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Simultaneous Electro-Thermal Characterization of Pyroelectricity for Infrared Imaging System

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Abstract

This project will demonstrate a novel test structure that allows optimization of an infrared imaging device through simultaneous electro-thermal material property measurement. The technique, which is complementary to Bridge Semiconductor's development of a low-cost infrared imager, will measure thermal diffusivity and pyroelectric coefficient in real-time and also allow temperature-dependent characterization. Existing techniques are only able to measure each separately; however, by coupling the tests, additional accuracy may be achieved. This tool will be versatile to characterize a variety of film pyroelectrics and allow the investigators and industrial sponsor to maximize the system's electrical response to a thermal signal and overall sensitivity.