



Alberta Terrestrial Imaging Centre

Hyperspectral Science and Technology Workshop 2015
4-5 November 2015 - University of Lethbridge/ATIC
Lethbridge, Alberta, CANADA
Anderson Hall AH-100

In Partnership with (*):



AGENDA (*)

➔ **DAY 1: Wed 4 Nov. Multispectral and Terrestrial LiDAR Remote Sensing**

- 08:55 – 09:00 *Welcome & Introduction:*

 Dr. Derek Peddle and Dr. Chris Hopkinson – ATIC / Geography, University of Lethbridge
- 09:00 – 09:30 Tobin Haney, Optech, Toronto, ON, Canada

 Optech's Titan Multi Spectral LiDAR system:
 A revolution in laser mapping technology and applications
- 09:30 – 10:00 Dr. Chris Hopkinson, University of Lethbridge/ATIC, Lethbridge, AB, Canada

 Multi-sensor and multi-spectral LiDAR:
 Titan and other MS-LiDAR representations of forest canopies
- 10:00 – 10:30 Dr. Ahmed Shaker, Ryerson University, Toronto, ON, Canada

 "Radiometric correction & normalization of LiDAR intensity data
 for urban land cover classification".
- 10:30 – 11:00 **BREAK.** *Refreshments and Snacks provided.*
- 11:00 – 11:30 Dr. Craig Mahoney, University of Lethbridge/ATIC, Lethbridge, AB, Canada

 Continent-scale mapping of forest height and cover attributes
 from airborne and satellite lidar
- 11:30 – 12:15 **TECHNOLOGY ROUNDTABLE I:**

 Blue sky: "New / emerging technologies; are there new applications 'out there'?"
- 12:15 – 13:30 **LUNCH** *(served onsite)*
- 13:30 – 14:00 Dr. Martin Bergeron, Canadian Space Agency (CSA), St. Hubert, QC, Canada

 Canadian Space Agency Earth Observation Mission Priorities
- 14:00 – 14:30 Dr. Laura Chasmer, University of Lethbridge/ATIC, Lethbridge, AB, Canada

 Lidar-based monitoring of forest and wetland change in Alberta's boreal region



- 14:30 – 15:00 Dr. Martin Isenburg, rapidlasso GmbH, Munich, Germany
I. LAStools software demonstration: Integrating LiDAR, GIS and Web Processing
- 15:00 – 15:30 **BREAK.** Refreshments and Snacks provided.
- 15:30 – 16:00 Dr. Martin Isenburg, rapidlasso GmbH, Munich, Germany
II. PulseWaves software for efficient LiDAR full waveform analysis
- 16:00 – 16:30 TECHNOLOGY ROUNDTABLE II:
Down to Earth: "Strategic and operational remote sensing to support Alberta's monitoring needs; the low hanging 'pixels'?"
- 16:30. *End of Day 1.*
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➔ DAY 2: Thurs 5 Nov. *Fiat Lux*: International Year of Light Workshop:
Atmospheric Remote Sensing



- 08:45 – 09:00 Dr. Adriana Predoi-Cross – ATIC / Physics and Astronomy, Univ. Lethbridge
Welcome & Introduction to Day 2 Theme: International Year of Light (IYL)
- 09:00 – 09:45 Prof. Marco Ridolfi, University of Bologna, Italy (*WebEx presentation*)
Retrieval of atmospheric composition from spectral radiance measurements
- 09:45 – 10:30 Prof. Dwayne Heard, University of Leeds (Chemistry), Leeds, UK. (*WebEx presentation*)
Laser-based field measurements of short-lived free-radicals (OH, HO₂, RO₂) and OH reactivity in the atmosphere and comparisons with models
- 10:30 – 11:00 **BREAK.** Refreshments and Snacks provided.
- 11:00 – 11:45 Prof. Johnathan Tennyson, University College London, London, UK (*WebEx presentation*)
Accurate calculated intensities for key atmospheric species



- 11:45 – 13:00 ***LUNCH (served onsite)***
- 13:00 – 13:45 Prof. Ann-Lise Norman, University of Calgary (Physics and Astronomy), Calgary, AB, Canada

***Sleuthing in the Atmosphere:
Isotope Abundance Ratios and the Potential for Optical Detection***
- 13:45 – 14:30 Prof. Hans Ostoff, University of Calgary (Chemistry), Calgary, AB, Canada

***On the utility of thermal-dissociation cavity ring-down spectroscopy
to quantify mixing ratios of nitrogen oxides in ambient air***
- 14:30 – 15:15 Prof. Per Jensen, University of Wuppertal (Chemistry), Germany

Simulation of rovibronic spectra for Renner-interacting electronic states
- 15:15 – 15:30 ***BREAK. Refreshments and Snacks provided.***
- 15:30 – 16:15 Dr. Brant Billingham, Canadian Light Source, Saskatoon, SK, Canada

A Bright Idea: The How and Why of Infrared Synchrotron Radiation
- 16:15 – 17:00 Dr. Boyd Tolton, Synodon, Edmonton, AB, Canada

***Development of realSens:
an airborne remote sensing technology for gas leak detection***
- 17:00 – 17:30 **TECHNOLOGY ROUNDTABLE III: *Trends in Spectroscopic Remote Sensing***
- 17:30. **Workshop Close.**

(*) Workshop Notes and Acknowledgements:

Financial and other support for this event is gratefully acknowledged from: the NSERC CREATE AMETHYST Program at University of Lethbridge, the Canadian Remote Sensing Society (CRSS-SCT Lethbridge Chapter) and the Alberta Geomatics Group (AGG). This Workshop is one in a series of five events being co-organized in partnership with CRSS-SCT and AGG in the Lethbridge region this year. Economic Development Lethbridge/**tecconnect**, RINSA, BlackBridge, Ventus Geomatics, Lethbridge College, TECTERRA, and the University of Lethbridge are all thanked for their support and involvement in this Workshop Series in Lethbridge and region. AMETHYST Event Coordinator and CRSS-SCT Lethbridge Chapter Co-Chair Derek Peddle (ATIC Co-Director) acknowledges AMETHYST Workshop Co-organizers for this event Chris Hopkinson (Day 1) and Adriana Predoi-Cross (Day 2), as well as ATIC Director Karl Staenz, AMETHYST Program Coordinator Trevor Armstrong, and CRSS-SCT Lethbridge Chapter Co-Chair Matt Wirzba (BlackBridge/AGG).