Silica-Supported Perovskite Oxides for Low Temperature Carbon Dioxide Conversion

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Conversion of CO2 in a scalable technology has the potential for enormous energy and environmental impact but remains a challenge. I will explore the effects of earth-abundant perovskite oxide material supported by silica compositions for reduction and oxidation processes as a potential solution for this CO2 mitigation problem. The effect of silica on the conversion of CO2 to CO and water production will be investigated on three different compositions of silica. The materials will be synthesized and characterized through X-Ray diffraction and temperature programmed reduction and oxidation. I will test the results of the inclusion of silica on facilitating the formation of oxygen vacancies while maintaining structural stability.

Awards Won:
National Taiwan Science Education Center: Taiwan International Science Fair Special Award is a trip to participate in the Taiwan International Science Fair