David W. Messinger, Ph.D.

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PROFESSIONAL SUMMARY:

Assistant Research Professor, Chester F. Carlson Center for Imaging Science, Rochester Institute of Technology, Rochester, NY (2006 - present)
I am affiliated with the Digital Imaging and Remote Sensing Laboratory and my research investigates the general problem of developing methods to extract quantitative information from spectral imagery. Specific efforts include the detection of man made phenomena in large area imagery and application of advanced mathematical techniques to spectral image processing. In addition, within the Lab I am the Algorithm and Phenomenology Group Leader overseeing the efforts of two full-time staff scientists and their associated graduate and undergraduate students. Other research interests include the use of physics-based signatures to augment statistical methods of hyperspectral image exploitation and the use of remote sensing techniques for multi-disciplinary research such as Archeology.

Research Scientist, Chester F. Carlson Center for Imaging Science, Rochester Institute of Technology, Rochester, NY (2002 - 2006)
I performed research into spectral image processing techniques supporting research programs within the Digital Imaging and Remote Sensing Laboratory. This work was partially funded through an Intelligence Community Postdoctoral Research Fellowship. My research focused on the detection and characterization of gaseous effluent plumes in thermal hyperspectral imagery, as well as the development of physics-based algorithms for target detection in reflective hyperspectral imagery.

Aerospace Engineer, Northrop Grumman, Exton, PA (2000 - 2002)
I designed and implemented innovative algorithms to track clusters of ballistic objects during midcourse flight in the SBIRS-Low Program. I developed a medium-fidelity, pixel-level, infrared sensor and signal processing simulation to evaluate system requirements and algorithms as well as provided in-house infrared phenomenological expertise.

Analyst, XonTech, Inc., Special Studies Division, Van Nuys, CA (1998 - 2000)
Unclassified: My work with the Internal Research and Development group required the development of algorithms to determine sea-surface characteristics, such as ocean wave spectra, from data acquired with the NASA-JPL AVIRIS sensor. I implemented physical and statistical models of infrared and hyperspectral data as well as used signal and image processing techniques to further these efforts.

Classified: XonTech specialized in sophisticated technology, exploring science for innovative solutions to complex sensor-driven problems. My work utilized phenomenological analysis to foster algorithm development and numerical computing to implement those algorithms.

EDUCATION:

Ph.D., Physics (September 1998), Rensselaer Polytechnic Institute, Troy, NY
Thesis Title: "New Methods for Studying Interstellar Continuum and Spectral Polarization"
Thesis Advisor: W.G. Roberge, Ph.D.

B.S., Physics, Graduate with Distinction (May 1991), Clarkson University, Potsdam, NY

CURRENT RESEARCH INTERESTS:

- Investigation of physical and geophysical processes through analysis of remotely sensed data
- Multispectral & Hyperspectral Image exploitation

  - Spectral feature extraction
  - Applications to gaseous plume detection and quantification
  - Target detection using physics-based signatures
  - Spectral image characterization
  - Application of advanced mathematical tools to spectral imagery
- LIDAR Imaging

ADMINISTRATIVE EXPERIENCE:

Interim Director of the Digital Imaging and Remote Sensing Laboratory (2007 - 2008):
I was responsible for coordinating and overseeing the research programs for those affiliated to the laboratory. This includes six faculty, ∼10 full time research staff, and ∼30 graduate students at the MS and Ph.D. levels.

DIRS Algorithm and Phenomenology Group Leader:
I am responsible for the management of two full-time staff scientists and their affiliated graduate and undergraduate students. This involves personnel and budgetary management as well as contributing to the planning and proposal process for the DIRS Laboratory.

Member of the Search Committee: Director of the Center for Imaging Science, RIT, 2003

Member of the Search Committee: Remote Sensing Faculty, Center for Imaging Science, RIT, 2003

Member of the Local Organizing Committee for the conference:
Polarimetry of the Interstellar Medium, Troy, NY, June 1995

Member of the Graduate Student Committee: Rensselaer Polytechnic Institute Physics Dept. 1994 - 1996

THESIS COMMITTEES:

Senior Thesis Project

Rachael Gold, Imaging Science, Rochester Institute of Technology, 2005, **advisor**, "Performance Analysis of the Invariant Algorithm for Target Detection in Hyperspectral Imagery"

Sarah Paul, Imaging Science, Rochester Institute of Technology, 2007, **advisor**, "Investigation of Visiball Glasses Claims"

Masters of Science

Erin Peterson, Imaging Science, Rochester Institute of Technology, 2004, "Validation and Verification of Surface and Buried Landmine Signatures in DIRSIG"

Erin O'Donnell, Imaging Science, Rochester Institute of Technology, 2005, "Detection and Identification of Effluent Gases Using Invariant Hyperspectral Algorithms"

David Pogorzala, Imaging Science, Rochester Institute of Technology, 2005, "Gas Plume Species Identification in LWIR Hyperspectral Imagery by Regression Analyses"

David Grimm, Imaging Science, Rochester Institute of Technology, 2005, "Hybridization of Hyperspectral Imagery Target Detection Algorithm Chains"

Jason West, Imaging Science, Rochester Institute of Technology, 2005, "Matched Filter Stochastic Background Characterization for Hyperspectral Target Detection"

Adam Cisz, Imaging Science, Rochester Institute of Technology, 2006, "Performance Comparison of Hyperspectral Target Detection Algorithms"

Manuel Ferdinandus, Imaging Science, Rochester Institute of Technology, 2007, "Selection of Optimal Background Estimation Methods for Unstructured Detectors"

Josef Bishoff, Imaging Science, Rochester Institute of Technology, expected 2008, **advisor**, "Target Detection Using Oblique Angle Hyperspectral Imagery"

Ph.D.

James Shell, Imaging Science, Rochester Institute of Technology, 2005, "Polarimetric Remote Sensing in the

VNIR"

Michael Foster, Imaging Science, Rochester Institute of Technology, 2007, "Geometrically-Constrained Subspaces for Physics-Based Target Detection"

Marvin Boonmee, Imaging Science, Rochester Institute of Technology, 2007, "Land Surface Temperature and Emissivity Retrieval from Thermal Infrared Hyperspectral Imagery"

Hongqin Zhang, Imaging Science, Rochester Institute of Technology, 2007, "Color in Scientific Visualization: Perception and Image-based Data Display"

Yonghui Zhao, Imaging Science, Rochester Institute of Technology, 2008, "Image Segmentation and Pigment Mapping of Culture Heritage Based on Spectral Imaging and Its Use In Restorative Inpainting"

Andrew Adams, Imaging Science, Rochester Institute of Technology, expected 2008, "Persistent Surveillance - Motion Detection and Tracking at Reduced Frame Rates Using Multispectral Information"

Jason Ward, Imaging Science, Rochester Institute of Technology, 2008, "Realistic Texture in Simulated Thermal Infrared Imagery"

Steve Lach, Imaging Science, Rochester Institute of Technology, 2008, "Multisource Data Processing for Semi-Automated Radiometrically Correct Scene Simulation"

Marcus Stefanou, Imaging Science, Rochester Institute of Technology, expected 2008, "Predicting Spectral Image Utility"

Brian Daniel, Imaging Science, Rochester Institute of Technology, expected 2008, "Sparse Aperture Modeling in a Spectral World with Broadband Phase Diversity"

Shawn Higbee, Imaging Science, Rochester Institute of Technology, expected 2009, **advisor**, "Gas Plume Constituent Species Identification Using Bayesian Analysis with LWIR Hyperspectral Imagery"

Ariel Schlamm, Imaging Science, Rochester Institute of Technology, expected 2010, **advisor**, "Detection of Man-Made Material in Large Area Search Using Hyperspectral Imagery"

FUNDING HISTORY:

LPA Associates, "Hyperspectral Exploitation Tool Development", PI, 2004 - 2005, $9,216

Kodak - RIT CIS Innovative Collaborative Research Opportunity, "Visualization of High-Dimensional Remote Sensing Data Products", Co-PI, 2005, $5,000

Pacific Northwest National Laboratory, "Characterization of LWIR Imagery", PI, 2006, $12,055

Army Research Laboratory, "Persistent Surveillance Research", PI, 2006 - 2007, $46,452

VirtualScopics, through the Naval Research Laboratory, "Hyperspectral Algorithm Development", PI, 2007 - 2008, $100,000

Pacific Northwest National Laboratory, "Bayesian Model Averaging for Species Identification in Gaseous Plumes", PI, 2007 - 2008, $100,000

NGA University Research Initiative (NURI), "Dynamic Analysis of Spectral Imagery for Improved Exploitation, PI, 2007 - 2009, $300,000

NASA, "Hyper- and Multi-spectral Satellite Imagery and the Ecology of State Formation and Complex Societies", Co-I, 2008 - 2010, $80,485

Impact Technologies, Phase 1 SBIR, "Automated 3d Terrain Mission Profile Generation", PI, 2008, $10,000

Black River Systems Corporation, "Multi-Sensor Exploitation for Space Situatiuonal Awareness", PI, 2008-2010, $124,286

Sandia National Laboratory, "Clutter Scene Generation in DIRSIG", PI, 2008, $24,585

HONORS AND AFFILIATIONS:

Member of an Independent Review Panel, Infrared Signatures Program, Pacific Northwest National Laboratory, March, 2005

Member of an Independent Review Panel, Spectral Signatures Program, Pacific Northwest National Laboratory, March, 2005

Member of an Independent Review Panel, Alternative SNM Signatures, Pacific Northwest National Labora-

tory, March, 2008

Journal Reviewer, IEEE Transactions on Geoscience and Remote Sensing

Journal Reviewer, IEEE Transactions on Aerospace and Electronic Systems

Intelligence Community Postdoctoral Research Fellow, 2003 - 2005

Member of the American Geophysical Union (AGU)

Member of the American Society for Photogrammetry and Remote Sensing (ASPRS)

Member of IEEE, Geoscience and Remote Sensing Society (GRSS)

Member of the Society of Photo-Optical Instrumentation Engineers (SPIE)

Member of the US Geospatial-Intelligence Foundation (USGIF)

Department of Education Fellowship, Rensselaer Polytechnic Institute, Jan. 1997 - Aug. 1997

Graduate with Distinction, Clarkson University, May 1991

TEACHING EXPERIENCE:

Physics II: Head instructor for class of 65 students. Duties included course development, lecturing, homework set assignment, solution, and grading, as well as exam writing and grading.

Astrophysics II: Teaching assistant for graduate/undergraduate course. Duties included guest lecturing, homework and exam grading, and providing office hours.

Physics I & II Recitation: Instructor for three recitations of up to 30 students each per semester. Duties included problem solving, homework and exam grading, and providing office hours.

INVITED PRESENTATIONS:

Kodak Research Laboratories Colloquium, "Exploitation Algorithms for Hyperspectral Imagery", March 2004

International Symposium on Spectral Sensing Research 2006, "Detection of Gaseous Effluents from Airborne LWIR Hyperspectral Imagery Using Physics-Based Signature Predictions", May 2006

International Geoscience and Remote Sensing Symposium 2006, "Improving Background Multivariate Normality and Target Detection Performance Using Spatial and Spectral Segmentation", August 2006

Departmental Colloquium, School of Mathematical Sciences, RIT, "Characterization of High-Dimensional Spectral Image Data", December 2006

Telops Workshop on Hyperspectral Remote Sensing, "Topological Approaches to Exploitation of Hyperspectral Imagery: Beyond Statistics and Linear Geometry", October 2007

Information Institute 2008, Workshop on Image and Video Processing, Air Force Research Laboratory, Rome NY, "Advanced Mathematical Approaches to Spectral Image Processing", June 2008

SELECTED PUBLICATIONS:

"Spin-Image Target Detection Algorithm Applied to Low Density 3D Point Clouds", M. Foster, J. Schott, & **D. Messinger**, Journal of Applied Remote Sensing, Vol. 2, 023539, 29 September 2008

"Geometric Estimation of the Inherent Dimensionality of a Single Material Clusters in Multi- and Hyperspectral Imagery", A. Schlamm, **D.W. Messinger**, & B. Basener, Algorithms and Technologies for Multispectral, Hyperspectral, and Ultraspectral Imagery XIV, Proceedings of SPIE vol. 6966, Orlando, FL, April 2008

"A generalized linear mixing model for hyperspectral imagery", D. Gillis, E. Ientilucci, & **D.W. Messinger**, Algorithms and Technologies for Multispectral, Hyperspectral, and Ultraspectral Imagery XIV, Proceedings of SPIE vol. 6966, Orlando, FL, April 2008

"Apparent temperature dependence on localized atmospheric water vapor", M. Montanaro, C. Salvaggion, S. Brown, **D.W. Messinger**, & A. Garrett, Algorithms and Technologies for Multispectral, Hyperspectral, and Ultraspectral Imagery XIV, Proceedings of SPIE vol. 6966, Orlando, FL, April 2008

"Spatio-spectral bilateral filters for hyperspectral imaging",H. Peng, R. Rao, & **D.W. Messinger**, Algorithms and Technologies for Multispectral, Hyperspectral, and Ultraspectral Imagery XIV, Proceedings of

SPIE vol. 6966, Orlando, FL, April 2008

"Topologically-based Anomaly Detection in Hyperspectral Imagery", **D.W. Messinger**, B. Basener, & E.J. Ientilucci, Submitted to the IEEE Trans. on Geosci. and Rem. Sens., 2007

"Detection of Gaseous Effluents from Airborne LWIR Hyperspectral Imagery Using Physics-Based Signature Predictions", **D.W. Messinger**, C. Salvaggio, N.M. Sinisgalli, Int. Journal of High Speed Electronics and Systems, vol 17 (4) December 2007

"Linear Unmixing Using Endmember Subspaces and Physics Based Modeling", D. Gillis, J. Bowles, E. Ientilucci, & **D.W. Messinger**, Imaging Spectrometry XII, Proceedings of SPIE vol. 6661, San Diego, CA, August 2007

"Use of LIDAR Data to Geometrically Constrain Radiance Spaces for Physics-Based Target Detection", M. Foster, J. Schott, **D.W. Messinger**, & R. Raqueño, Imaging Spectrometry XII, Proceedings of SPIE vol. 6661, San Diego, CA, August 2007

"A Comparative Evaluation of Background Characterization Techniques for Hyperspectral Unstructured Matched Filter Target Detection", J. West, **D.W. Messinger**, & J. Schott, Journal of Applied Remote Sensing, Vol 1, 013520, 13 July 2007

"Radiometric Modeling of Cavernous Targets to Assist in the Determination of Absolute Temperature for Input to Process Models", M. Montanaro, C. Salvaggio, S. Brown, **D.W. Messinger**,A. Goodenough, A. Garrett, and E. Villa-Aleman, Algorithms and Technologies for Multispectral, Hyperspectral, and Ultraspectral Imagery XIII, Proceedings of SPIE vol. 6565, Orlando, FL, April 2007

"Recreation of a Nominal Polarimetric Scene Using Synthetic Modeling Tools", D. Pogorzala, S. Brown, **D.W. Messinger**, & C. Devaraj, Algorithms and Technologies for Multispectral, Hyperspectral, and Ultraspectral Imagery XIII, Proceedings of SPIE vol. 6565, Orlando, FL, April 2007

"A Framework for Polarized Radiance Signature Prediction for Natural Scenes", C. Devaraj, S. Brown, **D.W. Messinger**, A. Goodenough & D. Pogorzala, Algorithms and Technologies for Multispectral, Hyperspectral, and Ultraspectral Imagery XIII, Proceedings of SPIE vol. 6565, Orlando, FL, April 2007

"Anomaly Detection Using Topology", B. Basener, E.J. Ientilucci, & **D.W. Messinger**, Algorithms and Technologies for Multispectral, Hyperspectral, and Ultraspectral Imagery XIII, Proceedings of SPIE vol. 6565, Orlando, FL, April 2007

"A Hybrid Video and FTIR Spectrometer System for Rapidly Locating and Characterizing Gas Leaks",D. Williams, W. Wadsworth, C. Salvaggio, and **D. Messinger**, Proceedings of SPIE, vol. 6299, 2006

"Improving Background Multivariate Normality and Target Detection Performance Using Spatial and Spectral Segmentation", **D. W. Messinger**, J. E. West, & J.R. Schott, Proceedings of the International Geoscience and Remote Sensing Symposium 2006, August 2006

"Three-Band Temperature Extraction from Airborne Imagery with Imprecise Atmospheric Knowledge", C. Salvaggio, M. Boonmee, N. Sinisgalli, **D. Messinger**, J. Geophysical Research, 111, D13107, doi: 10.1029/2005JD006770, 2006

"Landscape Classification in Regional Archaeology Survey Employing Stepwise Unmixing of Hyperspectral Imagery from the Earth Observing 1 Satellite", William D. Middleton & **David W. Messinger**, Proceedings of the 36th International Symposium on Archeometry, Quebec City, Canada, May 2006

"Land Surface Temperature and Emissivity Retrieval From Thermal Infrared Hyperspectral Imagery", M. Boonmee, J.R. Schott, and **D.W. Messinger**, Algorithms and Technologies for Multispectral, Hyperspectral, and Ultraspectral Imagery XI, Proceedings of SPIE vol. 6233, Orlando, FL, April 2006

"Analysis of a Multitemporal Hyperspectral Dataset Over a Common Target Scene", **D.W. Messinger**, M. Richardson, and J. Casey, Algorithms and Technologies for Multispectral, Hyperspectral, and Ultraspectral Imagery XI, Proceedings of SPIE vol. 6233, Orlando, FL, April 2006

"Perceptual Display Strategies of Hyperspectral Imagery Based on PCA and ICA", Hongqin Zhang, **D.W. Messinger**, and E. Montag, Algorithms and Technologies for Multispectral, Hyperspectral, and Ultraspectral Imagery XI, Proceedings of SPIE vol. 6233, Orlando, FL, April 2006

"Comparison Between Spectral Quality Metrics and Analyst Performance in Hyperspectral Target Detection", J.P. Kerekes, **D.W. Messinger**, P. Lee, and R. Simmons, Algorithms and Technologies for Multispectral, Hyperspectral, and Ultraspectral Imagery XI, Proceedings of SPIE vol. 6233, Orlando, FL, April

2006

"Hybridization of Hyperspectral Imaging Target Detection Algorithm Chains", David C. Grimm, **David W. Messinger**, John P. Kerekes, & John R. Schott, Algorithms and Technologies for Multispectral, Hyperspectral, and Ultraspectral Imagery XI, Proceedings of SPIE vol. 5806, Orlando, FL, April 2005

"The Effects of Atmospheric Compensation Upon Gaseous Plume Signatures", Benjamin L. Miller, & **David W. Messinger**, Algorithms and Technologies for Multispectral, Hyperspectral, and Ultraspectral Imagery XI, Proceedings of SPIE vol. 5806, Orlando, FL, April 2005

"A Method for Quantification of Gas Plumes in Thermal Hyperspectral Imagery", **David W. Messinger**, Algorithms and Technologies for Multispectral, Hyperspectral, and Ultraspectral Imagery XI, Proceedings of SPIE vol. 5806, Orlando, FL, April 2005

"The Invariant Algorithm for Identification and Detection of Multiple Gas Plumes and Weak Releases", Erin M. O'Donnell, **David W. Messinger**, Carl Salvaggio, & John R. Schott, Algorithms and Technologies for Multispectral, Hyperspectral, and Ultraspectral Imagery XI, Proceedings of SPIE vol. 5806, Orlando, FL, April 2005

"Gas Plume Species Identification in Airborne LWIR Imagery Using Constrained Stepwise Regression Analyses", David Pogorzala, **David W. Messinger**, Carl Salvaggio, and John R. Schott, Algorithms and Technologies for Multispectral, Hyperspectral, and Ultraspectral Imagery XI, Proceedings of SPIE vol. 5806, Orlando, FL, April 2005

"Matched Filter Stochastic Background Characterization for Hyperspectral Target Detection", Jason E. West, **David W. Messinger**, Emmett J. Ientilucci, John P. Kerekes, & John R. Schott, Algorithms and Technologies for Multispectral, Hyperspectral, and Ultraspectral Imagery XI, Proceedings of SPIE vol. 5806, Orlando, FL, April 2005

"Gaseous Plume Detection in Hyperspectral Images: A Comparison of Methods", **D.W. Messinger**. Algorithms and Technologies for Multispectral, Hyperspectral, and Ultraspectral Imagery X, Proceedings of SPIE vol. 5425, Orlando, FL, April 2004

"Identification and Detection of Gaseous Effluents from Hyperspectral Imagery Using Invariant Algorithms", E.M. O'Donnell, **D.W. Messinger**, C.N. Salvaggio, & J.R. Schott. Algorithms and Technologies for Multispectral, Hyperspectral, and Ultraspectral Imagery X, Proceedings of SPIE vol. 5425, Orlando, FL, April 2004

"Gas Plume Species Identification by Regression Analysis", D.R. Pogorzala, **D.W. Messinger**, C.N. Salvaggio, & J.R. Schott. Algorithms and Technologies for Multispectral, Hyperspectral, and Ultraspectral Imagery X, Proceedings of SPIE vol. 5425, Orlando, FL, April 2004

"Interstellar Polarization in the Taurus Dark Clouds: Wavelength Dependent Position Angles and Cloud Structure Near TMC - 1", **D.W. Messinger**, D.C.B. Whittet, & W.G. Roberge. Astrophysical Journal, 1997, vol 487, p. 314

"Moderate Resolution Spectropolarimety of the 3 μm Ice Band Toward the BN Object", J.H. Hough, A. Chrysostomou, **D.W. Messinger**, D.K. Aitken, & P.F. Roche. Astrophysical Journal, 1996, vol 461, p. 902

"Modeling New Spectropolarimetric Data of the Water-Ice Feature Toward the BN Object", **D.W. Messinger**, W.G. Roberge, D.C.B. Whittet, J.H. Hough, & A. Chrysostomou. Proceedings of the conference: Polarimetry of the Interstellar Medium, Proceedings of the Astronomical Society of the Pacific, vol 97

"Grain Alignment by Ambipolar Diffusion in Molecular Clouds", **D.W. Messinger**, W.G. Roberge, & S. Hanany. Proceedings of the conference: Polarimetry of the Interstellar Medium, Proceedings of the Astronomical Society of the Pacific, vol 97

"Grain Alignment by Ambipolar Diffusion in Molecular Clouds", W.G. Roberge, S. Hanany, & **D.W. Messinger**. Astrophysical Journal, 1995, vol 453, p. 238

"Ambipolar Diffusion and Polarized Thermal Emission from Dust", W.G. Roberge, S. Hanany, & **D.W. Messinger**. Proceedings of the Fourth Haystack Conference: Clouds, Cores, and Low Mass Stars, Proceedings of the Astronomical Society of the Pacific, vol 65

SELECTED CONFERENCE PRESENTATIONS:

"(Hyper)Spectral Remote Sensing for Detection of Point Targets and Man-Made Activity in Large Area

Search Applications", **D.W. Messinger** & B. Basener, Contributed to the 4th Conference on Mathematical Methods in Counterterrorism, Rochester, NY, September 2007

"Detection of Gaseous Plumes in LWIR Hyperspectral Imagery Using Physics-Based Signatures", **D.W. Messinger**, Contributed to the 11th Spectral Analyst Exchange Forum, Sioux Falls, SD, May 2007

"Topological Anomaly Detection in Hyperspectral Imagery", **D.W. Messinger**, B. Basener, & E. Ientilucci, Contributed to the 11th Spectral Analyst Exchange Forum, Sioux Falls, SD, May 2007

"Hyperspectral Exploitation Algorithm Tool Development in IDL / ENVI: Target Detection Using Physics-Based Signatures", **D.W. Messinger**, Contributed to the Conference: ENVI / IDL Applications in Defense & Intelligence, Chantilly, VA, July 2006

"Hyperspectral Image Classification Using a Geometrical Model and Stepwise Un-mixing", **D.W. Messinger**, Contributed to the Conference: International Congress on Imaging Science, Rochester, NY, May 2006

"Analysis of a Multitemporal Hyperspectral Dataset Over a Common Target Scene", **D.W. Messinger**, M. Richardson, and J. Casey, Contributed to the Conference: Algorithms and Technologies for Multispectral, Hyperspectral, and Ultraspectral Imagery XI, Orlando, FL, April 2006

"A Method for Quantification of Gas Plumes in Thermal Hyperspectral Imagery", **David W. Messinger**, Contributed to the Conference: Algorithms and Technologies for Multispectral, Hyperspectral, and Ultraspectral Imagery XI, Orlando, FL, April 2005

"Remote Sensing of Gaseous Effluents", **D.W. Messinger** & J.R. Schott. Contributed to the Annual DCI Postdoctoral Research Fellowship Colloquium, Washington, D.C., April 2005

"Gaseous Effluent Detection: Passive vs. Acive Systems and Algorithms", **D.W. Messinger** & J.R. Schott. Contributed to the Annual NGA Research Symposium, Washington, D.C., September 2004

"Gaseous Plume Detection in Hyperspectral Images: A Comparison of Methods", **D.W. Messinger**. Contributed to the conference: Algorithms and Technologies for Multispectral, Hyperspectral, and Ultraspectral Imagery X, sponsored by SPIE, Orlando, FL, April 2004

"Gaseous Effluent Detection: Passive vs. Acive Systems and Algorithms", **D.W. Messinger** & J.R. Schott. Contributed to the Annual DCI Postoctoral Research Fellowship Colloquium, Washington, D.C., April 2004

"Estimating Gravity Wave Spectra From Infrared Images", C. Gelpi & **D.W. Messinger**. Contributed to the conference: Sixth International Conference, Remote Sensing for Marine and Coastal Environments, sponsored by ERIM International, Charleston, SC, May 2000

"Constraints on the Dust Toward the BN Object Based on Models of the Water-Ice Polarization", **D.W. Messinger**, W.G. Roberge, D.C.B. Whittet, & A. Chrysostomou. Contributed to the 189^{th} meeting of the American Astronomical Society, Toronto, Canada, January 1997

"Modeling New Spectropolarimetric Data of the Water-Ice Feature Toward the BN Object", **D.W. Messinger**, W.G. Roberge, D.C.B. Whittet, J.H. Hough, & A. Chrysostomou. Contributed to the conference: Polarimetry of the Interstellar Medium, Troy, NY, June 1995