



Contribution ID: 878

Type: **Oral (Non-Student) / orale (non-étudiant)**

## **Detection of Trace Gases using Fiber Laser Technology- Part 1**

*Friday, 19 June 2015 09:45 (15 minutes)*

Fiber-optic sensors based on fiber Bragg gratings have been established as rugged and reliable devices and have found applications in environmental monitoring, oil and gas reservoir monitoring, and in performing temperature, pressure, and strain measurements. However, new sensors with higher sensitivity, greater accuracy, and a simpler design, using fiber laser technology, would provide significant cost benefits and performance to the end user.

The authors have developed a device, based on fiber laser technology, to detect trace gases. An erbium-doped fiber was used as the gain medium. For the collection and detection of trace gases, a gas cell was used inside the laser cavity. The authors will present the structure of the device and its working principle. The device was very sensitive and could detect gas at very low levels.

The research work is supported financially by Natural Sciences and Engineering Research Council of Canada and Agrium, Canada.

**Primary author:** DAS, Gautam (Lakehead University)

**Co-author:** Mr VALIUNAS, Jonas (Lakehead University)

**Presenter:** DAS, Gautam (Lakehead University)

**Session Classification:** F1-3 Biomedical Optics and Biophotonics (DAMOFC-DIAP-DMBP) / Optique biomédicale et biophotonique (DPAMPC-DPIA-DPMB)

**Track Classification:** Division of Atomic, Molecular and Optical Physics, Canada / Division de la physique atomique, moléculaire et photonique, Canada (DAMOFC-DPAMPC)