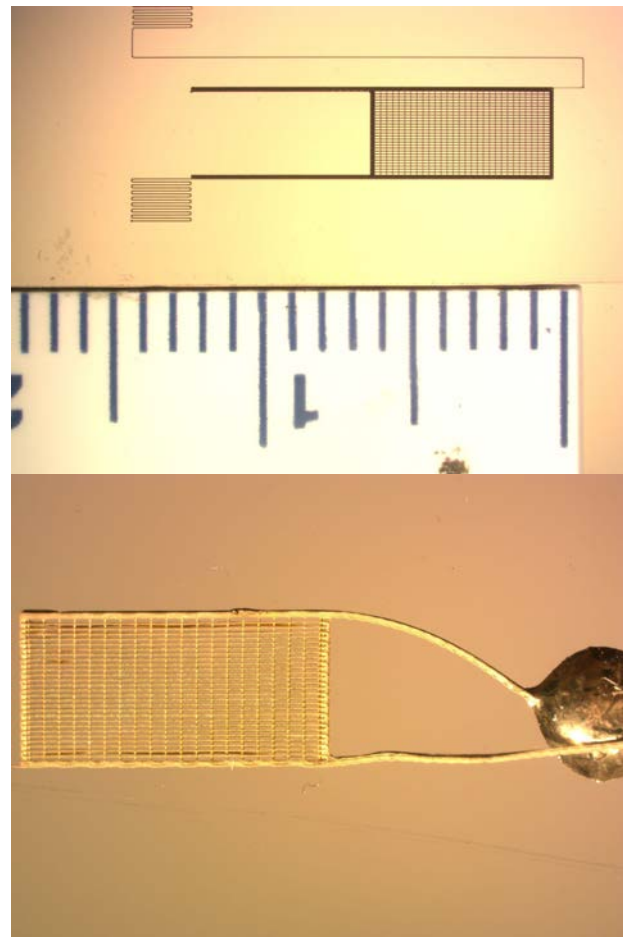


Fabricating 3D Printed Electrode For Redox Flow Battery

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NSF PREM DMR-2122195, MRSEC DMR-2011754

I assisted in fabricating an electrode for a redox flow battery. This battery uses chemical conversion to store electrical energy in a storage tank of electrolyte solution. The process can be reversed to be used as electrical energy when needed. This battery is useful and geared towards storing renewable energy sources. They are cost efficient and can easily be up scaled. I learned the process of ink fabrication for 3D printing. After printing the electrodes are rinsed and put into oven for 72 hours. Then in the oxygen plasma chamber. Next is the electroless plating with nickel on the electrodes. Finally the electrode are electroplated with gold and tested for the electric resistance of the electrodes.



Top: Electrode by ruler in centimeters
Bottom: Electroplated electrode with gold

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I am a junior student at Navajo Technical University, pursuing an associate degree in Chemical Engineering. I have had a great learning experience with my research project and how broadly chemical applications can be applied in various research. It has piqued my interest in continuing to pursue graduate studies. It made me want to pursue options in environmental engineering and biomedical aspects in chemical engineering.



Samantha Francis and mentor Dylan Barber