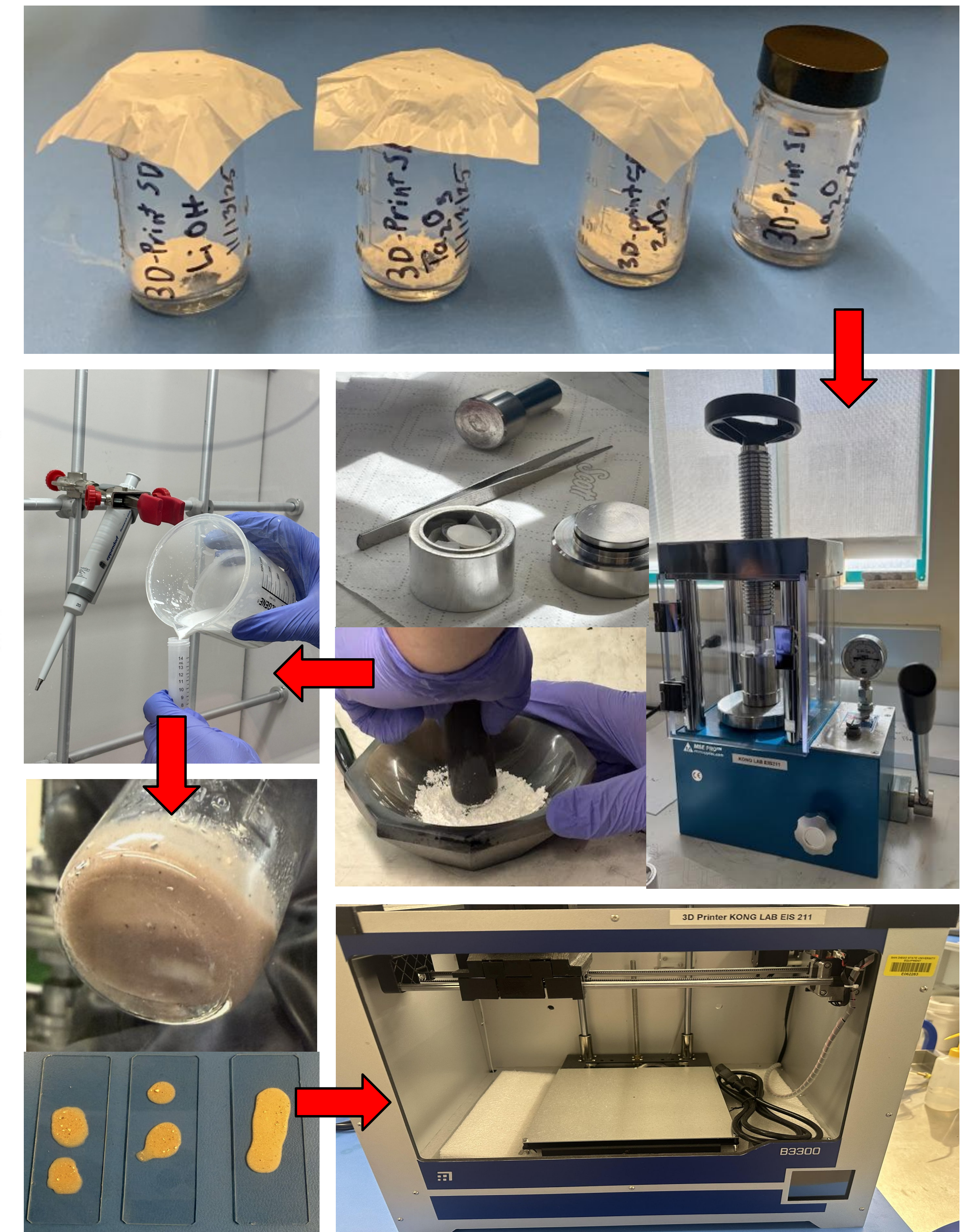
Our team worked on creating a solid state electrolyte (SSE) to replace liquid electrolytes in a traditional lithium-ion battery. By using ceramic LLZTO for our solid electrolyte, we are able to improve the ionic conductivity and long-term stability of the battery. In doing so, we can also prevent dendrite growth which decreases the probability of fires and short circuits. Our manufacturing method was 3D Direct Ink Writing (DIW) for cost-effectiveness and precise printing.



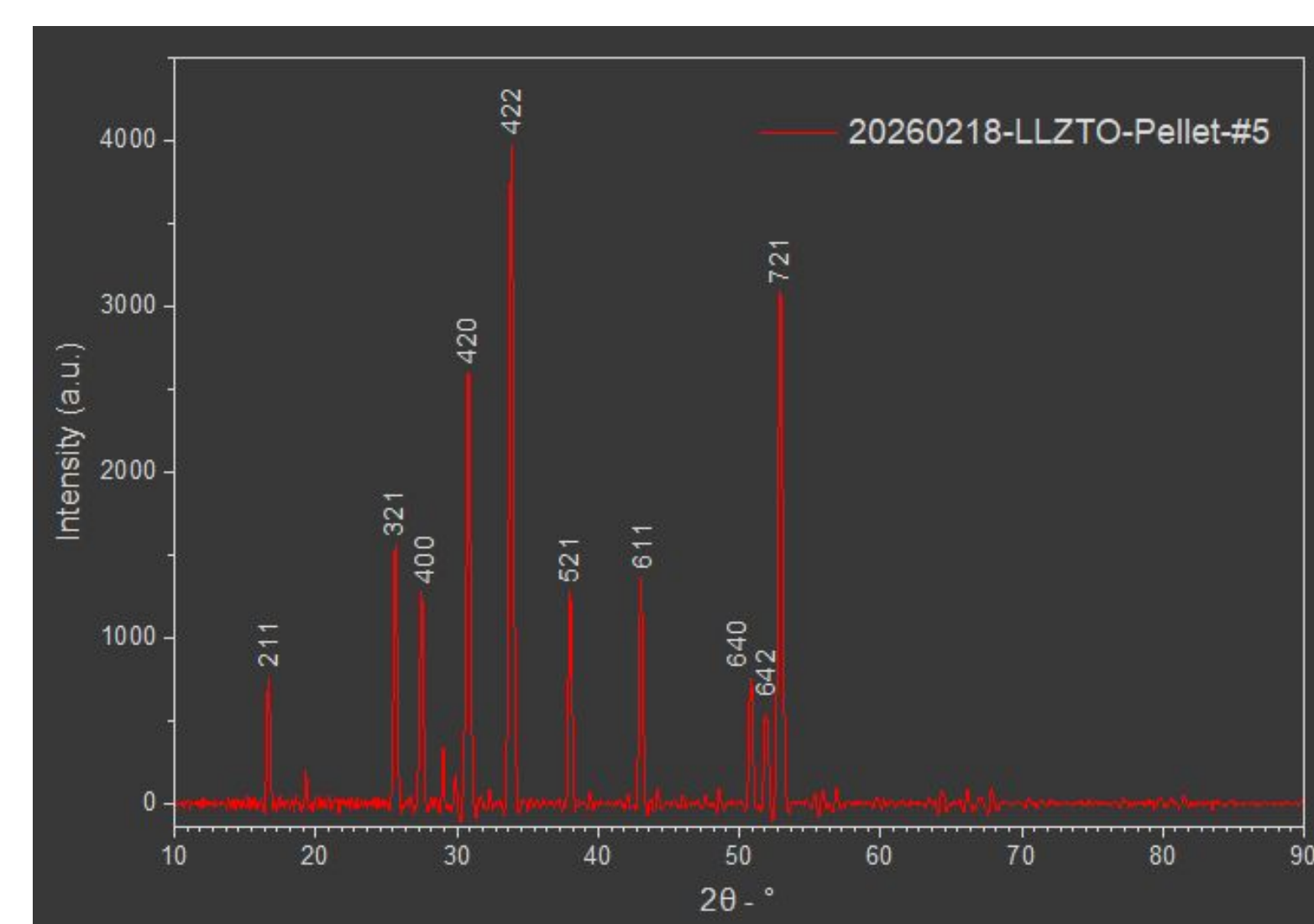
System Level Diagram



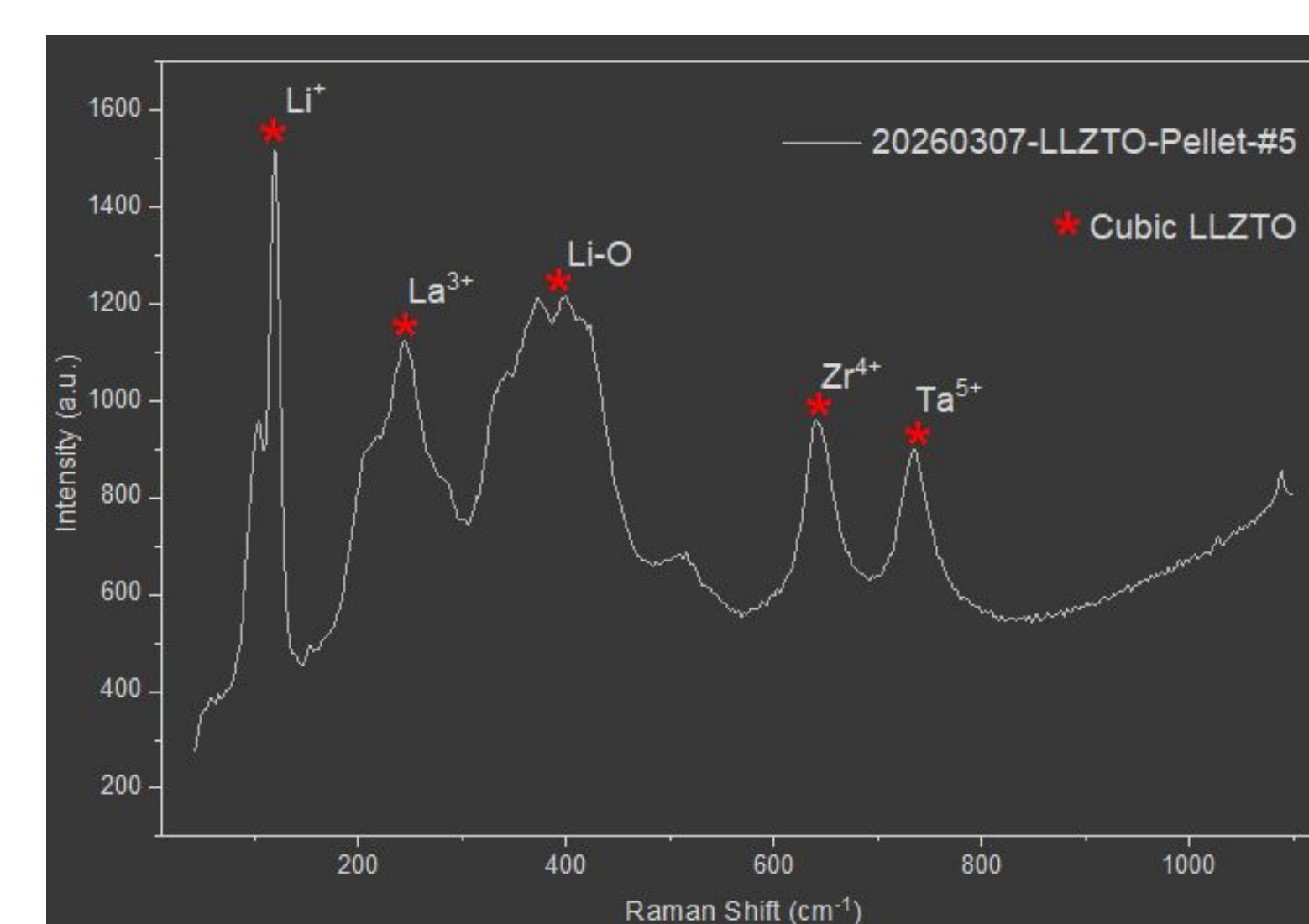
Manufacturing



Testing



X-Ray Diffractometer



Raman Spectroscopy

Acknowledgements

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Meet the Team



Django Piazza, Maegan Michaela Bolibol, Darlene Juat, Charlie Ray, Khoi Le

About the Lab



Electrochemical Energy Lab: This lab at SDSU is managed by Dr. Lingping Kong (lkong@sdsu.edu) focusing on revolutionizing the foundation and prototyping of high-energy and high-power electrochemical energy storage devices.

Bioinspired 3D Printing Lab: This lab operated by Dr. Yang Yang (yyang10@sdsu.edu) integrates bioinspired 3D printing and advanced materials to develop multifunctional systems for robotic, energy, and biomedical applications.