UNIVERSITY OF ALBERTA
TECHNOLOGY TRANSFER SERVICES

HIGH-TEMPERATURE MULTIVARIABLE MICROWAVE SENSORS FOR OIL-SAND APPLICATIONS
ID# 2023016

HIGHLIGHTS

- Sensor for multivariable analysis of oil sands at high-temperature and high-pressure environmental conditions.

OPPORTUNITY

The University of Alberta inventors have developed a sensor that offers multiple resonance frequencies throughout its spectrum and according to the significant change in the dielectric permittivities of the target materials downhole SAGD (water, bitumen, and clay), the system is able to measure volumetric concentrations of the target materials.

The sensor is fabricated and tested in the microwave and millimeter-wave research lab.

COMPETITIVE ADVANTAGE

- Utilizing multiple resonances for enabling multivariable analysis
- Employing a single wire completely metallic structure capable of withstanding extreme conditions
- Very high sensitivity of the structure

Status

- Patent Pending

Publication

- A Single-Wire Microwave Sensor for Selective Water and Clay in Bitumen Analysis at High Temperatures

INVENTOR

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MORE INFORMATION

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