

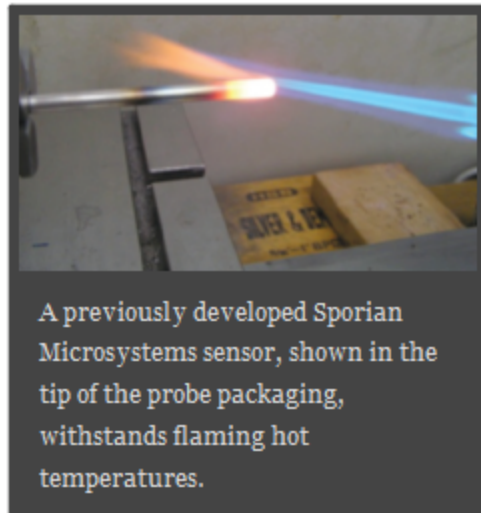
Capacitive Pressure Sensor Enables Better Combustor Design

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Pressure sensor
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Sporian Microsystems has been awarded a NASA contract to develop a capacitive pressure sensor. The sensor must survive extremely harsh conditions, including temperatures in excess of 1000 °C (1832 °F), pressures in excess of 500 PSI (34 bars), as well as exposure to corrosive and oxidizing gasses.

Sporian, which has also built piezoresistive pressure sensors, PDCs (polymer derived ceramic materials), and electronics packaging for harsh environments, will provide a subcontract to Boeing to assist in the technology's development. The high-temperature capability of Sporian's sensor allows pressure measurement in small rocket thruster combustion chambers and in jet engines, where in situ calculations had not currently been possible.



A previously developed Sporian Microsystems sensor, shown in the tip of the probe packaging, withstands flaming hot temperatures.

The company's goal is to develop a sensor that improves the ability for active control of combustion instabilities in lean-burning, low-emission aircraft engines. This will enable combustor designs that allow for complete combustion of the fuel while forming fewer pollutants.

NASA Glenn Research Center, the Aeronautics Research Directorate, and members of the Environmentally Responsible Aviation Project will monitor the results of Sporian's development efforts. Other opportunities exist for the sensor to aid in space exploration. The sensor could also potentially be used in a Venus probe or for processing extraterrestrial soil