ATM-MIRS 2018 Technical Program June 4 – June 6, 2018

Monday June 4, 2018 Boston College School of Law, East Wing 200

0730 – 0815: Registration/Check-In
Lecture Hall Foyer

0730 – 0815: Continental Breakfast
Lecture Hall Foyer

0815 – 0830: *Chair's Welcome and Opening Remarks*
John Roadcap
Air Force Research Laboratory Kirtland AFB, New Mexico

0830 – 0845: *Welcome from IEEE GRSS and MIRS TC*
John Kerekes
Digital Imaging and Remote Sensing Laboratory
Rochester Institute of Technology

Session 1: Radiative Transfer for the Future Chair: John Roadcap

0845 – 0945: *HITRAN and HITEMP: Towards Molecular Spectroscopic Databases for any Possible Scenario (invited)*
Iouli Gordon, Laurence Rothman, Yan Tan, Roman Kochanov, and Robert Hargreaves
Harvard-Smithsonian Center for Astrophysics Cambridge, Massachusetts

0945 – 1015: *Challenges in Performing an In-flight Absolute Radiometric Calibration*
Jeannette van den Bosch[1] and Christopher Crawford[2]
[1]Air Force Research Laboratory Kirtland AFB, New Mexico
[2]USGS/ASRC

1015 – 1045: Morning Coffee Break

Session 2: Aerosols and Haze Chair: Jeannette van den Bosch

1045 – 1115: *Measuring the Detector-Observed Impact of Optical Blurring Due to Aerosols in a Laboratory Cloud Chamber*
Corey D. Packard[1], Raymond A. Shaw[2], Will H. Cantrell[2], Greg M. Kinney[2], Michael C. Roggemann[3], and John R. Valenzuela[4]
[1]ThermoAnalytics Inc., Calumet, Michigan
[2]Dept. of Physics and Atmospheric Sciences, Michigan Technological University Houghton, Michigan
[3]Dept. of Electrical and Computer Engineering, Michigan Technological University Houghton, Michigan
[4]Integrity Applications, Inc. Chantilly, Virginia

1115 – 1145: *Seeing through Heavily-Polluted Satellite Imagery Using QUAC*
Steven Adler-Golden, Lawrence Bernstein, Benjamin St. Peter, and Bridget Tannian
Spectral Sciences, Inc. Burlington, Massachusetts

1145 – 1315: Lunch Break Stuart 414 (Faculty Lounge)

Session 3: Atmospheric Properties Retrieval Chair: Wellesley Pereira

1315 – 1345: *Using MODTRAN6 for Inter-Comparison of NOAA-20 and S-NPP CrIS Spectra*
Joe Kristl, Kori Moore, Mark Esplin, Deron Scott, and Ben Esplin

Space Dynamics Laboratory, Utah State University Research Foundation

1345 – 1415: *Comparison of CIMSS DCOMP and TWST Cloud Optical Depth Retrievals*
Jeannette van den Bosch
Air Force Research Laboratory Kirtland AFB, New Mexico

1415 – 1445: *Integrating MODTRAN6 into the Plume Tracker Data Analysis Toolkit*
Paulo Penteado[1], Vincent Realmuto[1], Tim Perkins[2] , and Alexander Berk[2]
[1]Jet Propulsion Laboratory, California Institute of Technology
[2]Spectral Sciences, Inc. Burlington, Massachusetts

1445 – 1515: Afternoon Break

Session 4: Optical Turbulence and Path Refraction Chair: Steven Fiorino

1515 – 1545: *Turbulent Imaging Simulation at DRDC, Pt. I*
Guy Potvin
Defence Research and Development Canada Quebec, Canada

1545 – 1615: *Turbulent Imaging Simulation at DRDC, Pt. II*
Guy Potvin, DRDC

1615 – 1645: *MODTRAN6 Multiple-Line-of-Sight (MLOS) Option*
Alexander Berk[1] and Christopher Rice[2]
[1]Spectral Sciences, Inc. Burlington, Massachusetts
[2]Air Force Institute of Technology Wright-Patterson AFB, Ohio

1730 – 1930: *Welcome Barbeque for All Registrants*
Boston College Institute for Scientific Research Courtyard

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<u>Tuesday, June 5, 2018 Boston College School of Law, East Wing 200</u>

0730 – 0830: Registration/Check-in

0730 – 0830: Continental Breakfast

Session 5: Sky Radiance in Clear and Disturbed Conditions Chair: John Kerekes

0830 – 0900: *Daytime Sky Radiance Model Validation of GEO-belt in NIR-SWIR*
Grant Thomas, Rich Cobb, Steve Fiorino, and Mike Hawks
Air Force Institute of Technology Wright-Patterson AFB, Ohio

0900 – 0930: *Coupled Surface Observations of Temperature, Pressure, and Humidity with Aerosol Particle Counts for Daytime Sky Radiance Quantification*
Scott Wolfmeyer[1], Grant Thomas[2], and Steven Fiorino[1]
[1]Dept. of Engineering Physics, Air Force Institute of Technology Wright-Patterson AFB, Ohio
[2]Dept. of Aeronautical and Astronautical Engineering, Air Force Institute of Technology Wright-Patterson AFB, Ohio

0930 – 1000: *Energy Study of the Atmosphere Subjected to the Influence of Squall Lines in the Sahelian Zone using a Radiative Transfer Model*
Bouya Diop
Gaston Berger University, Senegal

1000 – 1030: Morning Coffee Break

Session 6: Thermal IR Imagery and Polarimetric Detection Chair: Alexander Berk

1030 – 1100: *Detecting Enhanced Levels of Atmospheric Methane Using Thermal Infrared Imagery*
Cody Webber, John Kerekes, and Rolando Raqueno
Digital Imaging and Remote Sensing Laboratory
Rochester Institute of Technology

1100 – 1130: *Atmospheric Correction of Commercial Thermal Infrared Hyperspectral Imagery Using FLAASH-IR*
Steven Adler-Golden, Nevzat Guler, and Timothy Perkins
Spectral Sciences, Inc. Burlington, Massachusetts

1130 – 1200: *Enhanced Target Detection and Identification in the Long-Wave IR Using Polarization*
Denis Dion, D. A. Lavigne, and J.-M. Thériault
Defence Research & Development Canada Quebec, Canada

1200 – 1330: Lunch Break Stuart 414 (Faculty Lounge)

Session 7: Atmospheric Compensation and Correction Chair: Steven Adler-Golden

1330 – 1400: *A Case Study on the Use of MODTRAN for Atmospheric Correction of Satellite Imagery Obtained from High Spatial Resolution Pointable Sensors Over Agricultural Study Sites*
Brian Thomas Lamb[1], Wells Dean Hively[2,3], and Itiya P. Aneece[4]
[1]The City College of New York New York, New York
[2]U.S. Geological Survey Headquarters Reston, Virginia
[3]U.S. Dept. of Agriculture Hydrology and Remote Sensing Laboratory Beltsville, Maryland
[4]U.S. Geological Survey Western Geographic Science Center Flagstaff, Arizona

1400 – 1430: *A Data-Driven Approach for Efficiently Storing, Evaluating, Integrating and Sampling Spherical and Hemispherical Datasets*
Adam Goodenough and Scott Brown*
Digital Imaging and Remote Sensing Laboratory
Rochester Institute of Technology

1430 – 1500: Afternoon Break

Session 8: EOIR Signatures and MODTRAN Chair: Denis Dion

1500 – 1530: *EOIR Sensor Radiance Predictions Using MuSES and MODTRAN*
Corey D. Packard, Mark D. Klein, David Less, and Pete Rynes
ThermoAnalytics, Inc. Calumet, Michigan

1530 – 1615: *MODTRAN6 2018 Update*
Timothy Perkins and Alexander Berk
Spectral Sciences, Inc. Burlington, Massachusetts

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<u>Wednesday, June 6 Boston College School of Law, East Wing 200</u>

0730 – 0830: Continental Breakfast

Session 9: Transmission in Optically-Thick Media **Chair: John Kerekes**

0830 – 0900: *Decomposition of Volumetric Path-Tracing for In-Water Radiative Transfer: A Hybrid Beam, Path, and Forward Scattering Approach*

Adam Goodenough and Scott Brown
Digital Imaging and Remote Sensing Laboratory
Rochester Institute of Technology

0900 – 0930: *Numerical Calculations of the Transmission Function in a Plane-Parallel Atmosphere*

John Roadcap[1] and Surendra Singh[2,3]
[1]Air Force Research Laboratory Kirtland AFB, New Mexico
[2]Dept. of Electrical and Computer Engineering, The University of Tulsa Tulsa, Oklahoma
[3]U.S. Air Force Summer Faculty Fellow

0930 – 1000: Closing Remarks for ATM-MIRS 2018