

## Abstract

A cooperative effort between the Rice Laser Science Group and the University of Houston at Clear Lake's Computer Engineering Department to develop an embedded control and data acquisition system based on Motorola's MC68HC16Z1 microcontroller will be presented. Use of the 16-bit microcontroller allows for a more integrated system by embedding the data acquisition and control elements directly in the mid-IR DFG gas sensor platform rather than utilizing discrete components. This prototype is designed as a proof-of-concept with the goal of reducing the spectroscopic DFG sensor size, weight and complexity. It will effectively promote greater sensor portability and flexibility for demanding field measurements. It is envisioned that the final sensor configuration will also incorporate digital signal processing and data reduction elements necessary for complete system integration.

## Citation

"Embedded Control and Data Acquisition for a Compact Difference-Frequency Laser Spectrometer" Darrin Leleux and I presented a poster describing our research at the Rice Quantum Institute's Summer Research Colloquium.