**CURRICULUM VITAE - SCOTT M. SPULER, Ph.D.**

*1. EDUCATION*

- Ph.D. in Engineering Systems/Applied Optics, 2001, Colorado School of Mines
    - Thesis: “Sensitive Absorption Spectroscopy Techniques for Quantitative Detection of Species in Flames and Ambient Air”
- M.S. in Engineering Systems/Applied Optics, 1999, Colorado School of Mines
    - Thesis: “Development of a Cavity Ringdown Laser Absorption Spectrometer for Detection of Trace Levels of Mercury”
- B.S. in Civil/Environmental Engineering, 1993 Virginia Tech

*2. WORK HISTORY*

- 2007-present: Research Engineer, National Center for Atmospheric Research, Boulder CO
- 2002-2007: Optical Engineer, National Center for Atmospheric Research, Boulder CO
- 2001-2002: R&D Optical Engineer, Zolo Technologies Inc., Boulder CO
- 1997-2001: Research Assistant, Combustion/Emissions Lab, Colorado School of Mines, Golden CO
- 1992-1996: Sr. Staff Geo-Environmental Engineer, Schnabel Engineering Associates, Bethesda MD

*3. SCIENTIFIC /TECHNICAL ACCOMPLISHMENTS*

*Research Goal:* Design, build and utilize innovative optical and laser based instruments which can be applied to enhance the understanding of the atmospheric earth sciences.

- Developed high energy, eye-safe lidar system for 3D visualization of aerosols and atmospheric structure
- Designed and built a robust Raman shifter for high-pulse energy lidar applications
- Investigated high spectral resolution lidar for quantitative measurement of cloud/aerosols radiative properties
- Designed NCAR GV-aircraft optical viewports for airborne laser remote sensing
- Investigated eye-safe laser profiler for measurement of horizontal winds in the atmospheric boundary layer
- Developed in-line holographic imaging system for three dimensional measurement of cloud particles
- Co-designed and performed stray light analysis on novel multi-pass cell for enhanced trace gas detection
- Developed a fiber-based heterodyne laser remote sensor for measurement of winds from aircraft
- Co-designed and built a Er/Yb fiber amplifier for high power and low-noise performance
- Co-developed and designed a diode-laser-based Differential Absorption Lidar (DIAL) for Water Vapor Profiling
- Co-developed low-cost, diode-laser-based HSRL profiling

- Co-developed low-cost thermodynamic profiler (combined water vapor, aerosol and temperature DIAL)

*4. COMMUNITY SERVICE*

- Technical Program Committee, European Lidar Conference 16-18 Nov Granada Spain (2021)
- UCAR Leadership Academy (2018-2019)
- PhD Committee member, Montana State University, Physics Department (2017-2019)
- General Co-chair, OSA Light Energy and the Environment Congress 6-9 Nov Boulder CO (2017)
- Local Organizing Committee Co-chair, OSA Light Energy and the Environment Congress 6-9 Nov Boulder CO (2017)
- Committee Member, Optical Instrumentation for Energy & Environmental Applications (E2) 14 - 17 November, Leipzig, Germany (2016)
- Program sub-committee member, Conference on Lasers and Electro-Optics: Applications and Technology: Laser & Photonics Applications for Energy & Environment, San Jose, CA (2014)
- Program Committee member, 26th International Laser Radar Conference, Greece (2012)
- PhD examination member, Universitat Politécnica de Catalunya, Barcelona Tech, Spain (2011)
- Program Committee member, 25th International Laser Radar Conference, Russia (2010)
- Co-chair of Program Committee, 24th International Laser Radar Conference (2007-2008)
- Site-visit team member, NSF Engineering Research Center Program (2009)
- Reviewer: Appl. Opt., Appl. Phys. B, J. Atmos. Oceanic Technol., Atmos. Meas. Tech. (ongoing)
- Reviewer of NSF proposals (ongoing)
- Engineering Judge, for Colorado School of Mines EPICS design program (2013)
- Project client, for Colorado School of Mines EPICS design program (2011)
- Optical book reviewer, NCAR Library (2004-2012)
- Member, NCAR Workforce Management Subcommittee (2009)
- Co-lead, NCAR Technology Innovation Forum (2009-2012)
- Mentor, Photonics Engineering Students (Jan-Aug, 2010)
- Mentor, EOL Summer Engineering Students (2003, 2005, 2006, 2007)
- Co-chair, EOL Engineering visitor fund oversight (2008-current)
- Head of the EOL Engineering Group (2009-2012)
- Member, EOL Internal Advisory Committee (2007-2009) (2017-current)
- Member, EOL Development Advisory Committee (2005-2012)

*5. HONORS AND AWARDS*

- 1997, Colorado Fellowship recipient
- 1999, Center for Combustion and Environmental Research E. J. Mallet Student Seminar Award recipient

- 2006, co-author on best poster award, 23rd International Laser Radar Conference, Nara, Japan.
- 2012, co-author best scientific contribution award, 26th International Laser Radar Conference, Porto Heli, Greece
- 2015, EOL/NCAR Outstanding Publication Nomination
- 2018, NCAR Scientific and Technical Achievement Award

*6. RESEARCH GRANTS*

- Co-PI: “Development of a Three-Dimensional Laser Air Motion Sensor,” (2010) NCAR/EOL
- Co-PI: “Development and Evaluation of an Ultra-Compact Wireless Network Enabled CO2 Diode Laser Spectrometer,” (2010) NCAR/EOL
- Co-PI: “Further Development of the HOLODEC 2 (Holographic Detector for Clouds 2) Instrument,” (2011) DOE/ARM Climate Research Facility
- PI: “Phase II Development: Water Vapor Diode-Laser-Based Micro-pulse Differential Absorption Lidar (DIAL),” (2013) NCAR/EOL
- Co-PI: “HSRL for Aerosols Winds and Clouds using the Optical Auto-covariance Wind Lidar (HAWC-OAWL) Instrument Incubator Program,” (2014) NASA/Ball Aerospace
- PI “Water Vapor DIAL Development: Phase C” (2015) NCAR/EOL
- PI “Diode-laser-based High Spectral Resolution Lidar Demonstration” (2016) NCAR/EOL
- Co-PI: “Development of a micro-pulse DIAL (MPD) testbed for sensing lower tropospheric water vapor profiles” (2016) NSF Major Research Instrumentation
- PI: “Water Vapor DIAL LAFE” (2016) DOE/PNNL
- Co-I: “MPD (MicroPulse Differential absorption lidar) Network Demonstration” (2019) DOE/ARM Climate Research Facility Field Campaign
- Co-PI: “Diode-Laser-Based Remote Sensing for Thermodynamic Profiling of the Lower Troposphere” (2019) NOAA Office of Weather and Air Quality, Next Generation of Mesoscale Weather Observing Platforms

*7. PUBLICATION LIST*

*7.1 THESIS*

1. M.S. Thesis: Development of a Cavity Ringdown Laser Absorption Spectrometer for Detection of Trace Levels of Mercury, 1999, Colorado School of Mines
2. Ph.D. Thesis: Sensitive Absorption Spectroscopy Techniques for Quantitative Detection of Species in Flames and Ambient Air, 2001, Colorado School of Mines.

*7.2 PATENTS*

3. Huang P. and S. Spuler. 2004. Apparatus and Method for producing a flat-topped filter response for (de)multiplexer having a diffraction grating with variable line spacing. US 6,754,412 filed 31 Jul 2002, granted 22 Jun 2004.

4. Mayor S. and S. Spuler. High Pulse-Energy, Eye-safe lidar system. US 7,583,364 filed 19 May 2004, granted 1 Sep 2009.
5. Spuler S. 2011. Raman cell for high power applications. US 7,869,469, filed 27 May 2005, granted 11 Jan 2011.
6. Spuler S. and S. Mayor. 2010. Lidar system for remote determination of calibrated, absolute aerosol backscatter coefficients. US 7,656,526 filed 21 Jul 2006, granted 2 Feb 2010.
7. Mayor S. and S. Spuler. 2009. Polarization Lidar for the Remote Detection of Aerosol Particle Shape. US 7,580,127 filed 21 Jul 2006, granted 25 Aug 2009.
8. Abari F. C. F, and S. Spuler. A system and method to measure an atmospheric thermodynamic profile with a compact, all-fiber and eye-safe lidar, US 10,295,672 filed 13 Nov 2015, granted 21 May 2019.
9. Cooper W., S. Spuler, M. Spowart, D. Richter. Calibration of aircraft instruments using a laser sensor. US 10,352,813 filed 24 Sep 2014, granted 16 Jul 2019.
10. Hayman M. and S. Spuler. Analog Photon Counting, US 10,473,521filed 05 Apr 2017, granted 12 Nov 2019.
11. Spuler S., K. Repasky, A. Nehrir. Micropulse Differential Absorption Lidar. US 10,605,900 filed 27 Apr 2016, granted 31 Mar 2020.
12. Spuler, S., M. Hayman, B. Morley, and E. Eloranta. Diode Laser Based High Spectral Resolution Lidar. US Patent US 10,794,998, filed 4 Apr 2016, granted 6 Oct 2020.

*7.2.1 PATENTS PENDING*

13. Spuler S. M., Telescope, US Patent App. 16/022,993 (2018)
14. Stillwell R., S. Spuler, M. Hayman and K. Repasky. Differential Absorption Lidar for Profiling Temperature. US Patent App. PCT/US18/63360, filed 30 Nov 2018.

*7.3 REFEREED JOURNAL ARTICLES*

15. Spuler S., M. Linne, A. Sappey, S. Snyder, 2000: Development of a cavity ringdown laser absorption spectrometer for detection of trace levels of mercury. *Appl. Optics*, 39, 2480-2486.*
16. Dreyer C.B, S. M. Spuler, and M. Linne, 2001: Calibration of Laser Induced Fluorescence of the OH radical by Cavity Ringdown Spectroscopy in Premixed Atmospheric Flames. *Combust. Sci. Technol.*, 171, 163-190.*
17. Spuler S. and M. Linne, 2002: Numerical analysis of beam propagation in pulsed cavity ringdown spectroscopy. *Appl. Optics*, 41, 2858-2868.*
18. Mayor S. and S. M. Spuler, 2004: Raman-shifted Eye-safe Aerosol Lidar. *Appl.Optics*, 43, 3915-3924.
19. Spuler S. M. and S. Mayor, 2005: Scanning eye-safe elastic backscatter lidar at 1.54 microns. *J. Atmos. Oceanic Technol.,* 22, 696-703
20. Huang X. P, S. M. Spuler and A. D Sappey, 2007: Varied Line-space grating for flat spectral response of coupling to single mode fiber. *Appl. Optics,* 46, 147-153
21. Mayor S. D., S. M. Spuler, B. Morley, E. Loew, 2007: Polarization lidar at 1.54 um and observations of plumes from aerosol generators. *Opt.l Eng.*, 46, 096201-11

22. Refaat, T. F., S. Ismail, T. L. Mack, M. N. Abedin, S. D. Mayor, S. M. Spuler, 2007: Infrared Phototransistor Validation for Atmospheric Remote Sensing Application using the Raman-Shifted Eye-Safe Aerosol Lidar (REAL). *Opt.l Eng.*, 46, 086001-8.
23. Spuler S. M. and S. D. Mayor, 2007: Raman shifter optimized for lidar at 1.5 microns. *Appl. Optics*, 46, 2990-2995.
24. Warner T., P. Benda, S. Swerdlin, J. Knievel, E. Argenta, B. Aronian, B. Balsey, J. Bowers, R. Carter, K. Clawson, J. Copeland, A. Crook, R. Frehlich, M. Jensen, Y. Liu, S. Mayor, Y. Meillier, B. Morley, R. Sharman, S. Spuler, D. Storwold, J. Sun, J. Weil, M. Xu, A. Yates, Y. Zhang, 2007: The Pentagon Shield Field Program – Toward Critical Infrastructure Protection. *Bull. Amer. Meteor. Soc.,* 88, 167-176
25. Refaat, T. F., S. Ismail, M. N. Abedin, S. M. Spuler, S. D. Mayor, U. N. Singh, 2008: Lidar backscatter signal recovery from phototransistor systematic effect by deconvolution. *Appl. Optics*, 47, 5281-5295
26. Spuler, S. M., J. Fugal, 2011: Design of an in-line, digital holographic imaging system for airborne measurement of clouds. *Appl. Optics,* 50, 1405-1412.
27. Spuler, S. M., D. Richter, M. P. Spowart, and K. Rieken, 2011: Optical fiber-based laser remote sensor for airborne measurement of wind velocity and turbulence. *Appl. Optics,* 50, 842-851.
28. Lewander, M., A. Fried, P. Weibring, D. Richter, S. Spuler, and L. Rippe, 2011: Fast and sensitive time multiplexed gas sensing of multiple lines using a miniature telecom diode laser between 1529 nm and 1565 nm. *Appl. Phys. B,* 104(3), 715-723.
29. Patton, E, T. Horst, P. Sullivan, D. Lenschow, S. Oncley, W. Brown, S. Burns, A. Guenther, A. Held, T. Karl, S. Mayor, L. Rizzo, S. Spuler, J. Sun, A. Turnipseed, E. Allwine, S. Edburg, B. Lamb, R. Avissar, R. Calhoun, J. Kleissl, W. Massman, K. Paw, J. Weil, 2011: The Canopy Horizontal Array Turbulence Study. *Bull. Amer. Meteor. Soc.,* 92, 593-611.
30. Hayman, M., S. Spuler, B. Morley, and J. VanAndel, 2012: Polarization lidar operation for measuring backscatter phase matrices of oriented scatterers. *Opt. Express,* 20, 29553-67.
31. Repasky K.S., D. Moen, S. Spuler, A. R. Nehrir, J. Carlsten, 2013: Progress towards an Autonomous field deployable diode-laser-based differential absorption lidar (DIAL) for profiling water vapor in the lower troposphere. *Remote Sens.,* 5, 6241-6259.
32. Hayman, M., S. Spuler, and B. Morley, 2014: Polarization lidar observations of backscatter phase matrices from oriented ice crystals and rain. *Opt. Express,* 22, 16976-90.
33. Cooper W. A., S. Spuler, M. Spowart, D. H. Lenschow, and R. B. Friesen, 2014: Calibrating airborne measurements of airspeed, pressure and temperature using a Doppler laser air-motion sensor. *Atmos. Meas. Tech.*, 7, 3215-3231.
34. Richter, D., P. Weibring, J. G. Walega, A. Fried, S. M. Spuler, and M. S. Taubman, 2015: Compact Highly Sensitive Multi-species Airborne Mid-IR Spectrometer. *Appl. Phys. B*., 1-13. (doi:10.1007/s00340-015-6038-8)

35. Spuler, S. M., Repasky K.S., D. Moen, B. Morley, M. Hayman, A. R. Nehrir, 2015: Field deployable diode-laser-based differential absorption lidar (DIAL) for profiling water vapor. *Atmos. Meas. Tech.,* 8, 1073-1087. (doi:10.5194/amt-8-1073-2015)
36. Beals,M.J., J. P. Fugal, R. A. Shaw, J.Lu, S. M. Spuler, J. L. Stith, 2015: Holographic measurements of inhomogeneous cloud mixing at the centimeter scale. *Science, 350 (6256), 87-90 (doi: 10.1126/science.aab075)*
37. Mayor, S. P. Derian, C. Mauzey, S. Spuler, P. Ponsardin, J. Pruitt, D.l Ramsey, and Scott Higdon, 2016: Comparison of an analog direct detection and a micropulse aerosol lidar at 1.5μm wavelength for wind field observations – with first results over the ocean. *JARS, 10, 016031-1-16.* (doi: 10 .1117/1.JRS.10.016031)
*38.* Weckwerth, T. M., K. Weber, D. D. Turner, S. M. Spuler, 2016: Validation of a Water Vapor Micropulse Differential Absorption Lidar (DIAL). *J. Atmospheric and Oceanic Technology (33) 2353-2372* (doi: 10.1175/JTECH-D-16-0119.1)
*39.* Hayman, M., and S. Spuler, 2017: Demonstration of a diode-laser-based high spectral resolution lidar (HSRL) for quantitative profiling of clouds and aerosols. *Optics Express, 25(24) A1096* (doi: 10.1364/OE.25.0A1096)
*40.* Bunn C., K. Repasky, M. Hayman, R. Stillwell and S. Spuler, 2018: Perturbative solution to the two component atmosphere DIAL equation for improving the accuracy of the retrieved absorption coefficient, *Appl. Opt.* 57(16), 4440-4450. (doi: 10.1364/AO.57.004440)
*41.* Fernando, H., J. Mann, J. Palma, J. Lundquist, R. Barthelmie, M. BeloPereira, W. Brown, F. Chow, T. Gerz, C. Hocut, P. Klein, L. Leo, J. Matos, S. Oncley, S. Pryor, L. Bariteau, T. Bell, N. Bodini, M. Carney, M. Courtney, E. Creegan, R. Dimitrova, S. Gomes, M. Hagen, J. Hyde, S. Kigle, R. Krishnamurthy, J. Lopes, L. Mazzaro, J. Neher, R. Menke, P. Murphy, L. Oswald, S. Otarola-Bustos, A. Pattantyus, C. Rodrigues, A. Schady, N. Sirin, S. Spuler, E. Svensson, J. Tomaszewski, D. Turner, L. van Veen, N. Vasiljevic, D. Vassallo, S. Voss, N. Wildmann, and Y. Wang, 2018: The Perdigão: Peering into Microscale Details of Mountain Winds. *Bull. Amer. Meteor. Soc.* (doi: 10.1175/BAMS-D-17-0227.1)
42. Hayman M, R. Stillwell, and S.Spuler, 2019: Fast computation of absorption spectra for lidar data processing using principal component analysis. *Opt. Lett.* 44, 1900-1903 (doi: 10.1364/OL.44.001900)
43. Repasky, K. S., C. E. Bunn, M. Hayman, R. A. Stillwell, and S. M. Spuler, 2019: Modeling the Performance of a Diode Laser-Based (DLB) Micro-Pulse Differential absorption Lidar (MPD) for Temperature Profiling in the Lower Troposphere. *Opt. Express*, 27(23), 33543-33563 (doi: 10.1364/OE.27.033543)
44. Stillwell R. A., S. M. Spuler, M. Hayman, K. S. Repasky and C. E. Bunn, 2020: Demonstration of a Combined Differential Absorption and High Spectral Resolution Lidar for Profiling Atmospheric Temperature. *Opt. Express*, 28(1), 71–93 (doi: 10.1364/OE.379804)
45. Hayman, M., R. Stillwell, and S. Spuler, 2020: Optimization of linear signal processing in photon counting lidar using Poisson thinning. *Optics Letters, 45(18),* 5213-5216 (doi: 10.1364/OL.396498)

46. Spuler, S. M., M. Hayman, R. A. Stillwell, J. Carnes, T. Bernatsky, and Repasky, K. S., 2021: MicroPulse DIAL (MPD) – a diode-laser-based lidar architecture for quantitative atmospheric profiling. *Atmos. Meas. Tech.*, *14*(6), 4593–4616. (doi: 10.5194/amt-14-4593-2021)

*7.4 JOURNAL ARTICLES IN PREPARATION OR SUBMITTED*

*47.* Spuler S., M. Hayman, T. M. Weckwerth, 2020: Water Vapor Differential Absorption Lidar, Springer Handbook of Atmospheric Measurements. *in preparation for publication Sep 2020*

*48.* Spuler S., M. Hayman. R. A. Stillwell, J. Carnes, T. Bernatsky, and K. Repasky: *MicroPulse DIAL (MPD) – a Diode-Laser-Based Lidar Architecture for Quantitative Atmospheric Profiling, Atmos. Meas. Tech, submitted*

*7.5 INTERNALLY REFEREED PUBLICATIONS*

49. Spuler S. M., B. Morley, S. D. Mayor, 2007: Research into the high-spectral-resolution technique as a means of calibration for the Raman-shifted Eye-safe Aerosol Lidar
50. Cooper, W. A., et al., 2016: *Characterization of Uncertainty in Measurements of Wind from the NSF/NCAR Gulfstream V Research Aircraft*. NCAR Technical Note NCAR/TN-528+STR, 175 pp, doi:10.5065/D60G3HJ8.

*7.6 NON-REFEREED PUBLICATIONS*

51. Kok, G. L., D Baumgardner and **S. Spuler**, 2002 A Single Particle Soot Photometer for the Measurement of Aerosol Black Carbon, AGU Fall Meeting Dec 2002
52. **Spuler, S.** and S. Mayor, 2004: Raman-Shifted Eye-Safe Aerosol Lidar Development. *OSA Laser Applications to Chemical and Environmental Analysis (LACEA),* 9-Feb, Annapolis MD.
53. Mayor, S. D., **S. M. Spuler**, J. R. Fox, T. D. Rucker, and B. M. Morley, 2004: NCAR's New Raman-shifted Eye-safe Aerosol Lidar, *16th Symp. on Boundary Layers and Turbulence*, 9-13 August, Portland, ME.
54. Mayor, S. D., **S. M. Spuler**, and B. M. Morley, 2004: NCAR's New Raman-shifted Eye-safe Aerosol Lidar (REAL). Paper S20-10 in ESA SP-561, *Reviewed and Revised Papers Presented at the 22nd International Laser Radar Conference, Vol. 1*, 12-16 July 2004, Matera, Italy. 53-56.
55. Mayor, S. D., **S. M. Spuler**, and B. M. Morley, 2005: Scanning eye-safe depolarization lidar at 1.54 microns and potential usefulness in bioaerosol plume detection. *SPIE Lidar Remote Sensing for Environmental Monitoring IV, Paper 5887-23*, San Diego, CA.
56. Mayor, S. D. and **S. M. Spuler**, 2005: REAL: High-power, eye-safe, scanning lidar for aerosol cloud detection and tracking. *Optical Solutions for Homeland and National Security*, 15-Dec, Washington, D.C.
57. Mayor, S. D., **S. M. Spuler**, and B. M. Morley, 2006: Three Generations of Raman-shifted Eye-safe Aerosol Lidars, Poster 8.22-P. 7th International Symposium on Tropospheric Profiling, 11-17 June, Boulder, CO.

58. Ponsardin, P. L., C. S. Kletecka, R. D. Babnick, K. Krubsack, S. D. Mayor, and **S. M. Spuler**, 2006: Autonomous eye-safe lidar for continuous monitoring of atmospheric aerosols. *International Symposium on Spectral Sensing Research*.
59. **Spuler, S**. and S. Mayor, 2006: High-Energy Mulitpass Forward Raman Shifter as an Eye-Safe Laser Source for Lidar. *23rd International Laser Radar Conference (ILRC), 24-28 July, Nara Japan,* ICLAS.
60. Mayor, S.D., **S. M. Spuler**, B. M. Morley, E. Loew, T.W. Weckwerth, S. De Wekker, and D.J. Kirshbaum, 2006: REAL - 1.5 micron wavelength scanning polarization lidar. *23rd International Laser Radar Conference (ILRC), 24-28 July, Nara Japan,* ICLAS.
61. Mayor, S. D., **S. M. Spuler,** B. M. Morley, S. C. Himmelsbach, R. A. Rilling, T. M. Weckwerth, E. G. Patton, and D. H. Lenschow, 2007: Elastic backscatter lidar observations of sea-breeze fronts in Dixon, California. *Seventh Conference on Coastal Atmospheric and Oceanic Prediction and Processes,* 10-13 Sept., San Diego, American Meteorological Society.
62. Mayor, S. D., B. M. Morley, **S. M. Spuler**, S. C. Himmelsbach, D. Flanigan, T. M. Weckwerth, and T. Warner, 2007: Elastic backscatter lidar observations of a gust front passage over Washington DC on 7 May 2004. *Seventh Conference on Coastal Atmospheric and Oceanic Prediction and Processes,* 10-13 Sept., San Diego, American Meteorological Society.
63. **Spuler, S.** and S. Mayor 2007: Eye-safe aerosol lidar at 1.5 microns: progress towards a scanning lidar network. *Lidar Remote Sensing for Environmental Monitoring VIII, 26*-30 August, San Diego, CA, USA, SPIE (invited talk)
64. **Spuler, S.**, M. Morley, and S. Mayor, 2008: Advances in Eye-safe Atmospheric Volume Imaging Lidar. *Laser Applications to Chemical, Security and Environmental Analysis (LACSEA)*, 17-20 March, St. Petersburg, FL, USA, OSA Topical Meeting.
65. Refaat, T., S. Ismail, M. N. Abedin, **S. Spuler**, S. Mayor and U. Singh, 2008: Backscatter Lidar Detection System Using IR Phototransistors*, 24th International Laser Radar Conference (ILRC24)*, 23-27 June, Boulder CO, ICLAS.
66. **Spuler, S.**, M. Spowart, and D. Richter, 2008: Development of a Laser Air Motion Sensor for Aircraft Wind speed and direction. *24th International Laser Radar Conference (ILRC24)*, 23-27 June, Boulder CO, ICLAS
67. Vivekanandan J., E. Loew, **S. Spuler**, WC Lee, and T. Weckwerth, 2009: Ground-based and airborne weather radars and lidar for observing the atmosphere. *34th Conference on Radar Meteorology,* October 5-9, Williamsburg, VA.
68. Richter D. and **S. Spuler**, 2009: Design and analysis of a low volume, long path length, high transmission optical multi-pass absorption cell. *Field Laser Applications in Industry and Research (FLAIR)*, September 6-11, Grainau, Germany.
69. **Spuler S.**, D. Richter, and M. Spowart, 2009: Design and configuration of an all-fiber, cw laser velocimeter for airborne measurement of wind velocity and turbulence. *Field Laser Applications in Industry and Research (FLAIR)*, September 6-11, Grainau, Germany.

70. **Spuler S**. and J Fugal, 2009: Design of a digital, in-line, holographic imaging system for airborne measurement of clouds. *Field Laser Applications in Industry and Research (FLAIR)*, September 6-11, Grainau, Germany.
71. Vivekanandan, J., E. Loew, **S. Spuler**, W. C. Lee and T. Weckwerth, 2009: Ground-Based and Airborne Weather Radars and Lidar for Observing the Atmosphere. *34th Conference on Radar Meteorology* 5-9 October 2009, Williamsburg, VA
72. Richter D., P. Weibring, A. Fried, L. Rippe, M. Lewander, O. Batet, J., Walega, and **S. Spuler**, 2010: Spectrometers: Successes, Challenges, and Opportunities. *Laser Applications to Chemical, Security and Environmental Analysis (LACSEA)*, 31-January to 4-February, San Diego, CA, USA, OSA Topical Meeting.
73. Morley B., W. Brown, and **S. Spuler**, 2010: Wind Profiles with an Elastic backscatter Lidar Using Auto and Cross Correlation Techniques. *25th International Laser Radar Conference (ILRC25)*, 5-9 July, St. Petersburg, Russia, ICLAS.
74. Richter D., S. Meyer, **S. M. Spuler**, C. J. Smith, S. So, and G. Wysocki, 2011: Ultra compact VCSEL based CO2 spectrometer for flux measurements. *Field Laser Applications in Industry and Research (FLAIR)*, September 13-17, Murnau, Germany.
75. Richter D., **S. M. Spuler**, and K. Rieken, 2011: Development of a high-power CW single frequency fiber amplifier for low noise spectroscopic and Doppler wind measurements. *Field Laser Applications in Industry and Research (FLAIR)*, September 13-17, Murnau, Germany.
76. Richter D., P. Weibring, **S. M. Spuler**, J. G. Walega, and A. Fried, 2011: High performance airborne DFG laser spectrometer. *Field Laser Applications in Industry and Research (FLAIR)*, September 13-17, Murnau, Germany.
77. **Spuler, S. M.**, D. Richter, and M. Spowart, 2011: Development and application of a three-dimensional laser air motion sensor. *Field Laser Applications in Industry and Research (FLAIR)*, September 13-17, Murnau, Germany.
78. Mayor, S. D., A. Petrova-Mayor, R. W. Wortley, D S. Hofstadter, **S. M. Spuler,** and J. Ranson, 2011: Gas-fusion Mirrors for Atmospheric Lidar. *OSA's Frontiers in Optics (FIO),* 16-20 October, San Jose, CA, USA.
79. Repasky, K. S., A. R. Nehrir, J. L. Carlsten, **S. Spuler**, R. E. Carbone, and T. M. Weckwerth, 2012: Development of an Eye-Safe Micro-Pulse Differential Absorption Lidar (DIAL) for Water Vapor Profiling in the Lower Troposphere. *16th Symposium on Meteorological Observation and Instrumentation, part of the AMS 92nd Annual Meeting,* 22-26 January 2012, New Orleans, LA.
80. Morley, B., **S. M. Spuler**, J. Vivekanandan, M. Hayman, and E. W. Eloranta, 2012: Airborne and Ground Measurements with the NCAR GVHSRL. *16th International Symposium for the Advancement of Boundary Layer Remote Sensing (ISARS 2012)*, 5-8 June, Boulder, Colorado.
81. Hayman, M., **S. Spuler**, B. Morely, and J. VanAndel, 2012: Polarization Configuration of the GV-HSRL for Detection of Horizontally Oriented Ice Crystals. 26th International Laser Radar Conference (ILRC26), 25-29 June, Porto Heli, Greece.

82. Morley, B., **S. M. Spuler**, I. A. Razenkov, J. Vivekanandan, and E. W. Eloranta, 2012: Airborne and Ground Measurements with a High Spectral Resolution Lidar. 26*th International Laser Radar Conference (ILRC26)*, 25-29 June, Porto Heli, Greece.
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