

February 2, 2016

## **Robert L. Merlino**

**Address** Department of Physics and Astronomy  
University of Iowa, Iowa City, IA 52242  
**Office** 405 Van Allen Hall  
**Phone** 319-335-1756 (office) 319-335-1753 (FAX)  
**E-mail** robert-merlino@uiowa.edu  
**Homepage** <http://www.physics.uiowa.edu/~rmerlino/>

### **EDUCATIONAL AND PROFESSIONAL HISTORY**

#### **Education**

- Ph.D. Physics, August 1980, University of Maryland, College Park, MD
- B.S., Physics, May 1973, St. Joseph's College, Philadelphia, PA

#### **Professional and Academic Positions**

- 1992 - Professor, Department of Physics and Astronomy, University of Iowa
- 1994-1995 Associate Chair, Department of Physics and Astronomy
- 1986-1992 Associate Professor, Department of Physics and Astronomy, University of Iowa
- 1981-1986 Assistant Professor, Department of Physics and Astronomy, University of Iowa
- 1980-1981 Research Scientist, Department of Applied Physics  
Columbia University, New York, NY

#### **Visiting Positions**

August 2007 Conference Lecturer, Summer School on Plasma Physics, The Abdus Salam International Centre for Theoretical Physics, Trieste Italy

### **HONORS AND AWARDS**

- Alpha Sigma Nu (National Jesuit Honor Society)
- Sigma Pi Sigma (National Physics Honor Society)
- Fellow of the American Physical Society 2002 ([citation](#))
- 2010 American Physical Society, Outstanding Referee
- 2011 Stardust Award of the International Dusty Plasma Community

### **PROFESSIONAL SOCIETY MEMBERSHIPS**

American Physical Society (Fellow 2002)

### **TEACHING AT THE UNIVERSITY OF IOWA**

<b>Semester</b>	<b>Course No.</b>	<b>Course Title</b>	<b>Enrollment</b>
Fall 2004	29:006	Physics of Everyday Experience	304
Spring 2005	29:006	Physics of Everyday Experience	304
Fall 2005	29:006	Physics of Everyday Experience	304
Spring 2006	29:006	Physics of Everyday Experience	304
Fall 2006	29:006	Physics of Everyday Experience	304
Spring 2007	29:006	Physics of Everyday Experience	307
Fall 2007	29:006	Physics of Everyday Experience	317
Spring 2008	29:006	Physics of Everyday Experience	313
Fall 2008	29:006	Physics of Everyday Experience	315
Spring 2009	29:006	Physics of Everyday Experience	314
Fall 2009	29:006	Physics of Everyday Experience	314
Spring 2010	29:006	Physics of Everyday Experience	311
Fall 2010	29:006	Physics of Everyday Experience	300
Spring 2011	29:006	Physics of Everyday Experience	300
Fall 2011	29:006	Physics of Everyday Experience	300
Spring 2012	29:006	Physics of Everyday Experience	300
Fall 2012	29:129	Electricity and Magnetism I	18
Spring 2013	29:129	Electricity and Magnetism I	18
Fall 2013	29:006	Physics of Everyday Experience	273
Spring 2014	29:006	Physics of Everyday Experience	211
Fall 2014	PHYS:1200	Physics of Everyday Experience	288
Spring 2015	PHYS:1200	Physics of Everyday Experience	290
Fall 2015	PHYS:1200	Physics of Everyday Experience	290
Spring 2016	PHYS:1200	Physics of Everyday Experience	306

### **Contributions to Instructional Programs**

2004-Developed a new GE natural science course: 20:006  
The Physics of Everyday Experience: How Things Work (3 cr)

### **STUDENTS SUPERVISED**

#### *Ph.D. Students*

<b>STUDENT</b>	<b>YEAR</b>	<b>DEGREE</b>
Robert A. Bosch	1986	Ph.D
Steven L. Cartier	1986	Ph.D
David M. Susczynsky	1989	Ph.D
James C. Johnson	1990	Ph.D
Bin Song	1991	Ph.D
Wen-Jun Xu	1993	Ph.D

Tao An	1996	Ph.D
Adrian Barkan	1997	Ph.D
Q.-Z. Luo	2000	Ph.D
Su-Hyun Kim	2004	Ph.D
Jonathon Heinrich	2011	Ph.D
John K. Meyer	2015	Ph.D

***M. S. Students***

<b>STUDENT</b>	<b>YEAR</b>	<b>DEGREE</b>
Brittan Kustom	1984	M.S.
Scott Boardsen	1984	M.S.
David M. Suszczynsky	1987	M.S.
James C. Johnson	1988	M.S.
William L. Theisen	1988	M.S.
Bin Song	1989	M.S.
Kenji Watanabe	1990	M.S.
Wen-Jun Xu	1992	M.S.
Tao An	1996	M.S.
Brian Sibthorp	1996	M.S.
Adrian Barkan	1997	M.S.
Jacob D. Willig	1997	M.S.
Chad O. Thompson	1998	M.S.
Erick Agrimson	2001	M.S.

***Postdoctoral Scientists***

- Su-Hyun Kim                    2004-2012

***Undergraduate Honors Students***

- Jackson Loomis, 1990, B.S. (honors) Physics
- Evan Sengbusch, 2007, B. S. Physics and Mathematics

***Undergraduate Research***

- Ross Fisher, 2005-2007
- Nathan Quarderer. 2006-2007
- Monique J. Cook, AGEP Summer Program 2004
- Michael McKinlay, 2013- 2014 BS 2014
- Sean Harding, 2014-15

***Undergraduate advisees 2014 - 2015:***

- Adrian, Patrick
- Heitritter, Kenneth
- Hendricks, Scotty
- Hull, Matthew
- Schuler, Joseph

***Graduate Advisees 2012 - 2015***

- John K. Meyer

**SERVICE**

- **Department**
  - Associate Chair, 1994-1995
  - 2010-11 Qualifying Exam Committee
- **College**
  - 1985-88 Educational Policy Committee
- **University**
  - 1984-86 University Patent Committee
- **Community Service**
  - 1989-1993 - Member of the Iowa City Regina Catholic Education Center Board of Directors
  - Adult Counselor, Boy Scout Troop 218, Iowa City, IA

**PROFESSIONAL SERVICE**

**Service on Editorial Boards**

- 2005-2007 Editorial Board of Physics of Plasmas (AIP)
- 2008-2011 Editorial Board of Physics of Plasmas (AIP)
- 2011-2014 Editorial Board of Physics of Plasmas (AIP)
- 2011-2014 Editorial Board, Journal of Plasma Physics (CUP)
- 2014-2017 Editorial Board of Physics of Plasmas (AIP)

**Service as Guest Editor**

- Guest Editor: Dusty Plasmas Tutorial Papers from the 41<sup>st</sup> Annual Meeting of the APS Division of Plasma Physics in Physics of Plasmas, October 2000 Issue.
- Guest Editor: Special Issue on Dusty Plasmas of the IEEE Transactions on Plasma Science, 2001.

## **Service on National and International Committees**

- Organizing Committee: Second International Workshop on the Interrelationship between Plasma Experiments in the Laboratory and Space, Banff, Canada, June 1993
- Organizing Committee: Third International Workshop on the Interrelationship Between Plasma Experiments in the Laboratory and in Space, Pitlochry, Scotland, July 1995
- International Scientific Committee: The Fifth Symposium on Double Layers - Potential Formation and Related Nonlinear Phenomena in Plasmas, Tohoku University, Sendai, Japan September 17 - 19 (1996)..
- International Advisory Committee: The Second International Conference on the Physics of Dusty Plasmas, ICPDP-99, Hakone, Kanagawa, Japan, May 24-28 (1999)..
- Session Organizer: Waves in Dusty Plasmas, URSI Jan. 2002, Boulder, CO
- 2009 International Advisory Board: Summer College on Plasma Physics, International Center for Theoretical Physics, Trieste, Italy
- March 2009: Coauthor "Roles Current Status, Opportunities, Future Trends, and Funding Issues for Laboratory Plasma Astrophysics," A State of the Profession Position Paper Submitted to the Astro2010 Decadal Survey of the National Research Council (NRC).
- 2010 Member of IUPAP Commission C-16 on Plasma Physics
- 2015 - NRC Plasma Science Committee

## **Service to the American Physical Society**

- American Physical Society, Division of Plasma Physics, Publications Committee (1989).-1992
- Program Committee for Invited and Contributed Papers, APS Division of Plasma Physics (1998).
- Co-Organizer (with G. Ganguli) of a Mini-Conference on Dusty Plasmas at the 1999 Meeting of the Division of Plasma Physics, Seattle, WA
- 2000-2001 APS Division of Plasma Physics Distinguished Lecturer, "Dusty Plasmas in the Laboratory and Space"
- Program Committee for Invited and Contributed Papers, APS Division of Plasma Physics, 2002.
- 2004-05 APS Division of Plasma Physics Fellowship Committee
- 2005 APS Selection Committee The Nicholson Award for Humanitarian Outreach, Vice-Chairman
- 2006 -2007 Chair, APS Selection Committee - The Nicholson Award for Humanitarian Outreach.
- 2008 Vice Chair Selection Committee for the James Clerk Maxwell Prize
- 2009 Chair, Selection Committee for the James Clerk Maxwell Prize.
- 2012 APS DPP Program Committee
- 2016 APS DPP Program Committee

## **Journal Refereeing**

- Physics of Plasmas (Editorial Board)
- Physical Review Letters
- Physical Review E
- Physics Letters A
- Journal of Geophysical Research
- Geophysical Research Letters
- Journal of Applied Physics
- Plasma Sources: Science and Technology
- Plasma Physics and Controlled Fusion
- IEEE Transactions on Plasma Science
- Planetary and Space Science
- Journal of Plasma Physics (Editorial Board)
- Japanese Journal of Applied Physics
- New Journal of Physics
- The Journal of Chemical Physics
- Reviews of Modern Physics
- Applied Physics Letters
- Canadian Journal of Physics
- Journal of Atmospheric and Solar Terrestrial Physics
- Advances in Space Physics

## **RECENT FUNDING HISTORY**

- 2007-2010, Department of Energy, Grant No. DE-FG02-04ER54795, "Basic laboratory studies of dusty plasmas and velocity driven shear EIC waves," \$624,570
- 2010-2011, NSF MRI Program, "Acquisition of Instrumentation for Imaging Plasma Waves and Particles," \$346,568
- 2010, ARRA Supplement to Department of Energy, Grant No. DE-FG02-04ER54795, \$155,000.
- 2010-2013, NSF/DOE Partnership on Plasma Science, "Experimental investigations of fundamental processes in dusty plasmas, \$780,049, pending
- 2011-2013, NSF MRI Grant (with E. Thomas, Auburn University, and M. Rosenberg, UCSD) Magnetized Dusty Plasma Device, \$2M.
- DOE and NSF--2013-2016 Collaborative proposal – U. Iowa, UCSD, Auburn University, Physics of Magnetized Dusty Plasmas.

## **PUBLICATIONS**

### **Ph.D Thesis**

ROBERT L. MERLINO  
Electron Heating in a High-Voltage Toroidal Theta Pinch  
The University of Maryland, College Park, MD, 1980

### **Book Chapters**

1. G. GANGULI, R. MERLINO, and A. SEN  
29. Oscillations in a Dusty Plasma Medium  
Review of Radio Science 1999-2002, Edited by W. Ross Stone  
Institute of Electrical and Electronic Engineers, 2002, pp. 683-719.
2. R. L. MERLINO  
Dusty Plasmas and Applications in Industry and Space|  
Ch. 5, in Plasma Physics Applied, Edited by C. Grabbe  
Research Signposts, Pub (Kerala, India, 2006) pages 74-110
3. R. L. MERLINO  
Negative Ion and Dust Particle Containing Plasmas  
The Encyclopedia of Plasma Technology, Edited by Leon Shohet  
Taylor and Francis, in press, 2016.

## **JOURNAL ARTICLES and CONFERENCE PROCEEDINGS**

1. Y. G. CHEN, C. CHIN-FATT, Y. P. CHONG, A. W. DeSILVA, C. G. GOLDENBAUM, H. R. GRIEM, R. A. HESS, R. L. MERLINO, and D. P. MURPHY  
Plasma Heating in a High Voltage Toroidal Theta Pinch  
Phys. Rev. Lett. 38, 1400-1403 (1977).
2. A. AYDEMIR, C. K. CHU, G. GEORGIOU, R. A. GROSS, H. C. LUI, J. MARSEN, T. C. MARSHALL, Z. MUCHA, G. A. NAVRATIL, P. G. WEBER, J. BUSNARDO-NETO, C. CHIN-FATT, Y. P. CHONG, DeSILVA, G. C. GOLDENBAUM, H. R. GRIEM, R. A. HESS, P. C. LIEWER, R. L. MERLINO, D. P. MURPHY, A. G. SGRO, and R. N. BYRNE  
Experimental and Theoretical Studies of High-Beta Tokamaks Plasma Physics and Controlled Nuclear Fusion Research 1978  
Proceedings, 7th Int. Conf. Innsbruck, Austria, 1978, Vol. II [Vienna: IAEA, 1979], p. 105.
3. R. L. MERLINO, G. C. GOLDENBAUM, C. CHIN-FATT, Y. P. CHONG, A. W. DeSILVA, H. R. GRIEM, R. A. HESS, and D. P. MURPHY  
Electron and Ion Heating in a High Voltage Toroidal Theta Pinch with Parallel or Antiparallel Bias Fields  
Phys. Fluids 24, 2358-2372 (1981).

4. ALBAN DENIZ and ROBERT L. MERLINO  
Bubble-Free Encapsulation of Magnetic Probes for Use in a High-Voltage Plasma Discharge  
Rev. Sci. Instrum. 53, 1622-1623 (1982).
5. C. K. CHU, A. V. DENIZ, D. J. ELKIN, G. ERLEBACHER, R. A. GROSS, R. IZZO, S. JOHNSTON, C. KOSTEK, F. LEVINTON, M. MACHIDA, T. C. MARSHALL, R. L. MERLINO, G. A. NAVRATIL, and D. OEPTS  
High-Beta Tokamak Plasma Physics Studies  
Plasma Physics and Controlled Nuclear Fusion Research 1982, Proceedings, 9th Int. Conf. Baltimore, MD, 1982, Vol. II [Vienna: IAEA, 1983], p. 321.
6. D. P. MURPHY, G. C. GOLDENBAUM, C. CHIN-FATT, Y. P. CHONG, A. W. DeSILVA, H. R. GRIEM, R. A. HESS, and R. L. MERLINO  
Macroscopic Plasma Behavior in a High Voltage Toroidal Theta Pinch  
Phys. Fluids 26, 1061-1070 (1983).
7. R. L. MERLINO and S. L. CARTIER  
Hysteresis in a Low-Pressure Argon Discharge  
Appl. Phys. Lett. 44, 33-34 (1984)
8. G. KNORR and R. L. MERLINO  
The Role of Fast Electrons for Plasma Containment in Magnetic Cusps  
Plasma Phys. Control. Fusion 26, 433-442 (1984).
9. S. L. CARTIER and R. L. MERLINO  
Observations of Nonlinear Behavior in a Low-Pressure Discharge Column  
IEEE Trans. Plasma Sci. PS-12, 14-18, (1984).
10. S. L. CARTIER and R. L. MERLINO  
Comments on the "New Probe Method to Measure Plasma Potential with Emissive Probes"  
Rev. Sci. Instrum. 55, 1002-1003 (1984).
11. B. KUSTOM, R. L. MERLINO, and N. D'ANGELO  
Production of Plasma with Variable, Radial Electric Fields  
Rev. Sci. Instrum. 55, 1243-1245 (1984).
12. R. L. MERLINO, S. CARTIER, M. ALPORT, and G. KNORR  
Observations of V-Shaped Double Layers and Ion-Cyclotron Waves along Diverging Magnetic Field Lines  
Proceedings of the Second Symposium on Plasma Double Layers and Related Topics, edited by R. Schrittwieser and G. Elder [Innsbruck, Austria: University of Innsbruck(1985).], pp. 224-230.

13. G. KNORR, M. ALPORT, and R. MERLINO  
Conditions Conducive to the Existence of a Double Layer  
Proceedings of the Second Symposium on Plasma Double Layers and Related Topics  
edited by R. Schrittwieser and G. Elder [Innsbruck, Austria: University of Innsbruck, 1985],  
pp. 346-361.
14. S. L. CARTIER, N. D'ANGELO, P. H. KRUMM, and R. L. MERLINO  
Filamental Quenching of the Current-Driven Ion-Cyclotron Instability  
Phys. Fluids 28, 432-434 (1985).
15. B. KUSTOM, N. D'ANGELO, and R. L. MERLINO  
A Laboratory Investigation of the High-Frequency Farley-Buneman Instability  
J. Geophys. Res. 90, 1698-1704 (1985).
16. S. L. CARTIER, N. D'ANGELO, and R. L. MERLINO  
Electrostatic Ion-Cyclotron Waves in a Nonuniform Magnetic Field  
Phys. Fluids 28, 3066-3073 (1985).
17. C. K. CHU, A. DENIZ, G. E. GEORGIU, R. A. GROSS, A. A. GROSSMAN,  
A. HOLLAND, R. IZZO, C. KOSTEK, F. M. LEVINTON, H. C. LUI, M. MACHIDA, T. C.  
MARSHALL, R. L. MERLINO, D. OEPTS, G. A. NAVRATIL, and P. G. WEBER  
High-Beta Tokamak Research  
Nucl. Fusion 25, 1109-1112 (1985).
18. M. J. ALPORT, S. L. CARTIER, and R. L. MERLINO  
Laboratory Observations of Ion Cyclotron Waves Associated with a Double Layer in an  
Inhomogeneous Magnetic Field  
J. Geophys. Res. 91, 1599-1608 (1986).
19. R. A. BOSCH and R. L. MERLINO  
Sudden Jumps, Hysteresis and Negative Resistance in an Argon Plasma Discharge Part I.  
Discharges with No Magnetic Field  
Contrib. Plasma Phys. 26, 1-12 (1986).
20. R. A. BOSCH and R. L. MERLINO  
Sudden Jumps, Hysteresis and Negative Resistance in an Argon Plasma Discharge Part II.  
Discharges in a Magnetic Field  
Contrib. Plasma Phys. 26, 13-17 (1986).
21. N. D'ANGELO and R. L. MERLINO  
EIC Waves in a Plasma with Negative Ions  
IEEE Trans. Plasma Sci. PS-14, 285-286 (1986).
22. ROBERT A. BOSCH and ROBERT L. MERLINO  
Confinement Properties of a Low-Beta Discharge in a Spindle Cusp Magnetic Field  
Phys. Fluids 29, 1998-2006 (1986).

23. S. L. CARTIER, N. D'ANGELO, and R. L. MERLINO  
A Laboratory Study of Ion Energization by EIC Waves and Subsequent Upstreaming  
along Diverging Magnetic Field Lines  
J. Geophys. Res. 91, 8025-8033 (1986).
24. N. D'ANGELO and R. L. MERLINO  
The Effect of a Magnetic Field on Wake Potential Structures  
IEEE Trans. Plasma Sci. PS-14, 609-610 (1986).
25. R. A. BOSCH and R. L. MERLINO  
Confinement of a Potassium Plasma in a Spindle Cusp Magnetic Field  
J. Appl. Phys. 60, 3056-3067 (1986).
26. R. A. BOSCH and R. L. MERLINO  
Multidipole Confinement of Argon and Potassium Plasmas  
Rev. Sci. Instrum. 57, 2940-2950 (1986).
27. D. M. SUSZCYNISKY, S. L. CARTIER, R. L. MERLINO, and N. D'ANGELO  
A Laboratory Study of Collisional Electrostatic Ion Cyclotron Waves  
J. Geophys. Res. 91, 13,729-13,731 (1986).
28. N. D'ANGELO and R. L. MERLINO  
Comment on "Are Observed Broadband Plasma Wave Amplitudes Large Enough to Explain  
the Enhanced Electron Temperatures of the High-Latitude E Region?" by J. P. St.-Maurice  
and Russ Laher  
J. Geophys. Res. 92, 321-322 (1987).
29. R. L. MERLINO and N. D'ANGELO  
The Interaction of a Conducting Object with a Supersonic Plasma Flow: Ion Deflection near  
a Negatively Charged Obstacle  
J. Plasma Phys. 37, 185-198 (1987).
30. S. L. CARTIER and R. L. MERLINO  
Anode-Type Double Layers in a Nonuniform Magnetic Field  
Phys. Fluids 30, 2549-2560 (1987).
31. D. M. SUSZCYNISKY, S. L. CARTIER, N. D'ANGELO, and R. L. MERLINO  
Influence of the Ion/Neutral Atom Mass Ratio on the Damping of Electrostatic Ion-  
Cyclotron Waves  
Phys. Fluids 30, 3304-3306 (1987).
32. R. L. MERLINO and S. L. CARTIER  
The Perturbing Effect of a Langmuir Probe near a Magnetized Double Layer  
J. Phys. D: Appl. Phys. 20, 1074-1076 (1987).

33. R. L. MERLINO, S. L. CARTIER, and M. J. ALPORT  
EIC Waves Associated with Strong Anode-Type Double Layers in a Nonhomogeneous Magnetic Field  
Proceedings of the Workshop on the Current-Driven Electrostatic Ion-Cyclotron Instability, edited by R. W. Schrittwieser [Singapore: World Scientific Publishing Co. (1988).], p. 141
34. N. D'ANGELO and R. L. MERLINO  
A Note on Auroral Radar Detection of Electrostatic Ion-Cyclotron Waves  
Radio Sci. 23, 55-57 (1988).
35. D. M. SUSZCZYNSKY, R. L. MERLINO, and N. D'ANGELO  
Electrostatic Ion-Cyclotron Waves in a Two-Ion Component Plasma  
IEEE Trans. Plasma Sci. PS-16, 396-398 (1988).
36. D. M. SUSZCZYNSKY, N. D'ANGELO, and R. L. MERLINO  
Mass Spectrometer for Measurements of Relative Ion Concentrations in Plasmas  
Rev. Sci. Instrum. 59, 1376-1379 (1988).
37. J. C. JOHNSON, N. D'ANGELO, and R. L. MERLINO  
Ion-Beam Focusing in a Double-Plasma Device  
IEEE Trans. Plasma Sci. PS-16, 590-596 (1988).
38. D. M. SUSZCZYNSKY, N. D'ANGELO, and R. L. MERLINO  
An Experimental Study of Electrostatic Ion-Cyclotron Waves in a Two-Ion Component Plasma  
J. Geophys. Res. 94, 8966-8972 (1989).
39. J. C. JOHNSON, R. L. MERLINO, and N. D'ANGELO  
Double Layers Formed by Ion-Beam Injection in a Double-Plasma Device  
J. Phys. D: Appl. Phys. 22, 1456-1463 (1989).
40. B. SONG, D. SUSZCZYNSKY, N. D'ANGELO, and R. L. MERLINO  
Electrostatic Ion-Cyclotron Waves in a Plasma with Negative Ions  
Phys. Fluids B 1, 2316-2318 (1989).
41. J. C. JOHNSON, N. D'ANGELO, and R. L. MERLINO  
A Double Layer Induced Ionization Instability  
J. Phys. D: Appl. Phys. 23, 682-685 (1990).
42. B. SONG, R. L. MERLINO, and N. D'ANGELO  
Transition from Moving to Stationary Double Layers in a Single-Ended Q Machine  
Phys. Fluids B 2, 1936-1940 (1990).
43. R. L. MERLINO and J. J. LOOMIS  
Double Layers in a Plasma with Negative Ions  
Phys. Fluids B 2, 2865-2867 (1990).

44. B. SONG, N. D'ANGELO, and R. L. MERLINO  
Ion-Acoustic Waves in a Plasma with Negative Ions  
Phys. Fluids B 3, 284-287 (1991).
45. B. SONG, R. L. MERLINO, and N. D'ANGELO  
Potential Relaxation Instability and Ion Acoustic Waves in a Single-Ended Q-Machine  
Plasma with Negative Ions  
Phys. Lett. A 153, 233-238 (1991).
46. B. SONG, N. D'ANGELO, and R. L. MERLINO  
On Anode Spots, Double Layers and Plasma Contactors  
J. Phys. D: Appl. Phys. 24, 1789-1795 (1991).
47. B. SONG, R. L. MERLINO, and N. D'ANGELO  
On the Stability of Strong Double Layers  
Phys. Scr. 45, 391-394 (1992).
48. B. SONG, R. L. MERLINO, and N. D'ANGELO  
The Effect of a Magnetic Field Gradient on Anode Double Layers  
Phys. Scr. 45, 395-398 (1992).
49. B. SONG, N. D'ANGELO, and R. L. MERLINO  
Stability of a Spherical Double Layer Produced through Ionization  
J. Phys. D: Appl. Phys. 25, 938-941 (1992).
50. B. SONG, R. L. MERLINO, and N. D'ANGELO  
Measurements of the Perpendicular Width of Ionization-Produced Double Layers  
IEEE Trans Plasma Sci. 20, 476-479 (1992).
51. W. XU, BIN SONG, R. L. MERLINO, and N. D'ANGELO  
A Dusty Plasma Device (DPD) for Producing Extended, Steady State, Magnetized, Dusty  
Plasma Columns  
Rev. Sci. Instrum. 63, 5266-5269 (1992).
52. R. L. MERLINO, BIN SONG, and N. D'ANGELO  
Ionization-Produced Double Layers in Magnetized and Unmagnetized Plasmas  
Proceedings, Fourth Symposium on Double Layers and Other Nonlinear Potential Structures  
in Plasmas, July 1992, Innsbruck, Austria, R. W. Schrittwieser, editor, World Scientific,  
Singapore (1993).
53. W. XU, N. D'ANGELO, and R. L. MERLINO  
Dusty Plasmas: The Effect of Closely Packed Grains  
J. Geophys. Res. 98, 7843-7847 (1993).

54. T. AN, R. L. MERLINO, and N. D'ANGELO  
Lower Hybrid Waves in a Plasma with Negative Ions  
Phys. Fluids B 5, 1917-1918 (1993).
55. W. THEISEN, R.T. CARPENTER and R. L. MERLINO  
Filamentary Double Layers  
Physics of Plasmas 1, 1345-1348 (1994).
56. T. AN, R. L. MERLINO, and N. D'ANGELO  
Cylindrical Anode Double Layers, 'Firerods' Produced in a Uniform Magnetic Field  
J. Phys. D: Appl. Phys., 27, 1906 - 1913 (1994)..
57. K. E. LONNGREN, P. V. SCHWARTZ, E. W. BAI, W. C. THEISEN, R. L. MERLINO,  
and R. T. CARPENTER  
Extracting Double Layer Charge Density Distributions Using the Method of Moments  
IEEE Trans. Plas. Sci. PS- 22, 278-280 (1994).
58. A. BARKAN, N. D'ANGELO and R. L. MERLINO  
Charging of Dust Grains in a Plasma  
Phys. Rev. Lett. 73, 3093-3096 (1994).
59. A. BARKAN, N. D'ANGELO and R.L. MERLINO  
Laboratory Study of EIC Waves in a dusty plasma  
Planet. Space Sci. 43, 905-908 (1995).
60. A. BARKAN and R. L. MERLINO  
Confinement of Dust Particles in a Double Layer  
Physics of Plasmas 2, 3261-3265 (1995).
61. A. BARKAN, R. L. MERLINO and N. D'ANGELO  
Laboratory Observation of the Dust Acoustic Wave Mode  
Physics of Plasmas, 2, 3563-3565 (1995).
62. R. L. MERLINO, A. BARKAN, N. D'ANGELO, W. XU, and B. SONG  
Laboratory Experiments in Dusty Plasmas  
Proceedings of the International Conference on Plasma Physics ICPP 1994, AIP Conf. Proc.  
345 (American Institute of Physics, New York 1995), pp. 295-302.
63. J. S. PICKETT, D. D. MORGAN, R. L. MERLINO, M. L. ADRIAN, G. A. BERG, and W.  
J. RAITT  
Payload Environment and Gas Release Effects of Sounding Rocket Neutral Pressure  
Measurements  
J. Spacecraft and Rockets, 33, 501-506 (1996).

64. A. BARKAN, N. D'ANGELO and R. L. MERLINO  
Ion Acoustic Waves in a Dusty Plasma.  
Planet. Space Sci. 44, 239-242 (1996).
65. T. AN, R. L. MERLINO and N. D'ANGELO  
The Effect of Negative Ions on the Kelvin-Helmholtz Instability in a magnetized Potassium Plasma  
Phys. Letters A, 214, 47-52 (1996).
66. T. AN, N. D'ANGELO and R. L. MERLINO  
The Effect of Negative Ions on the Diffusion of a Potassium Plasma in a Magnetic Field  
J. Phys. D:Appl. Phys., 29, 1484-1488 (1996).
67. N. D'ANGELO and R. L. MERLINO  
Current driven dust acoustic waves in a collisional plasma  
Planet. Space Sci., 44, 1593 - 1598 (1996).
68. A. BARKAN, N. D'ANGELO and R. L. MERLINO  
Potential relaxation instability and ion acoustic waves in a single-ended Q-machine dusty plasma  
Physics Letters A, 222, 329-332 (1996).
69. N. D'ANGELO, A BARKAN, and R. L. MERLINO  
Experiments on dust-plasma interactions  
The Physics of Dusty Plasmas, editors P. K. Shukla, D. A. Mendis, and V. W. Chow, p 93-101 (World Scientific Publishing Co. Pte. Ltd, Singapore) 1996.
70. R. L. MERLINO and A. BARKAN  
Confinement of dust particles in a double layer  
The Physics of Dusty Plasmas, editors P. K. Shukla, D. A. Mendis, and V. W. Chow, p. 102 – 106 (World Scientific Publishing Co. Pte. Ltd, Singapore) 1996.
71. R. L. MERLINO  
Current driven ion acoustic instability in a collisional dusty plasma  
IEEE Trans. Plasma Sci., 25, 60-65 (1997).
72. R. L. MERLINO, A. BARKAN, C. THOMPSON, and N. D'ANGELO  
Experiments on Waves and Instabilities in Dusty Plasmas  
Invited paper at 1996 International Conference on Plasma Physics, Nagoya, Japan  
Plasma Phys. and Contr. Fusion, 39, A421 - A430 (1997).
73. R. L. MERLINO, T. AN, J. WILLIG and N. D'ANGELO  
The Effect of Negative Ions and Neutral Particle Collisions on the Parallel Velocity Shear Instability Double Layers - Potential Formation and Related Nonlinear Phenomena in Plasmas, Ed. Sendai "Plasma Forum" Tohoku University,  
(World Scientific, Co. Pte. Ltd, Singapore) 1997, pp. 290 - 299.

74. A. BARKAN, N. D'ANGELO and R. L. MERLINO  
Laboratory Studies of Ion and Dust Acoustic Instabilities in Dusty Plasmas  
Advances in Dusty Plasmas, Ed. P. K. Shukla, D. A. Mendis, and T. Desai, World Scientific (Singapore, 1997) p. 30 - 40.
75. J. WILLIG, R. L. MERLINO, and N. D'ANGELO  
Experimental Study of the Collisional Parallel Velocity Shear Instability  
J. Geophys. Res., 102, 27,249-27255 (1997).
76. C. THOMPSON, A. BARKAN, N. D'ANGELO, and R. L. MERLINO  
Dust Acoustic Waves in a Direct Current Glow Discharge  
Phys. Plasmas, 4, 2331-2335 (1997).
77. J. WILLIG, R. L. MERLINO, AND N. D'ANGELO  
Experimental Study of The Parallel Velocity Shear Instability  
Physics Letters A, 236, 223-226 (1997).
78. Q-Z. LUO, N. D'ANGELO and R. L. MERLINO  
Shocks in negative ion plasmas,  
Phys. Plasmas 5, 2868-2870 (1998).
79. R. L. MERLINO, A. BARKAN, C. THOMPSON, and N. D'ANGELO  
Laboratory studies of waves and instabilities in dusty plasmas  
Phys. Plasmas 5, 1590 - 1606 (1998).
80. A. BARKAN, N. D'ANGELO, R. L. MERLINO and C. THOMPSON  
Experiments on Ion and Dust Acoustic Waves  
CP446, *Physics of Dusty Plasmas: Seventh Workshop*, edited by M. Horanyi, et al.  
(The American Institute of Physics, New York 1998) pp. 97-100.
81. C. THOMPSON, A. BARKAN, R. L. MERLINO, and N. D'ANGELO  
Video Imaging of Dust Acoustic Waves  
IEEE Trans. Plasma Sci. 27, 145-146 (1999)..
82. C. O. THOMPSON, N. D'ANGELO and R. L. MERLINO  
The Interaction of Stationary and Moving Objects with Dusty Plasmas  
Phys. Plasmas 6, 1421-1426 (1999).
83. Q-Z LUO, N. D'ANGELO, and R. L. MERLINO  
Experimental Study Shock Formation in a Dusty Plasma  
Phys. Plasmas 6, 3455-3458 (1999).
84. Q-Z LUO, N. D'ANGELO, and R. L. MERLINO  
Ion Acoustic Shock Formation in a Converging Magnetic Field Geometry  
Physics of Plasmas 7, 2370-2371 (2000).

85. Q-Z LUO, N. DANGELO, and R. L. MERLINO  
The Kelvin-Helmholtz Instability in a Plasma with Negatively Charged Dust  
Physics of Plasmas 8, 31-35 (2001).
86. E. THOMAS and R. L. MERLINO  
Dust Particle Motion in the Vicinity of Dust Acoustic Waves  
IEEE Transactions on Plasma Science 29, 152-157 (2001).
87. E. AGRIMSON, N. D'ANGELO, and R. L. MERLINO  
Excitation of Ion-Acoustic-Like Waves by Sub-Critical Currents in a Plasma Having  
Equal Electron and Ion Temperatures  
Phys. Rev. Lett. 86, 5282-5285 (2001).
88. E. AGRIMSON, N. D'ANGELO, and R. L. MERLINO  
Effect of Parallel Velocity Shear on the Excitation of electrostatic ion cyclotronwaves  
Phys. Lett. A 293, 260-265 (2002).
89. R. L. MERLINO  
Electrostatic Ion Cyclotron Waves Driven by Parallel Velocity Shear  
Phys. Plasmas 9, 1824-1825 (2002).
90. S. I. POPEL, A. P. GOLUB, T. V. LOSSEVA, S. N. ANDREEV, R. L. MERLINO, and R.  
BINGHAM  
Landau Damping in Formation and Propagation of Dust Ion Acoustic Perturbations in  
Complex Plasmas  
Proceedings of the 29<sup>th</sup> EPS Conference on Plasma Physics and Controlled Fusion,  
Montreux 17 – 21 June 2002 ECA Vol. 26B, P-4.202 (2002).
91. E. AGRIMSON, S. KIM, N. D'ANGELO, AND R. L. MERLINO  
Effect of parallel velocity shear on the electrostatic ion cyclotron instability in filamentary  
current channels  
Phys. Plasmas 10, 3850-3852 (2003).
92. K. AVINASH, A. BHATTACHARJEE, and R. L. MERLINO  
Effect of Charge Reduction on Shielding in Dusty Plasmas  
Phys. Plasmas, 10, 2663-2666 (2003).
93. R. L. MERLINO  
Waves and Instabilities in Dusty Plasmas  
Invited Review Talk: 15th Topical Conference on Radio Frequency Power in Plasmas,  
Moran, WY 2003. *Radio Frequency Power in Plasmas*: Editor: Cary B. Forest, AIP  
Conference Proceedings 694, pages 3-14, (2003) American Institute of Physics.
94. E. THOMAS, JR., K. AVINASH, R. L. MERLINO  
Probe induced voids in a dusty plasma  
Phys. Plasmas, 11, 1770-1774, (2004).

95. R. L. MERLINO AND J. A. GOREE  
Dusty Plasmas in the laboratory, Industry, and Space  
Physics Today, July 2004, p 32-38.
96. E. AGRIMSON, SU-HYUN KIM, M. J. MILLER, N. D'ANGELO, R. L. MERLINO and G. GANGULI  
Amplification of electrostatic ion cyclotron waves in a plasma with magnetic field aligned ion flow shear and no electron current  
Phys. Plasmas 11, 4501-4505 (2004).
97. S. I. POPEL, T. V. LOSSEVA , R. L. MERLINO, S. N. ANDREEV, and A. P. GOLUB  
Dissipative processes and dust ion-acoustic shocks in a Q machine device  
Phys. Plasmas 12, 054501 (2005).
98. R. L. MERLINO AND N. D'ANGELO  
Electron and ion inertia effects on current driven collisional dust acoustic, dust ion acoustic and ion acoustic instabilities  
Phys. Plasmas 12, 054504 (2005).
99. S. I. POPEL, T. V. LOSSEVA, A. P. GOLUB, R. L. MERLINO and S. N. ANDREEV  
Dust ion acoustic shocks in a Q machine device  
Contrib. Plasmas Phys. 45, 461-475 (2005).
100. ROBERT L, MERLINO  
Experimental investigations of dusty plasmas  
*New Vistas in Dusty Plasmas; Fourth International Conference on the Physics of Dusty Plasmas*, edited by L. Buofendi, M. Mikikian and P. K. Shukla AIP Conference Proceedings Vol. 799, Melville, New York, 2005, America Institute of Physics, pp. 3-11.
101. SU-HYUN KIM, ROBERT L. MERLINO and GURUDAS I. GANGULI  
Generation of 'spiky' potential structures associated with multi-harmonic electrostatic ion cyclotron waves,  
Phys. Plasmas 13, 012901 (2006).
102. SU-HYUN KIM and ROBERT L. MERLINO  
Charging of dust grains in a plasma with negative ions  
Phys. Plasmas 13, 052118 (2006).
103. ROBERT L. MERLINO and SU-HYUN KIM  
Charge neutralization of dust particles in a plasma with negative ions  
Appl. Phys. Lett., 89, 091501 (2006).
104. SU-HYUN KIM AND ROBERT L. MERLINO  
Electron attachment to C<sub>7</sub>F<sub>14</sub> and SF<sub>6</sub> in a thermally ionized potassium plasma  
Phys. Rev. E 76, 035401(R) 2007.

105. M. ROSENBERG AND R. L. MERLINO  
Ion acoustic instability in a dusty negative ion plasma  
Planet. Space Sci. 55, 1464 (2007).
106. V. NOSENKO, R. FISHER, R. L. MERLINO, S. KHRAPAK, G. MORFILL, and K. AVINASH  
Measurement of the ion drag force in a collisionless plasma with strong ion-grain coupling  
Phys. Plasmas 14, 103702 (2007).
107. R. L. MERLINO  
Understanding Langmuir probe current-voltage characteristics  
Am. J. Phys. 75, 1078 (2007).
108. E. THOMAS, R. FISHER, AND R. L. MERLINO  
Observations of dust acoustic waves driven at high frequencies: Finite dust temperature effects and wave interference  
Phys. Plasmas 14, 123701 (2007).
109. M. ROSENBERG, E. THOMAS, JR. AND R. L. MERLINO  
A note on dust wave excitation in a plasma with warm dust: Comparison with experiment  
Phys. Plasmas 15, 073701 (2008).
110. S.-H. KIM, J. R. HEINRICH, M. MILLER AND R. L. MERLINO  
Bayard-Alpert gauge sensitivity for C<sub>7</sub>F<sub>14</sub>  
J. Vac. Sci. Technol. A 26, 1355-1356 (2008).
111. SU-HYUN KIM, J. R. HEINRICH, AND R. L. MERLINO  
Electrostatic ion-cyclotron waves in a plasma with heavy negative ions  
Planet. Space Sci. 56, 1552-1559 (2008).
112. SU-HYUN KIM, J. R. HEINRICH, AND R. L. MERLINO  
Diffraction of dust acoustic waves by a circular cylinder  
Phys. Plasmas 15, 090701 (2008).
113. R. L. MERLINO AND S.-H. KIM  
Measurement of the electron attachment rates for SF<sub>6</sub> and C<sub>7</sub>F<sub>14</sub> at T<sub>e</sub> = 0.2 eV in magnetized Q machine plasma  
J. Chem. Phys., 129, 224310 (2008).
114. M. ROSENBERG AND R. L. MERLINO  
Instability of higher harmonic electrostatic ion cyclotron waves in a negative ion plasma  
J. Plasma Phys. 75, 495 (2009).

115. S. KHRAPAK, V. NOSENKO, G. MORFILL, AND R. L. MERLINO  
Improved theoretical approximation for the ion drag force in a collisionless plasma with strong ion-grain coupling  
Phys. Plasmas 16, 044507 (2009).
116. J. R. HEINRICH, S.-H. KIM AND R. L. MERLINO  
Laboratory observations of self-excited dust acoustic shocks  
Phys. Rev. Lett. 103, 115002 (2009).
117. V. NOSENKO, S. K. ZHDANOV, S.-H. KIM, J. HEINRICH, R. L. MERLINO, AND G. E. MORFILL  
Measurements of the power spectrum and dispersion relation for self-excited dust acoustic waves  
Europhys. Letters (EPL) 88, 65001 (2009).
118. R. L. MERLINO  
Dust acoustic waves driven by an ion-dust streaming instability in laboratory discharge dusty plasma experiments  
Phys. Plasmas 16, 124501 (2009).
119. R. L. MERLINO  
Book Review, *Elementary Physics of Complex Plasmas*, Lecture Notes on Physics, Vol. 731, by V. N. Tsytovich, G. E. Morfill, S. V. Vladimirov, and H. M. Thomas, Springer, Berlin Heidelberg, 2008  
J. Plasmas Phys. 75, 709-711 (2009).
120. N. BRENNING, R. L. MERLINO, D. LUNDIN, M. A. RAADU, and U. HELMERSSON  
Faster-than-Bohm cross-B electron transport in strongly pulsed plasmas  
Phys. Rev. Lett. 103, 225003 (2009).
121. R. L. MERLINO  
Dust-Acoustic Waves: Visible Sound Waves  
Proceedings of the 2009 ICTP Summer College on Plasma Physics and the International Symposium on Cutting Edge Plasma Physics, in *New Developments in Nonlinear Plasma Physics*, Edited by Bengt Eliasson and Padma K. Shukla, AIP Conference Proceedings 1188, American Institute of Physics, Melville, NY, 2009, pages 141-152.
122. J. HEINRICH, S.-H. KIM, and R. L. MERLINO  
Supersonic dust jets produced by a dust-discharge instability  
Phys. Plasmas 17, 083702 (2010).
123. M. ROSENBERG, R. L. MERLINO, AND P. K. SHUKLA  
On the possibility of refraction of dust acoustic waves  
Journal of Plasma Physics 77, 231-236 (2011).

124. R. L. MERLINO, J. R. HEINRICH, AND S. H. KIM  
Nonlinear dust acoustic waves, shocks, and stationary structures in a DC glow discharge dusty plasma  
AIP Conf. Proc. 1397, 24 (2011).
125. K. AVINASH, R. L. MERLINO, AND P. K. SHUKLA  
Anomalous dust temperature in dusty plasma experiments  
Phys. Lett. A 375, 2854-2857 (2011).
126. J. HEINRICH, S.-H. KIM, AND R. L. MERLINO  
Observations of a structure-forming instability in a dc-glow-discharge dusty plasma  
Physical Review E 84, 026403 (2011).
127. J. Heinrich, S.-H. Kim, J. MEYER, AND R. L. MERLINO  
Experimental quiescent drifting dusty plasmas and temporal dust acoustic wave growth  
Phys. Plasmas 18, 113706 (8 pages) (2011).
128. K. A. PACHA, J. HEINRICH, S.-H. KIM, AND R. L. MERLINO  
Observation of the Taylor instability in a dusty plasma  
Phys. Plasmas 19, 014501 (2012).
129. R. L. MERLINO  
Second order dust acoustic wave theory  
Physica Scripta 85, 035506 (2012).
130. R. L. MERLINO, J. HEINRICH, S.-H. KIM, and J. K. MEYER  
Nonlinear dust acoustic waves and shocks  
Phys. Plasmas 19, 057301 (2012).
131. K. AVINASH, P. K. SHUKLA and R. L. MERLINO  
The effect of an external magnetic field on a critical point for the phase separation in a dusty plasma  
Phys. Scr. 86, 035504 (2012).
132. R. L. MERLINO, J. R. HEINRICH, S.-H. KIM, and J. K. MEYER  
Dusty Plasmas: Experiments on nonlinear dust acoustic waves, shocks, and structures  
EPS/ICPP 2012 Invited Plenary Talk, Stockholm, Sweden  
Plasma Phys. Control. Fusion 54, 124014 (2012).
133. J. R. HEINRICH, S.-H. KIM, J. K. MEYER, R. L. MERLINO, and M. ROSENBERG  
Secondary dust density waves excited by nonlinear dust acoustic waves  
Phys. Plasmas 19, 083702-1-5 (2012).
134. E. THOMAS, JR., R. L. MERLINO, and M. ROSENBERG  
Magnetized dusty plasmas: the next frontier for complex plasma research  
Plasma Phys. Control. Fusion 54, 124034 (2012).

135. EDWARD THOMAS, JR., ROBERT L. MERLINO, and MARLENE ROSENBERG  
Design criteria for the Magnetized Dusty Plasma eXperiment (MDPX)  
IEEE Trans. Plasma Sci. 41, 811-815 (2013).
136. JOHN K. MEYER, JONATHON R. HEINRICH, SU-HYUN KIM, and ROBERT L. MERLINO  
Interaction of a biased wire with a flowing dusty plasma  
J. Plasma Physics, 79(5). 677-682 (2013).
137. JOHN K. MEYER and ROBERT L. MERLINO  
Transient bow shock around a cylinder in a supersonic dusty plasma  
Phys. Plasmas 20, 074501 (2013).
138. R. FISHER, K. AVINASH, E. THOMAS, R. MERLINO, and V. GUPTA  
Thermal energy density of dust in dusty plasmas: Experiment and Theory  
Phys. Rev. E 88, 031101(R) (2013).
139. M. ROSENBERG and R. L. MERLINO  
Drift instability in a positive ion-negative ion plasma  
J. Plasma Phys. 79 (5), 949-952 (2013).
140. S-H. KIM, R. L. MERLINO, J. K. MEYER, and M. ROSENBERG  
Low-frequency electrostatic waves in a magnetized, current-free heavy negative ion plasma  
Journal of Plasma Physics, 79 (6), 1107-1111 (2013).
141. JOHN K. MEYER, ROBERT L. MERLINO, JONATHON R. HEINRICH, and S. H. KIM  
Flow of dusty plasma around an obstacle  
IEEE Trans. Plasma Sci. 42(10), 2690-2691 (2014).
142. E. THOMAS, JR., A. M. DUBOIS, B. LYNCH, S. ADAMS, R. FISHER, D. ARTIS, S. LEBLANC, U. KONOPKA, R. L. MERLINO, and M. ROSENBERG  
Preliminary characteristics of magnetic field and plasma performance in the Magnetized Dusty Plasma Experiment  
Journal of Plasma Physics, 80, 803-808 (2014).
143. R. L. MERLINO  
25 Years of Dust Acoustic Waves  
Journal of Plasma Physics, 80, 773-786 (2014).
144. E. G. D. COHEN and R. L. MERLINO  
Note on the nature of the transition of a system in a non-equilibrium state to a system in an equilibrium state  
Journal of Computational and Theoretical Transport, vol. 43 (1-7), pp. 3-5 (2014).

145. E. G. D. COHEN and R. L. MERLINO  
Clausius' Entropy Revisited  
Modern Physics Letters B, 28, 1450073 (2014).
146. E. THOMAS JR., B. LYNCH, U. KONOPKA, R. L. MERLINO, and M. ROSENBERG  
Observations of imposed ordered structures in a dusty plasma at high magnetic field  
Phys. Plasmas 22, 030701 (2015).
147. E. THOMAS JR., U. KONOPKA, B. LYNCH, STEPHEN ADAMS, SPENCER LEBLANC,  
R. L. MERLINO, and M. ROSENBERG  
Quasi-discreet particle motion in an externally imposed, ordered structure in a dusty plasma  
at high magnetic field  
Phys. Plasmas 22, 113708 (2015).
148. EDWARD THOMAS, JR., UWE KONOPKA, ROBERT L. MERLINO, and MARLENE  
ROSENBERG  
Initial measurements of two- and three-dimensional ordering, waves, and plasma  
filamentation in the Magnetized Dusty Plasma Experiment (MDPX)  
To be published in Physics of Plasmas (2016).
149. J. K. MEYER and R. L. MERLINO  
Evolution of dust clouds in afterglow plasmas  
To be published in IEEE Trans. Plasma Science (2016).
150. J. K. MEYER, R. L. MERLINO, V. SAXENA, K. AVINASH, and A. SEN  
Coulomb fission of a dusty plasma  
To be submitted to Physics of Plasmas (2016).