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Associate Professor
College of Charleston
Department of Physics and Astronomy
317 Rita Hollings Science Center
58 Coming Street
Charleston, SC 29424

Education

- Doctor of Philosophy (Physics), August 2006
Department of Physics, Michigan Technological University, Houghton, MI
Thesis title: Studies of Discrete Fluctuations in Atmospheric Phenomena
Thesis advisor: Dr. Alexander B. Kostinski
Graduate GPA : 3.88
- Bachelor of Science (Physics), May 2001
Department of Physics, Michigan Technological University, Houghton, MI
GPA : 3.95 / Graduated *summa cum laude*

Professional Employment

- College of Charleston, Charleston, SC
Department of Physics and Astronomy
Associate Professor (Tenured), 2016-Present
Assistant Professor, 2010-2016
- University of Nebraska at Kearney, Kearney, NE
Department of Physics and Physical Science
Assistant Professor, 2007-2010
- Army Research Laboratory, Adelphi, MD
Battlefield Environment Division
Consultant, 2007-2009
National Research Council Postdoctoral Fellow, 2006-2007
(Funded Proposal: Analysis of the Role of Number Fluctuations in an Apparatus to Detect Hazardous Airborne Particles)
- Michigan Technological University, Houghton, MI
Department of Physics
National Defense Science and Engineering Graduate Fellow, 2003-2006
Graduate Research Assistant, 2002-2003
Graduate Fellow, 2002

- NASA-Goddard Space Flight Center, Greenbelt, MD
NASA-Goddard Earth Science and Technology Center
Graduate Researcher in GSSP Summer Program, 2003
(Project Title: A New Approach to Simulating a Realistic Spatial Structure of Cloud Droplets)

Funding Awarded

Total Funding Awarded (After Post-Doc): \$806,610

- Sole PI 2017 Carolina Eclipse Initiative Grant Proposal(\$1,500)
- Substitute PI 2016-2017 Measurement of Trace Gas and Particle Air-Surface Exchange in a Coastal Environment. Environmental Protection Agency via Amec Foster Wheeler(\$49,564) [took over contract for vacated faculty member].
- Sole PI 2015-2018 Meteorological Variability of the Two Dimensional/Temporal Structures of Drop Size Distributions and Rain. National Science Foundation(\$345,911)
- Sole PI 2015 Development of a Dense Rain Gauge Array at Dixie Plantation. College of Charleston Faculty Research & Development Grant (\$3,828)
- CoI 2014-2015 Quantifying Deviations from the Beer-Lambert-Bouguer Law in Uncorrelated Media in the Presence of Scattering. Connecticut Space Grant College Consortium (\$7,445)
- Sole PI 2012-2016 Characterization of the Two-dimensional/Temporal Mosaic of Drop Size Distributions and Spatial Variability (Structure) in Rain. National Science Foundation (\$325,402)
- Sole PI 2011-2012 Absorption and Scattering in Correlated Random Media. Research Corporation Cottrell College Science Award (\$35,000)
- Primary PI 2011-2012 Cloud Coverage as an Indicator of Regional Climate Change. South Carolina Space Grant Geospatial Institute for Students and Teachers in Climate Change (\$9,650)
- Sole PI 2010-2011 Turbulent Mixing of Aerosols. College of Charleston Faculty Research & Development Grant (\$3,310)
- Sole PI 2010 Characterization of Affordable Drop-by-Drop Rain Detection Instruments. NASA Space Grant Minigrant (\$10,000)
- Sole PI 2009-2010 Development of Precipitation Monitoring Systems for a Distributed Rain-Sensing Network. NASA Space Grant Minigrant (\$10,000)
- Sole PI 2009 NASA travel grant (\$1,000)
- Sole PI 2009 UNK Program of Excellence Funds for a 3D-Ultrasonic Anemometer (\$3,000)
- Sole PI 2008-2009 UNK Focused Assessment Grant (\$1,000)

Peer-Reviewed Publications

Green names indicate undergraduate co-authors.

1. Fine-scale Droplet Clustering in Atmospheric Clouds: 3D Radial Distribution Function from Airborne Digital Holography
M.L. Larsen, R.A. Shaw, A.B. Kostinski, and S. Glienke
Physical Review Letters, in review.
2. Identification and Characterization of an Anomaly in 2-Dimensional Video Disdrometer Data
M.L. Larsen and M. Schönhuber
Atmosphere, in revision.
3. A Method for Computing the Three-Dimensional Radial Distribution Function of Cloud Particles from Holographic Images
M.L. Larsen and R.A. Shaw
Atmospheric Measurement Techniques Discussion, (2018).
doi: [10.5194/amt-2018-60](https://doi.org/10.5194/amt-2018-60)
Atmospheric Measurement Techniques, (2018). In press.
4. On the Detection of Statistical Heterogeneity in Rain Measurements
A.R. Jameson, M.L. Larsen, and A.B. Kostinski
Journal of Atmospheric and Oceanic Technology, *35*, 1339–1413.
doi: [10.1175/JTECH-D-17-0161.1](https://doi.org/10.1175/JTECH-D-17-0161.1)
5. Sampling Variability Effects in Drop-Resolving Disdrometer Observations
M.L. Larsen and K. O'Dell
Journal of Geophysical Research: Atmospheres, *121*, (2016).
doi: [10.1002/2016JD025491](https://doi.org/10.1002/2016JD025491)
6. An Example of Persistent Microstructure in a Long Rain Event
A.R. Jameson, M.L. Larsen, and A.B. Kostinski
Journal of Hydrometeorology, *17*, 1661–1673 (2016).
doi: [10.1175/JHM-D-15-0180.1](https://doi.org/10.1175/JHM-D-15-0180.1)
7. Estimates of the Statistical Two-Dimensional Spatial Structure in Rain over a Small Network of Disdrometers
A.R. Jameson and M.L. Larsen
Meteorology and Atmospheric Physics. *128*, 401–413 (2016).
doi: [10.1007/s00703-016-0438-0](https://doi.org/10.1007/s00703-016-0438-0)
8. The Variability of Rainfall Rate as a Function of Area
A.R. Jameson and M.L. Larsen
Journal of Geophysical Research: Atmospheres, *121*, (2016).
doi: [10.1002/2015JD024126](https://doi.org/10.1002/2015JD024126)

9. Identifying Individual Rain Events with a Dense Disdrometer Network
M.L. Larsen and J.B. Teves
Advances in Meteorology, 2015, Article ID 582782, 12 pages (2015).
doi: 10.1155/2015/582782
10. Disdrometer Network Observations of Finescale Spatial-Temporal Clustering in Rain
A.R. Jameson, M.L. Larsen, and A.B. Kostinski
Journal of the Atmospheric Sciences, 72(4), 1648–1666 (2015).
doi:10.1175/JAS-D-14-0136.1
11. On the Variability of Drop Size Distributions over Areas
A.R. Jameson, M.L. Larsen, and A.B. Kostinski
Journal of the Atmospheric Sciences, 72(4), 1386–1397 (2015).
doi: 10.1175/JAS-D-14-0258.1
12. Scaling properties of raindrop size distributions as measured by a dense array of optical disdrometers
M.L. Larsen, T.B. Hayward, and J.B. Teves
Journal of Hydrology, 521, 424–432 (2015).
doi: 10.106/j.jhydrol.2014.12.016
13. Further evidence for super-terminal raindrops
M.L. Larsen, A.B. Kostinski, and A.R. Jameson
Geophysical Research Letters, 41(19), 6914–6918 (2014).
doi: 10.1002/2014GL061397
14. On the Recovery of 3D Spatial Statistics of Particles from 1D Measurements: Implications for Airborne Instruments
M.L. Larsen, C.A. Briner, and P. Boehner
Journal of Atmospheric and Oceanic Technology, 31(10), 2078–2087 (2014).
doi: 10.1175/JTECH-D-14-00004.1
15. On the link between particle size and deviations from the Beer-Lambert-Bouguer law for direct transmission
M.L. Larsen and A.S. Clark
Journal of Quantitative Spectroscopy and Radiative Transfer, 133, 646–651 (2014).
doi: 10.1016/j.jqsrt.2013.10.001
16. Scale Localization of Cloud Particle Clustering Statistics
M.L. Larsen
Journal of the Atmospheric Sciences, 69 (11), 3277–3289 (2012).
doi: 10.1175/JAS-D-12-02.1

17. Identifying the scaling properties of rainfall accumulation as measured by a rain gauge network
M.L. Larsen, A. Clark, M. Noffke, G. Saltzgaber, and A. Steele
Atmospheric Research, 96, 149-158 (2010).
doi: [10.1016/j.atmosres.2009.12.008](https://doi.org/10.1016/j.atmosres.2009.12.008)
18. Simple dead-time corrections for discrete time series of non-Poisson data
M.L. Larsen and A.B. Kostinski
Measurement Science and Technology, 20, 095101 (2009).
doi: [10.1088/0957-0233/20/9/095101](https://doi.org/10.1088/0957-0233/20/9/095101)
19. Spatial Distributions of Aerosol Particles: Investigation of the Poisson Assumption
M.L. Larsen
Journal of Aerosol Science, 38 (8), 807-822 (2007).
doi: [10.1016/j.jaerosci.2007.06.007](https://doi.org/10.1016/j.jaerosci.2007.06.007)
20. The texture of rain: Exploring stochastic micro-structure at small scales
A.B. Kostinski, M.L. Larsen, and A.R. Jameson
Journal of Hydrology, 328 (1-2), 38-45 (2006).
doi: [10.1016/j.jhydrol.2005.11.035](https://doi.org/10.1016/j.jhydrol.2005.11.035)
21. Observations and Analysis of Uncorrelated Rain
M.L. Larsen, A.B. Kostinski, and A. Tokay
Journal of the Atmospheric Sciences, 62 (11), 4071-4083 (2005).
doi: [10.1175/JAS3583.1](https://doi.org/10.1175/JAS3583.1)
22. Small-Scale Drop Size Variability: Impact on Estimation of Cloud Optical Properties
Y. Knyazikhin, A. Marshak, M.L. Larsen, W.J. Wiscombe, J.V. Martonchik, and R.B. Myneni
Journal of the Atmospheric Sciences, 62 (7), 2555-2567 (2005).
doi: [10.1175/JAS3488.1](https://doi.org/10.1175/JAS3488.1)
23. Small-Scale Drop Size Variability: Empirical Models for Drop-Size-Dependent Clustering in Clouds
A. Marshak, Y. Knyazikhin, M.L. Larsen, and W.J. Wiscombe
Journal of the Atmospheric Sciences, 62 (2), 551-558 (2005).
doi: [10.1175/JAS-3371.1](https://doi.org/10.1175/JAS-3371.1)
24. Response from Authors to Comment on Detection of Spatial Correlations among Aerosol Particles
M.L. Larsen, W. Cantrell, A.B. Kostinski, and J. Kannosto
Aerosol Science and Technology, 38 (2), 129-130 (2004).
doi: [10.1080/02786820490250863](https://doi.org/10.1080/02786820490250863)

25. Detection of Spatial Correlations among Aerosol Particles
M.L. Larsen, W. Cantrell, J. Kannosto, and A.B. Kostinski
Aerosol Science and Technology, 37 (6), 476-485 (2003).
doi: 10.1080/02786820390126402

26. Towards quantifying droplet clustering in clouds
R.A. Shaw, A.B. Kostinski, and M.L. Larsen
Quarterly Journal of the Royal Meteorological Society, 128 (582), 1043-1057 (2002).
doi: 10.1256/003590002320373193

(Nonreviewed) Books

1. Discrete Fluctuations in Atmospheric Physics: Theory, Models, and Empirical Observations
(Ph.D. Dissertation Excerpt). M.L. Larsen
218 pp., VDM Verlag Dr. Mueller e.K. (2008).

2. Investigations in Earth Science
(Internal Lab/Activity Book for PHYS 201 (Earth Science) at University of Nebraska at Kearney)
M.L. Larsen
160 pp., Published In-House by UNK (2008).
2nd Ed. 183 pp., Published In-House by UNK (2009).
3rd Ed. 193 pp., Published In-House by UNK (2010).

National/International Scientific Conference Presentations

Green names indicate current/former undergraduate student co-authors.

1. Laboratory Measurements of Cloud Scavenging of Interstitial Aerosol by Activation in a Turbulent Environment
W. Cantrell, K.K. Chandrakar, G. Kinney, J. Anderson, A.S.M. Shawon, R.A. Shaw, and M.L. Larsen
15th AMS Conference on Cloud Physics. Vancouver, Canada. 9-13 July, 2018.
2. Fine-Scale Droplet Clustering in Stratocumulus Clouds from Airborne Digital Holography: 3D Radial Distribution Functions
M.L. Larsen, A.B. Kostinski, R.A. Shaw, and S. Glienke
15th AMS Conference on Cloud Physics. Vancouver, Canada. 9-13 July, 2018.
3. Sampling Considerations Associated with the Interpretation of Disdrometric Data
M.L. Larsen, K. O'Dell, and J. Niehaus
15th AMS Conference on Cloud Physics. Vancouver, Canada. 9-13 July, 2018.
4. A New Algorithm for Computing the Radial Distribution Function in Three-Dimensional Measurement Volumes
M.L. Larsen and R.A. Shaw
15th AMS Conference on Cloud Physics. Vancouver, Canada. 9-13 July, 2018.
5. A Dense Disdrometer Network in the Southeastern United States: Results and New Directions
M.L. Larsen, A.R. Jameson, A.B. Kostinski, and J. Niehaus
European Geosciences Union General Assembly 2018. Vienna, Austria. 8-13 April, 2018.
6. On the Detection of Statistical Heterogeneity in Rain Measurement
A.R. Jameson, M.L. Larsen, and A.B. Kostinski
32nd Conference on Hydrology and 25th Conference on Probability and Statistics during 98th American Meteorological Society Annual Meeting Austin, TX. 6-11 January, 2018.
7. Analysis of interarrival times of aerosol particles as measured by an Aerodynamic Particle Sizer Spectrometer
M. Mullis, J. Niehaus, and M.L. Larsen
2017 Fall AGU Meeting. New Orleans, LA. 11-15 December, 2017.
8. Measurement of Air-surface Exchange of Speciated Nitrogen and Sulfur Compounds in a Coastal Environment
G. Beachley, J.T. Walker, M.L. Larsen, J. Niehaus, M. Mullis, and I. Rumsey
National Atmospheric Deposition Program Scientific Symposium and Fall Meeting. San Diego, CA. 30 October - 3 November, 2017.

9. An Index of the Statistical Heterogeneity of Rain Observations
A.R. Jameson, [M.L. Larsen](#), and A.B. Kostinski
[European Meteorological Society Annual Meeting](#). Dublin, Ireland. 4-8 September, 2017.
10. Development of a New Theoretical Framework for the Analysis of Disdrometer Data
[M.L. Larsen](#), [R. Lemasters](#), [K. O'Dell](#), and [J. Teves](#)
[17th International Conference on Clouds and Precipitation](#). Manchester, UK. 25-29 July, 2016.
11. Investigating a New Disdrometer Sampling Method to Reduce Measurement Variability
[K. O'Dell](#) and [M.L. Larsen](#)
[17th International Conference on Clouds and Precipitation](#). Manchester, UK. 25-29 July, 2016.
12. Statistical Assessment of Rainfall Properties over Varying Scales
[J.B. Teves](#) and [M.L. Larsen](#)
[17th International Conference on Clouds and Precipitation](#). Manchester, UK. 25-29 July, 2016.
13. A Study of Realistic Sampling-Variability Effects on Precipitation Measurements
[K. O'Dell](#) and [M.L. Larsen](#)
[2015 Fall AGU Meeting](#). San Francisco, CA. 14-18 December, 2015.
14. Novel Insights from Studying Raindrop Arrivals on Sub-Second Timescales
[M.L. Larsen](#) and [R. Lemasters](#)
[2015 Fall AGU Meeting](#). San Francisco, CA. 14-18 December, 2015.
15. Resolving Airborne Particulate Concentration Inhomogeneities with a Schlieren Optical Technique
[A. Payne](#), [A. Teklu](#), and [M.L. Larsen](#)
[46th Annual Meeting of the APS Division of Atomic, Molecular, and Optical Physics](#). Columbus, OH. 8-12 June, 2015.
16. Confirmation of the Existence of Super-Terminal Raindrops
[M.L. Larsen](#), [A.B. Kostinski](#), and [A.R. Jameson](#)
[2014 Fall AGU Meeting](#). San Francisco, CA. 15-19 December, 2014.
17. Investigating the Dependence of Fractal Dimension on Raindrop Size for Drop Arrival Times as Measured by a Two-Dimensional Video Disdrometer
[R. Lemasters](#) and [M.L. Larsen](#)
[2014 Fall AGU Meeting](#). San Francisco, CA. 15-19 December, 2014.
18. Self-Consistency of Rain Event Definitions
[J. Teves](#) and [M.L. Larsen](#)
[2014 Fall AGU Meeting](#). San Francisco, CA. 15-19 December, 2014.

19. Parameters Governing Deviations from the Beer-Lambert-Bouguer Law for Direct Transmission
A.S. Clark, [M.L. Larsen](#), and [J.B. Teves](#)
[14th AMS Conference on Atmospheric Radiation](#). Boston, MA. 7 - 11 July, 2014.
20. Development of a Site to Investigate Rainfall Accumulation and Drop Size Distribution Variability on Small Spatio-Temporal Scales
[M.L. Larsen](#), [J.C. Harris](#), [R. Lemasters](#), [K. O'Dell](#), and [J. Teves](#)
[38th Annual Meeting of the National Weather Association](#). North Charleston, SC. 12-17 October 2013.
21. Development of a ballistic photon transport model that explicitly resolves cloud microstructure
[M.L. Larsen](#), A. Clark, [A. Steele](#), and [D. Hayes](#).
[13th AMS Conference on Cloud Physics, jointly with 11th AMS Conference on Atmospheric Radiation](#). Portland, OR. 28 June - 3 July, 2010.
22. Examination of Sub-Pixel Accumulation Variability in Central Nebraska
[M.L. Larsen](#), A. Clark, [M. Noffke](#), [G. Saltzgaber](#), and [A. Steele](#).
[34th Conference on Radar Meteorology](#). Williamsburg, VA. 5-9 October, 2009.
23. Direct Simulation of Radiative Transfer through a 3-Dimensional Correlated Medium
[M.L. Larsen](#), A. Clark, and [A. Steele](#).
[Gordon Research Conference on Radiation and Climate](#). Colby-Sawyer College. New London, NH. 5-10 July, 2009.
24. Unresolved Small-Scale Optical Variability of Clouds: Two Ways of Assessing its Impact on Remote Sensing Observations and Energy Budget Estimations
A.B. Davis, [M.L. Larsen](#), and K. Pfeilsticker.
[2006 Fall AGU Meeting](#). San Francisco, CA. 11-15 December, 2006.
25. A New Model of Spatial Cloud Drop Distribution that Simulates the Observed Drop Clustering: Effect of clustering in Extinction Coefficient Estimates
A. Marshak, Y. Knyazikhin, [M.L. Larsen](#), and W. Wiscombe.
[2006 Fall AGU Meeting](#). San Francisco, CA. 11-15 December, 2006.
26. Impact of Unresolved, Correlated, or Anti-Correlated Spatial Structure on the Bulk Transport of Radiation Inside and Between Clouds, with Applications to Remote Sensing and Energy Budgeting
A.B. Davis, [M.L. Larsen](#), and M.K. Dubey.
[2nd International Conference on Global Warming and the Next Ice Age](#). Sante Fe, New Mexico. 17-21 July, 2006.

27. A New Model of Cloud Drop Distribution that Simulates the Observed Drop Clustering: Effects of Clustering on Extinction Coefficient Estimates
Y. Knyazikhin, A. Marshak, M.L. Larsen, and W.J. Wiscombe.
16th Annual Meeting of the ARM Science Team. Albuquerque, New Mexico. 27-31 March, 2006.
28. Reconsideration of Certain Aspects of the Z-R Problem
M.L. Larsen and A.B. Kostinski.
14th International Conference on Cloud Physics and Precipitation – ICCP 2004. Bologna, Italy. 13-18 July, 2004.
29. Exploring the Stochastic Micro-structure of Rain: Scale Dependence of Spatial Correlations
A.B. Kostinski, A.R. Jameson, and M.L. Larsen.
17th Conference on Hydrology. 83rd Annual Meeting of the American Meteorological Society. Long Beach, California. 9-13 February, 2003.
30. Spatial Correlations among Aerosol Particles
W. Cantrell, A.B. Kostinski, M.L. Larsen, and D. Harrington.
2002 Fall Meeting of the American Geophysical Union. San Francisco, California. 6-10 December, 2002.
31. Stochastic Micro-structure of Rain and Scale Dependence of Spatial Correlations
A.B. Kostinski, A.R. Jameson, and M.L. Larsen.
2002 Fall Meeting of the American Geophysical Union. San Francisco, California. 6-10 December, 2002.
32. Possible Implications of Droplet Clustering for Radiative Transfer in Clouds
A.B. Kostinski, M.L. Larsen, and R.A. Shaw.
11th AMS Conference on Cloud Physics, jointly with 11th AMS Conference on Atmospheric Radiation. Ogden, Utah. 3-7 June, 2002.
33. Quantifying Droplet Clustering in Clouds
M.L. Larsen, A.B. Kostinski, and R.A. Shaw.
11th AMS Conference on Cloud Physics. Ogden, Utah. 3-7 June, 2002.

Local/Regional Scientific Presentations and Workshops

1. Rainfall Spatio-Temporal Variability Explored with a Dense Disdrometer Array
M.L. Larsen
Michigan Technological University, Department of Physics Colloquium. Michigan Technological University. Houghton, MI. 29 March, 2018.
2. Explorations of Raindrop Size Distribution Variability using a Dense Disdrometer Array
M.L. Larsen
College of Charleston, Department of Physics and Astronomy Colloquium. College of Charleston. Charleston, SC. 2 October, 2014.
3. Spatial Statistics through a 1-D Lens
M.L. Larsen
2012 Annual Meeting of the South Carolina Academy of Science. University of South Carolina-Aiken. Aiken SC. 13 April, 2012.
4. Characterizing Rainfall Variability on Small Spatial and Temporal Scales
M.L. Larsen
10th Annual Turkey Creek Watershed Initiative meeting. 5th Eco-Hydrologic Monitoring meeting. College of Charleston. Charleston, SC. 22 April, 2011.
5. Identification and Characterization of Small-Scale Rainfall Fluctuations
M.L. Larsen
2011 Annual Meeting of the South Carolina Academy of Science. South Carolina State University. Orangeburg, SC. 16 April, 2011.
6. Physics within the Pixel – Rainfall Variability on Unresolved Scales
M.L. Larsen
17th Annual Mini-Technical Conference of the Palmetto Chapter of the American Meteorological Society. Columbia, SC. 24 March, 2011.
7. Affordable Ways of Measuring Rain One Drop at a Time
M.L. Larsen
120th Annual Meeting of the Nebraska Academy of Sciences. Nebraska Wesleyan University. Lincoln, NE. 23 April, 2010.
8. Developing an Undergrad Research Program from Scratch: Perspective from Two Physicists
M.L. Larsen and L. Kremenska
Research at Primarily Undergraduate Institutions. University of Nebraska at Kearney. Kearney, NE. 6 March, 2009.

9. Have you been discrete enough? Describing where aerosol particles are and where they are not
M.L. Larsen
Remote Sensing Institute Seminar. Michigan Technological University. Houghton, MI. 17 March, 2008.
10. Spatial Statistics in Atmospheric Microphysics: An Introduction with Applications
M.L. Larsen
SciMath Colloquium. Kearney, NE. 11 October, 2007.
11. Being Discrete in a Crowd: Detection and Implications of Aerosol Clustering
M.L. Larsen
JCET Radiation Focus Group Seminar, Climate and Radiation Branch Seminar
Greenbelt, MD. 23 July 2003.

Courses Taught

➤ Introductory Level

- Earth Science[†] (F2007, F2008, S2009, F2009, S2010)
- General Physics I (Calculus Based) (F2016)
- General Physics II Lab (Calculus Based) (F2010, S2011)
- Honors Earth Science[†] (F2007, F2008, S2009, F2009, S2010)
- Honors Physics I (Calculus Based) (F2015)
- Honors Physics I Lab (Calculus Based) (F2015)
- Honors Physics II (Calculus Based) (S2016)
- Honors Physics II Lab (Calculus Based) (S2016)
- Introductory Physics I Lab (Algebra Based) (F2011, F2018)
- Introductory Physics II (Algebra Based) (F2010, S2011, F2011)
- Introductory Physics II Lab (Algebra Based) (S2011, F2011, S2012, F2013, S2014)
- Meteorology[†] (S2008, S2009, S2010)
- Physical Science (F2007, S2008, F2008, S2009)
- Physics of Sound and Music[†] (S2012, S2014)
- Physics of Sports[†] (S2013, F2014)

➤ Intermediate/Advanced Level

- Atmospheric Physics[†] (F2010, F2012, F2014, F2016)
- Classical Mechanics (S2013, S2014, S2015, S2017)
- Computers in Physics[†] (S2010)
- Electricity and Magnetism I (F2012, F2013)
- Mathematical Methods in Physics/Methods of Applied Physics[†] (F2012, F2013, F2014)
- Modern Physics (F2009, S2012, F2015, S2017)
- Physics Problem Solving[†] (S2009, F2009, F2011, F2012, F2014, F2015, F2016, F2018)
- Research Seminar (S2013, S2014, S2015, S2016, S2017, F2018)

† = Courses that were either designed or substantially modified by Michael Larsen.

Mentoring of Student Research

Name and Dates(*) (†)	Peer-Reviewed Journal Coauthorships	Professional Conference Coauthorships	Senior Capstone Project	Student Research Presentations
Tobin Barrett, 2011-13	0	0	Yes	1
Josh Beck(†), 2009-10	0	0	N/A	2
Chris Blouin, 2018	0	0	No	0
Philip Boehner(†), 2010-12	1	0	Yes	6
Clarissa Briner(*), 2012	1	0	No	2
Susanna Brylawski, 2011-13	0	0	No	0
Kensley Burriss(†), 2015-2016	0	0	No	1
Dawn Carillo, 2008-10	0	0	N/A	0
Jose Carillo, 2008-10	0	0	N/A	0
Michael Chute, 2012-13	0	0	Yes	2
Erin Deck(†), 2011	0	0	No	1
Benjamin Fullerton(†), 2009-10	0	0	N/A	4
Joerael Harris, 2011-14	0	1	Yes	4
David Hayes(†), 2009-10	0	1	N/A	1
Timothy Hayward(*), 2013-14	1	0	No	3
Cassidy Jenks, 2013-14	0	0	Yes	2
Parker LeClerc, 2018	0	0	curr	0
Robert Lemasters(*) (†), 2013-15	0	3	Yes	3
Kyle McClary (Smydra)(†), 2008-10	0	0	N/A	4
Joshua Moravec(†), 2010	0	0	N/A	0
Monica Mullis(†), 2017-18	0	2	curr	3
(Dr.) Joseph Niehaus, 2010-11	0	4	No	4
Matthew Noffke(*) (†), 2008-10	1	1	N/A	7
Kate O'Dell(*) (†), 2012-2016	1	5	Yes	13
Linsey Passarella, 2016	0	0	No	1
Alexis Payne(*) (†), 2013-15	0	1	Yes	2
Danielle Policarpio(†), 2009-10	0	0	N/A	1
David Ruwadi(†), 2011	0	0	No	1
Grant Saltzgeber(†), 2007-10	1	1	N/A	7
Adrian Sanabria-Diaz(†), 2009-10	0	0	N/A	0
Cameron Self, 2010-11	0	0	Yes	1
Jenn Smaroff, 2010-11	0	0	No	0
Conor Smith, 2010-11	0	0	Yes	2
(Dr.) Aaron Steele(†), 2008-09	1	3	N/A	4
Patricia (Annie) Steele, 2013-14	0	0	No	0
Jeremy Stromer(†), 2009	0	0	N/A	3
Joshua Teves(†), 2012-2016	2	5	Yes	11
Derek Tuck, 2014-15	0	0	Yes	2
Totals: 38 (24 CofC, 13 UNK, 1 HS)	9	27	12 + 2 Curr	98

Notes: Some publications had multiple student authors and are thus multiply counted above.

(*) indicates student won at least one research presentation award. (†) indicates student won at least one funding award.

Student Funding and Awards

- College of Charleston Research Presentation Grant
2017 (Monica Mullis); 2015 (Katelyn O'Dell); 2014 (Robert Lemasters); 2014 (Joshua Teves)
- Department of Physics and Astronomy Summer Undergraduate Research Funding Award
2016 (Kensley Burriss)
- Department of Physics and Astronomy Outstanding Undergraduate Research Award
2016 (Katelyn O'Dell)
- Department of Physics and Astronomy Outstanding Graduate Award
2016 (Katelyn O'Dell); 2015 (Robert Lemasters)
- College of Charleston Chapter of $\Phi\kappa\Phi$ Undergraduate Research and Creative Works Award
2016 (Joshua Teves; Honorable Mention)
- Awards for College of Charleston School of Science and Math Poster Session
2016 Physics 1st Place (Joshua Teves); 2015 Physics 1st Place (Alexis Payne); 2012 Award of Merit (Clarissa Briner)
- NASA Space Grant Undergraduate Student Fellowship
2015-2016 (Joshua Teves); 2010 (Kyle McClary); 2009 (Grant Saltzgaber)
- Horatio Hughes Academic Year Award
2015-2016; 2014-2015 (Joshua Teves)
- $\Sigma\Xi$ Award for Outstanding Student Research at the South Carolina Academy of Science Annual Meeting
2015 Earth Sciences, 1st Place (Kate O'Dell); 2015 Physics, 1st Place (Robert Lemasters); 2014 Physics, 1st Place (Timothy Hayward)
- Harry Ricker, Jr. Endowed Award
2014-2015 (Katelyn O'Dell)
- CofC Major Academic Year Support Research (MAYS)
2014-2015 (Alexis Payne); 2011-2012 and 2010-2011 (Philip Bohner)
- Horatio Hughes Summer Research Award
2013 (Katelyn O'Dell)
- NASA Space Grant Students and Teachers in Climate Change Participants.
2011 (Erin Deck); 2011 (David Ruwadi)
- UNK Summer Student Research Program (SSRP)
2010 (Joshua Moravec); 2009 (Kyle McClary); 2009 (Jeremy Stromer); 2008 (Matthew Noffke)

Student Funding and Awards (Continued)

- NASA Space Grant Student Researchers
2009-2010 (Ben Fullerton); 2009-2010 (Kyle McClary)

- UNK Undergraduate Research Fellows
2009-2010 (Josh Beck); 2009-2010 (Matthew Noffke); 2009-2010 (Danielle Policarpio); 2009-2010 (Kyle McClary); 2009-2010 (Ben Fullerton); 2009-2010 (David Hayes); 2009-2010 (Joshua Moravec); 2009-2010 (Adrian Sanabria-Diaz); 2008-2009 (Matthew Noffke); 2008-2009 (Grant Saltzgaber); 2008-2009 (Aaron Steele)

- Best Undergraduate Student Paper at the 12th Annual High Plains Conference of the NWA/AMS
2008 (Matthew Noffke)

Professional Service

➤ Service to the Public and the Scientific Community at large:

- Serves/served as peer-reviewer for 20 journals/funding agencies: *Advances in Water Research*, *Aerosol Science and Technology*, *Applied Spectroscopy*, *Atmospheric Measurement Techniques*, *Geophysical Research Letters*, *IEEE Communications Letters*, *Journal of Applied Meteorology and Climatology*, *Journal of Atmospheric and Oceanic Technology*, *Journal of Atmospheric and Solar-Terrestrial Physics*, *Journal of Geophysical Research – Atmospheres*, *Journal of Hydrology*, *Journal of Hydrometeorology*, *Journal of the Atmospheric Sciences*, *Journal of Scientific Research and Reports*, *Land Degradation and Development*, *Nonlinear Processes in Geophysics*, *Quarterly Journal of the Royal Meteorological Society*, *Quarterly Journal of Spectroscopy and Radiative Transfer*, *Water Resources Research*, and the National Science Foundation
- Regularly serves as judge for various science fairs.
- Regularly participates in a wide variety of departmental and Physics club outreach activities
- Consulted with local legal office in regards to identifying weather conditions for eyewitness testimony (2014).
- Consulted with local officials in reference to weather monitoring for Carriage Horse health issues (2011).

➤ **Institutional Service at the College of Charleston**

- Departmental Tenure/Promotion Panel (2016-present)
- Transfer Evaluator Physics (2013-present)
- Meteorology/Atmospheric Physics Curriculum Committee (2010-present) [chair from 2011-2013]
- Transfer Evaluator Atmospheric Physics and Meteorology (2010-present)
- Academic Advisor for numerous students in Physics and Meteorology programs (2010-present)
- Astrophysics Faculty Search Committee (2016-2017)
- Physics Curriculum Committee (2016-2017)
- Society of Physics Students Advisor / Sigma Pi Sigma Coordinator (2011-2017)
- Masters of Environmental Studies Fellowship Reviewer (2016)
- Visiting Assistant Professor of Astronomy Search Committee (2016)
- Visiting Assistant Professor of Physics Search Committee (2016)
- Acting Physics Department Chair (2015 [July 13-July 17])
- Associate acting Physics Department Chair (2014 [July 16-August 8])
- Physics Department Resources and Awards Committee Member (2012-2015) [chair from 2014-2015]
- College-Wide Faculty Curriculum Committee Member (2014-2015)
- Summer Undergraduate Research with Faculty (SURF) Reviewer (2014,2012)
- Air Quality Faculty Search Committee (2013-2014)
- Atmospheric Physics Faculty Search Committee (2012-2013)
- Air Quality Faculty Search Committee (2012-2013)
- UCAR Affiliate Representative for CofC (2011-2013)
- Atmospheric Physics Faculty Search Committee (2011-2012)
- Atmospheric Physics Faculty Search Committee (2010-2011)
- Meteorology Program Coordinator (2010-2011)
- Colloquium Committee (2010-2011)

C of C Student Presentations

- **Statistical Analysis of Localized Temporal Clustering of Aerosol Particles**
M.S. Mullis. Mentors: M.L. Larsen and J. Niehaus 30th Annual College of Charleston Scientific Research Poster Session. April 12th, 2018.
- **Time Series Analysis of Co-Located Micrometeorological Variables**
M.S. Mullis. Mentors: M.L. Larsen and J. Niehaus
 - 2017 Colonial Academic Alliance Undergraduate Research Conference Elon University, March 31 - April 1, 2017.
 - 29th Annual College of Charleston Scientific Research Poster Session. April 20th, 2017.
- **Development of an Aerosol Particle Timing System**
K. Burriss and L. Passarella. Mentor: M.L. Larsen 2016 Celebration of Summer Scholars College of Charleston, August 22, 2016.
- **Reduction of measurement variability in precipitation events with uniform sampling**
K. O'Dell. Mentor: M.L. Larsen College of Charleston Physics and Astronomy Department Research Award Nominee Talks. April 21st, 2016. *Winner of 2016 Outstanding Undergraduate Research Award in Physics.*
- **Raindrop statistics on sub-minute and sub-kilometer scales**
J.B. Teves. Mentor: M.L. Larsen College of Charleston Physics and Astronomy Department Research Award Nominee Talks. April 21st, 2016.
- **Investigation of a New Sampling Methodology to Improve Accuracy of Z-R Relationships**
K. O'Dell. Mentor: M.L. Larsen 28th Annual College of Charleston Scientific Research Poster Session. April 14th, 2016.
- **Using Two-Dimensional Video Disdrometer Samples to Determine Spatial Relationships in Rainfall**
J.B. Teves. Mentor: M.L. Larsen 28th Annual College of Charleston Scientific Research Poster Session. April 14th, 2016. *Awarded best Physics poster award.*
- **Reduction of Measurement Variability in Precipitation Events with Uniform Sampling**
K. O'Dell. Mentor: M.L. Larsen NCUR 30th Annual Conference. University of North Carolina at Asheville, April 7-9 2016.
- **Single-Instrument Observations of Temporo-Spatial Variability in Rainfall**
J.B. Teves. Mentor: M.L. Larsen NCUR 30th Annual Conference. University of North Carolina at Asheville, April 7-9 2016.

- A Study of Realistic Sampling Variability Effects on Precipitation Measurements
K. O'Dell. Mentor: M.L. Larsen
 - 2015 Celebration of Summer Scholars College of Charleston, August 24, 2015.
 - Department of Physics and Astronomy Departmental Colloquium. College of Charleston, September 17, 2015.
- Calibration strategies for a tipping bucket rain gauge
J.B. Teves. Mentor: M.L. Larsen 2015 Celebration of Summer Scholars College of Charleston, August 24, 2015.
- Exploring Raindrop Arrival Time Correlations via a Drop Size Dependent Pair-Correlation Function
R. Lemasters. Mentor: M.L. Larsen
 - 2015 Annual Meeting of the South Carolina Academy of Science. Furman University, April 11th, 2015. *Winner of ΣE best Physics presentation award.*
 - 27th Annual College of Charleston Scientific Research Poster Session. April 16th, 2015.
- Erroneous Drop Sizing in Impact Disdrometers: Possible Effects on Z-R Relationships
K. O'Dell. Mentor: M.L. Larsen
 - 2015 Annual Meeting of the South Carolina Academy of Science. Furman University, April 11th, 2015. *Winner of ΣE best Earth Science presentation award.*
 - 27th Annual College of Charleston Scientific Research Poster Session. April 16th, 2015.
- Diurnal Evolution of the Statistical Structure of Near Surface Wind
A.L. Payne. Mentor: M.L. Larsen
 - 2015 Annual Meeting of the South Carolina Academy of Science. Furman University, April 11th, 2015.
 - 27th Annual College of Charleston Scientific Research Poster Session. April 16th, 2015. *Awarded best Physics poster award.*
- Using an Accumulation Contribution Fraction to Investigate Rainfall
J.B. Teves. Mentor: M.L. Larsen
 - 2015 Annual Meeting of the South Carolina Academy of Science. Furman University, April 11th, 2015.
 - 27th Annual College of Charleston Scientific Research Poster Session. April 16th, 2015.

- Design and Testing of a Raindrop Velocimeter
D. Tuck. Mentor: M.L. Larsen
 - 2015 Annual Meeting of the South Carolina Academy of Science. Furman University, April 11th, 2015.
 - 27th Annual College of Charleston Scientific Research Poster Session. April 16th, 2015.
- Investigating Possible Fractal Behavior in Raindrop Arrivals
R. Lemasters. Mentor: M.L. Larsen 2014 Celebration of Summer Scholars College of Charleston, August 18, 2014.
- Identification of Rain Events: Why Definitions Matter
J.B. Teves. Mentor: M.L. Larsen 2014 Celebration of Summer Scholars College of Charleston, August 18, 2014.
- Exploration of Links Between Radar and Automated Weather Station Data
J.C. Harris. Mentor: M.L. Larsen
 - 2014 Annual Meeting of the South Carolina Academy of Science. Trident Technical College, April 5th, 2014.
 - 26th Annual College of Charleston Scientific Research Poster Session. April 17th, 2014.
- Exploration of Fractal Tools to Characterize Statistical Systems
T. Hayward. Mentor: M.L. Larsen
 - 2014 Annual Meeting of the South Carolina Academy of Science. Trident Technical College, April 5th, 2014. *Winner of the ΣE best Physics presentation award.*
 - 26th Annual College of Charleston Scientific Research Poster Session. April 17th, 2014.
- Statistical Analysis of Rain Arrival Times
C. Jenks. Mentor: M.L. Larsen
 - 2014 Annual Meeting of the South Carolina Academy of Science. Trident Technical College, April 5th, 2014.
 - 26th Annual College of Charleston Scientific Research Poster Session. April 17th, 2014.
- Development of a Z-R Relationship for a Local Automated Weather Station
K. O'Dell. Mentor: M.L. Larsen
 - 2014 Annual Meeting of the South Carolina Academy of Science. Trident Technical College, April 5th, 2014.
 - 26th Annual College of Charleston Scientific Research Poster Session. April 17th, 2014.

- Developing an Automated Processing Pipeline for Proprietary Rain Measurement Equipment
J. Teves. Mentor: M.L. Larsen
 - 2014 Annual Meeting of the South Carolina Academy of Science. Trident Technical College, April 5th, 2014.
 - 26th Annual College of Charleston Scientific Research Poster Session. April 17th, 2014.
- Investigation of Radar-Inferred Rain Accumulation Variability
J.C. Harris, K. O'Dell, and J.B. Teves. Mentor: M.L. Larsen
 - 38th Annual Meeting of the National Weather Association. North Charleston, South Carolina. October 12-17, 2013.
 - 2013 Celebration of Summer Scholars College of Charleston, August 19th, 2013.
- Identifying and Evaluating a Site-Specific Z-R Relationship
K. O'Dell. Mentor: M.L. Larsen
 - College of Charleston Physics Department Colloquium October 3rd, 2013.
 - 2013 Celebration of Summer Scholars College of Charleston, August 19th, 2013.
- Aerosol Concentration Fluctuations
M. Chute. Mentor: M.L. Larsen
 - 2013 Annual Meeting of the South Carolina Academy of Science. Benedict College, April 13th, 2013.
 - 25th Annual College of Charleston Scientific Research Poster Session. April 18th, 2013.
- Infinitesimally small radar heat signatures in greater Law Vegas.
T. Barrett. Mentor: M.L. Larsen
Winter day conference of the American Scientific Affiliation. Azusa Pacific University, January 12, 2013.
- Simulations of Radiative Transfer in Strictly Absorbing Atmospheric Media
P. Boehner. Mentor: M.L. Larsen
24th Annual College of Charleston Scientific Research Poster Session. April 19, 2012.
- Applications of Computational Stochastic Geometry to the Determination of Cloud Structure
C. Briner. Mentor: M.L. Larsen
 - 2012 Annual Meeting of the South Carolina Academy of Science. University of South Carolina-Aiken. April 14, 2012.
 - 24th Annual College of Charleston Scientific Research Poster Session. April 19, 2012.
Winner of the Award of Merit

➤ Absorption and Scattering in Correlated Random Media

P. Boehner. Mentor: M.L. Larsen

- 2012 Annual Meeting of the South Carolina Academy of Science. University of South Carolina-Aiken. April 14, 2012.
- 2011 Fall Joint Meeting of the NCS-AAPT, SACS-AAPT, and the SPS. UNC-Asheville. November 18-19, 2011.
- 2011 Celebration of Summer Scholars College of Charleston. August 22nd, 2011.
- 2011 Annual Meeting of the South Carolina Academy of Science. South Carolina State University. April 16, 2011.
- 23rd Annual College of Charleston Scientific Research Poster Session. April 21, 2011.

➤ Statistical structure of turbulence

C. Self. Mentor: M.L. Larsen

2011 Celebration of Summer Scholars College of Charleston. August 22nd, 2011.

➤ Using Cloud Cover as an Indicator of Regional Climate Change

E. Deck and D. Ruwadi. Mentor: M.L. Larsen

2011 NASA GIST-Climate Change Symposium. College of Charleston. August 20th, 2011.

➤ Models of Inhalation Dosage

J. Niehaus. Mentor: M.L. Larsen

2011 Annual Meeting of the South Carolina Academy of Science. South Carolina State University. April 16, 2011.

➤ Benchmarking Commercial Disdrometers to Aid in Characterizing Natural Rainfall Variability

C. Smith. Mentor: M.L. Larsen

- 2011 Annual Meeting of the South Carolina Academy of Science. South Carolina State University. April 16, 2011.
- 23rd Annual College of Charleston Scientific Research Poster Session. April 21, 2011.