Alan R. Denton December 2023
Professor

Department of Physics
North Dakota State University
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EDUCATION

PhD Cornell University, Physics, January 1991
Thesis topic: Density-Functional Theory of Nonuniform Fluids
Thesis advisor: Professor Neil W. Ashcroft

MSc University of Toronto, Physics, October 1984
Thesis topic: Fractal Nature of Clusters in Spinodal Decomposition
Thesis advisor: Professor Rashmi C. Desai

BASc University of Toronto, Engineering Science (Physics Option), Oct. 1983 (Honors)
Thesis topic: Spinodal Decomposition in Binary Liquid Mixtures
Thesis advisor: Professor Rashmi C. Desai

LANGUAGES

English (native), German (proficient), French (intermediate)

PROFESSIONAL EMPLOYMENT

1/2022 – 12/2022: Interim Chair, Dept. of Physics, North Dakota State University

7/2017 – present: Professor, Dept. of Physics, North Dakota State University

5/2005 – 7/2017: Associate Professor, Dept. of Physics, North Dakota State University

8/2000 – 5/2005: Assistant Professor, Dept. of Physics, North Dakota State University

1/99 – 6/2000: Adjunct Professor, Dept. of Physics, Dalhousie University, Canada

7/98 – 6/2000: Assistant Professor, Dept. of Physics, Acadia University, Canada

2/96 – 6/98: Research Scientist, IFF, Research Centre Jülich, Ltd., Germany
Supervisor: Prof. Hartmut Löwen

10/94 – 1/96: Lise-Meitner Fellow, ITP, Technical University of Vienna, Austria
Supervisor: Prof. Jürgen Hafner

5/91 – 9/94: Postdoctoral Fellow, Dept. of Physics, University of Guelph, Canada
Supervisors: Profs. Peter A. Egelstaff, Chris G. Gray, Donald E. Sullivan

10/90 – 4/91: Postdoctoral Fellow, Inst. Materials Research, McMaster University, Canada
Supervisors: Profs. John Berlinsky and Catherine Kallin

6/86 – 10/90: Graduate Research Assistant, Laboratory of Atomic and Solid State Physics, Cornell University, U.S.A. Supervisor: Prof. Neil W. Ashcroft

8/85 – 5/86: Graduate Teaching Assistant, Dept. of Physics, Cornell University, U.S.A.

9/83 – 4/85: Graduate Research and Teaching Assistant, Dept. of Physics, University of Toronto. Teaching Assistant, Dept. of Mathematics, University of Toronto

Summer 1982: NSERC Research Student, Dept. of Physics, University of Toronto. Analysis of data from recoil detector in Fermilab charm photoproduction experiment.

Summer 1981: Research Assistant, Ontario Hydro, Nuclear Studies & Safety Department. Analysis, modification, and testing of program to simulate loss-of-coolant accidents in CANDU heavy-water nuclear reactors.

Summer 1980: Prazmowski & Associates, Engineering Consultants (Burlington, Ontario). Drafting of piping layouts for power plants.

ACADEMIC GRANTS AND AWARDS

National Science Foundation – Materials Theory Program:
"Response of Soft Colloids and Macromolecules to Crowded Environments: Theoretical and Computational Modeling" (DMR-1928073)
Awarded: $266,039 (sole PI) Dates: September 2020 – August 2023

National Science Foundation: CBET – Particulate & Multiphase Processes
"Fluid-Mediated Assembly of Nanocrystalline Silicon" (CBET-1603445)
Awarded $325,571 (co-PI) Dates: August 2016 – July 2019

National Science Foundation – Materials Theory Program:
"Theoretical and Computational Modeling of Soft Materials" (DMR-1106331)
Awarded: $208,000 (sole PI) Dates: September 2011 – September 2014

American Chemical Society Petroleum Research Fund:
"Demixing of Colloid-Polymer Mixtures: Influence of Electrostatic Interactions and Polymer Conformations" (PRF# 44365-AC7)
Awarded: $80,000 (sole PI) Dates: March 2006 – August 2009

National Science Foundation – Materials Theory Program:
"Theoretical and Computational Studies of Macromolecular Materials" (DMR-0204020)
Awarded: $264,000 (sole PI) Dates: July 2002 – June 2005

North Dakota State University Instructional Development Grant:
"Exploring the Essential Quantum Paradox: Laboratory Experiment and Demonstration Tool for Physics Courses, Outreach, and Student Research"
Awarded: $4,500 (lead-PI) Dates: January – December 2010

North Dakota EPSCoR – New Faculty Start-Up Program:
"Center of Excellence in Computational Physics"
Awarded: $80,000 (lead-PI) Dates: May 2004 – April 2006

College of Science and Mathematics Service Award
North Dakota State University, Spring 2021

College of Science and Mathematics Paul Juell Award for Excellence in Mentoring
North Dakota State University, Spring 2017

Nominated for Excellence in Mentoring Award
North Dakota State University, Spring 2017

North Dakota State University Instructional Development Grant:
"Enhancement of Online Learning in Introductory Physics and Computer Science"
Awarded: $2,356 (lead-PI) Dates: January – December 2004

North Dakota EPSCoR – Infrastructure Improvement Program Seed Grant:
"Computational Studies of Macromolecular Systems"
Awarded: $15,000 (sole PI) Dates: June 2002 – April 2003

North Dakota State University Grant-in-Aid Award:
"Phase Transitions in Colloid-Polymer Systems"
Awarded: $7,025 (sole PI) Dates: June 2001 – June 2002

Natural Sciences and Engineering Research Council of Canada Research Grant:
"Statistical Mechanics of Soft Condensed Matter Systems" (Dalhousie University)
Awarded: CDN$20,000 (sole PI) Dates: May 1999 – April 2001

CECAM Workshop Organizing Grant (Lyon, France):
"Effective Interactions and Phase Transitions in Colloidal Suspensions"
Awarded: FF 45,000 (co-organizers: H. Löwen, J. Dhont) Dates: June 28-30, 1999
`http://www.ndsu.edu/pubweb/~denton/cecam/cecam.html`

Acadia University Teaching Innovation Grant: "Online Physics Lab"
Awarded: CDN$5,100 Dates: May – August 1999

Acadia University Research Grant: "Thermodynamic Properties of Colloidal Suspensions"
Awarded: CDN$2,500 Dates: October 1998 – September 1999

Canadian Department of Foreign Affairs and International Trade Research Travel Grant:
"Going Global – Science and Technology with European Partners"
Awarded: CDN$1,933 Dates: winter/spring 1999

Lise-Meitner Postdoctoral Fellowship, Technical University of Vienna (1994-95)

NSERC Postdoctoral Fellowship, University of Guelph (1990-92)

NSERC Postgraduate Scholarships, Cornell University, University of Toronto (1983-89)

NSERC Undergraduate Summer Research Award, University of Toronto (1982)

University of Toronto Scholarships: New College Council (1981-83), Murray F. Southcote (1981-82), Wallberg Admission (1979-81)

PUBLICATIONS

authors: undergraduate^u, graduate^g, postdoctoral^p, corresponding*

[1] M. E. Brito, G. Nägele, and **A. R. Denton***, "Effective interactions, structure, and pressure in charge-stabilized colloidal suspensions: Critical assessment of charge renormalization methods," *J. Chem. Phys.* **159**, 204904-1-26 (2023).

[2] M. O. Alziyadi and **A. R. Denton***, "Osmotic swelling behavior of surface-charged ionic microgels," *J. Chem. Phys.* **159**, 184901-1-11 (2023).

[3] A. C. Nickel, **A. R. Denton**, J. E. Houston, R. Schweins, T. S. Plivelic, W. Richtering, and A. Scotti, "Beyond simple self-healing: How anisotropic nanogels adapt their shape to their environment," *J. Chem. Phys.* **157**, 194901-1-15 (2022).

[4] E. Allahyarov, H. Löwen, and **A. R. Denton**, "Structural correlations in highly asymmetric binary charged colloidal mixtures," *Phys. Chem. Chem. Phys.* **24**, 15439-15451 (2022).

[5] M. O. Alziyadi[g] and **A. R. Denton***, "Osmotic pressure and swelling behavior of ionic microcapsules," *J. Chem. Phys.* **155**, 214904-1-11 (2021).

[6] **A. R. Denton** and W. J. Davis[g], "Influence of solvent quality on depletion potentials in colloid-polymer mixtures," *J. Chem. Phys.* **155**, 084904-1-11 (2021). **editor's pick**

[7] A. Scotti, **A. R. Denton**, M. Brugnoni, R. Schweins, and W. Richtering, "Absence of crystals in the phase behavior of hollow microgels," Phys. Rev. E **103**, 022612-1-20 (2021).

[8] M. E. Brito, **A. R. Denton**, and G. Nägele, "Modeling deswelling, thermodynamics, structure, and dynamics in ionic microgel suspensions," *J. Chem. Phys.* **151**, 224901-1-23 (2019).

[9] S. K. Wypysek, A. Scotti, M. O. Alziyadi[g], I. I. Potemkin, **A. R. Denton**, and W. Richtering, "Tailoring the Cavity of Hollow Charged Microgels by Varying pH and Ionic Strength," *Macromol. Rapid Comm.* **41**, 1900422-1-9 (2019).

[10] **A. R. Denton** and M. O. Alziyadi[g], "Osmotic Pressure of Permeable Ionic Microgels: Poisson-Boltzmann Theory and Exact Statistical Mechanical Relations in the Cell Model," *J. Chem. Phys.* **151**, 074903-1-19 (2019). **editor's pick**

[11] A. Scotti, **A. R. Denton**, M. Brugnoni, J. E. Houston, R. Schweins, I. I. Potemkin, and W. Richtering, "Deswelling of Microgels in Crowded Suspensions Depends on Cross-Link Density and Architecture," *Macromol.* **52**, 3995-4007 (2019).

[12] S. L. Brown, V. D. Shah[g], M. V. Morrell, M. Zubich, A. Wagner, **A. R. Denton**, and E. K. Hobbie, "Superlattice Formation in Colloidal Nanocrystal Suspensions: Hard-Sphere Freezing and Depletion Effects," *Phys. Rev.* E **98**, 062616-1-9 (2018).

[13] W. J. Davis[g] and **A. R. Denton***, "Influence of Solvent Quality on Conformations of Crowded Polymers," *J. Chem. Phys.* **149**, 124901-1-11 (2018).

[14] T. J. Weyer[u] and **A. R. Denton***, "Concentration-Dependent Swelling and Structure of Ionic Microgels: Simulation and Theory of a Coarse-Grained Model," *Soft Matter* **14**, 4530-4540 (2018).

[15] B. M. Weight[u] and **A. R. Denton***, "Structure and Stability of Charged Colloid-Nanoparticle Mixtures," *J. Chem. Phys.* **148**, 114904-1-11 (2018).

[16] **A. R. Denton**, "Effective Electrostatic Interactions in Colloid-Nanoparticle Mixtures," *Phys. Rev.* E **96**, 062610-1-14 (2017).

[17] M. Urich[u] and **A. R. Denton**[*], "Swelling, Structure, and Phase Stability of Compressible Microgels," *Soft Matter* **12**, 9086-9094 (2016). arxiv.org/abs/1610.05295

[18] **A. R. Denton**[*] and Q. Tang[p], "Counterion-Induced Swelling of Ionic Microgels," *J. Chem. Phys.* **145**, 164901-1-10 (2016). arxiv.org/abs/1610.01180

[19] W. K. Lim[u] and **A. R. Denton**[*], "Depletion-Induced Forces and Crowding in Polymer-Nanoparticle Mixtures: Role of Polymer Shape Fluctuations and Penetrability," *J. Chem. Phys.* **144**, 024904-1-10 (2016). arxiv.org/abs/1601.00031

[20] W. K. Lim[u] and **A. R. Denton**[*], "Influence of Polymer Shape on Depletion Potentials and Crowding in Colloid-Polymer Mixtures," *Soft Matter* **12**, 2247-2252 (2016). **back cover** arxiv.org/abs/1601.00030

[21] M. M. Hedrick[u], J. K. Chung[p], and **A. R. Denton**[*], "Structure and Osmotic Pressure of Ionic Microgel Dispersions," *J. Chem. Phys.* **142**, 034904-1-12 (2015). arxiv.org/abs/1410.5528

[22] Q. Tang[p] and **A. R. Denton**[*], "Ion Density Deviations in Semipermeable Ionic Microcapsules," *Phys. Chem. Chem. Phys.* **17**, 11070-11076 (2015). arxiv.org/abs/1507.01721

[23] Q. Tang[p] and **A. R. Denton**[*], "Ion Density Deviations in Polyelectrolyte Microcapsules: Influence on Biosensors," *Phys. Chem. Chem. Phys.* **16**, 20924-20931 (2014). arxiv.org/abs/1410.6548

[24] W. K. Lim[u] and **A. R. Denton**[*], "Polymer Crowding and Shape Distributions in Polymer-Nanoparticle Mixtures," *J. Chem. Phys.* **141**, 114909-1-10 (2014). arxiv.org/abs/1410.6559

[25] J. B. Miller, A. C. P. Usselman, R. J. Anthony, U. R. Kortshagen, A. J. Wagner, **A. R. Denton**, and E. K. Hobbie, "Phase Separation and the 'Coffee-Ring' Effect in Polymer-Nanocrystal Mixtures," *Soft Matter* **10** 1635-1854 (2014). (**cover**)

[26] **A. R. Denton**, "Crowding in Polymer-Nanoparticle Mixtures," in New Models of the Cell Nucleus: Crowding, Entropic Forces, Phase Separation, and Fractals, R. Hancock and K. W. Jeon, Eds., *International Review of Cell and Molecular Biology* **307**, pp. 27-72 (UK: Academic Press 2014).

[27] **A. R. Denton**, "Coarse-Grained Modeling of Charged Colloidal Suspensions: From Poisson-Boltzmann Theory to Effective Interactions," in *Electrostatics of Soft and Disordered Matter*, D. S. Dean, J. Dobnikar, A. Naji, and R. Podgornik, Eds., Proceedings of the CECAM Workshop "New Challenges in Electrostatics of Soft and Disordered Matter", pp. 201-215 (Pan Stanford, 2013). arxiv.org/abs/1212.1758

[28] J. K. Chung[p] and **A. R. Denton**[*], "Effective Electrostatic Interactions in Mixtures of Charged Colloids," *Phys. Rev.* E **88**, 022306-1-9 (2013). arxiv.org/abs/1308.3711

[29] **A. R. Denton**[*] and M. P. Schmidt[u], "Exploring Fluctuations and Phase Equilibria in Fluid Mixtures via Monte Carlo Simulation," *Eur. J. Phys.* **34**, 475-487 (2013). arxiv.org/abs/1211.1468

[30] B. Lu[g] and **A. R. Denton**[*], "Crowding of Polymer Coils and Demixing in Nanoparticle-Polymer Mixtures," *J. Phys.: Condens. Matter* **23**, 285102-1-9 (2011). arxiv.org/abs/1106.5074

[31] **A. R. Denton**, "Poisson-Boltzmann Theory of Charged Colloids: Limits of the Cell Model for Salty Suspensions," *J. Phys.: Condens. Matter* **22**, 364108-1-12 (2010). arxiv.org/abs/1004.4310

[32] B. Lu[g] and **A. R. Denton**[*], "Charge Renormalization, Thermodynamics, and Structure of Deionized Colloidal Suspensions," *Communications in Computational Physics* **7**, 235-249 (2010). Special Issue on *Structure Formation and Evolution in Soft Matter/Complex Fluid Systems.* arxiv.org/abs/0812.2044

[33] **A. R. Denton**, "Charge Renormalization, Effective Interactions, and Thermodynamics of Deionized Colloidal Suspensions," *J. Phys.: Condens. Matter* **20**, 494230-1-8 (2008). arxiv.org/abs/0809.3776

[34] **A. R. Denton**, "Effective Interactions in Soft Materials," in *Nanostructured Soft Matter: Experiment, Theory, Simulation and Perspectives*, A. V. Zvelindovsky, Ed., pp. 395-433 (Springer, Dordrecht, 2007). arxiv.org/abs/0711.4629

[35] **A. R. Denton**, "Electroneutrality and Phase Behavior of Colloidal Suspensions," *Phys. Rev.* E **76**, 051401 (2007). arxiv.org/abs/cond-mat/0610800

[36] B. Lu[g] and **A. R. Denton**[*], "Phase Separation of Charge-Stabilized Colloids: A Gibbs Ensemble Monte Carlo Simulation Study," *Phys. Rev.* E **75**, 061403-1-10 (2007). arxiv.org/abs/cond-mat/0611072

[37] **A. R. Denton**, "Phase Separation in Charge-Stabilized Colloidal Suspensions: Influence of Nonlinear Screening," *Phys. Rev.* E **73**, 041407-1-14 (2006). arxiv.org/abs/cond-mat/0605088

[38] H. Wang[p] and **A. R. Denton**[*], "Effective Electrostatic Interactions in Solutions of Polyelectrolyte Stars with Rigid Rodlike Arms," *J. Chem. Phys.* **123**, 244901-1-9 (2005). arxiv.org/abs/cond-mat/0510678

[39] **A. R. Denton**[*] and M. Schmidt[p], "Mixtures of Charged Colloid and Neutral Polymer: Influence of Electrostatic Interactions on Demixing," *J. Chem. Phys.* **122**, 2449111-1-7 (2005). arxiv.org/abs/cond-mat/0505249

[40] H. Wang[p] and **A. R. Denton**[*], "Effective Electrostatic Interactions in Suspensions of Polyelectrolyte Brush-Coated Colloids," *Phys. Rev.* E **70**, 041404-1-8 (2004). arxiv.org/abs/cond-mat/0409380

[41] **A. R. Denton**, "Nonlinear Screening and Effective Electrostatic Interactions in Charge-Stabilized Colloidal Suspensions," *Phys. Rev.* E **70**, 031404-1-18 (2004). arxiv.org/abs/cond-mat/0405126

[42] **A. R. Denton**, "Counterion Penetration and Effective Electrostatic Interactions in Solutions of Polyelectrolyte Stars and Microgels," *Phys. Rev.* E **67**, 011804-1-10 (2003). arxiv.org/abs/cond-mat/0302598

[43] M. Schmidt[p], **A. R. Denton**, and J. M. Brader, "Fluid Demixing in Colloid-Polymer Mixtures: Influence of Polymer Interactions," *J. Chem. Phys.* **118**, 1541-1549 (2003).

[44] **A. R. Denton***, M. Schmidt[p], "Colloid-Induced Polymer Compression," *J. Phys.: Condens. Matter* **14**, 12051-12062 (2002). `arxiv.org/abs/cond-mat/0302599`

[45] M. Schmidt[p] and **A. R. Denton**, "Colloid-Polymer Mixtures in Poor Solvents," *Phys. Rev.* E **65**, 061410-1-6 (2002). `arxiv.org/abs/cond-mat/0204330`

[46] M. Schmidt[p] and **A. R. Denton**, "Colloids, Polymers, and Needles: Demixing Phase Behavior," *Phys. Rev.* E **65**, 021508-1-8 (2002).

[47] **A. R. Denton**, "Nonlinear Screening and Effective Interactions in Charged Colloids," `arxiv.org/abs/cond-mat/0110096` (2001).

[48] H. Löwen, M. Watzlawek, C. N. Likos, M. Schmidt, A. Jusufi, H. Graf, **A. R. Denton**, and C. von Ferber, "Phase Transitions in Soft Matter Systems," CP519, *Statistical Physics*, edited by M. Tokuyama and H. E. Stanley, 140-150 (2000).

[49] H. Löwen, M. Watzlawek, C. N. Likos, M. Schmidt, A. Jusufi, H. Graf, and **A. R. Denton**, "Phase Transitions in Colloidal Suspensions and Star Polymer Solutions," *J. Phys.: Condens. Matter* **12**, A465-A469 (2000).

[50] J. Roth and **A. R. Denton**, "The Solid-Phase Structures of the Dzugutov Pair Potential," *Phys. Rev.* E **61**, 6845-6857 (2000).

[51] **A. R. Denton**, "Effective Interactions and Volume Energies in Charged Colloids: Linear Response Theory," *Phys. Rev.* E **62**, 3855-3864 (2000).

[52] **A. R. Denton**, "Effective Interactions and Volume Energies in Charge-Stabilized Colloidal Suspensions," *J. Phys.: Condens. Matter* **11**, 10061-10071 (1999).

[53] **A. R. Denton***, G. Kahl, and J. Hafner, "Freezing of Simple Liquid Metals," *J. Non-Crystalline Solids* **250-252**, 15-19 (1999).

[54] **A. R. Denton***, H. Löwen, "Stability of Colloidal Quasicrystals," *Phys. Rev. Lett.* **81**, 469-472 (1998).

[55] **A. R. Denton*** and H. Löwen, "Influence of Short-Range Attractive and Repulsive Interactions on the Phase Behaviour of Model Colloidal Suspensions," *J. Phys.: Condens. Matter* **9**, 8907-8919 (1997).

[56] **A. R. Denton*** and H. Löwen, "Unusual Phase Behaviour from Peculiar Pair Potentials," Prog. Coll. Int. Sci. **104**, 160-162 (1997) [Proceedings of the International Workshop on Optical Methods and the Physics of Colloidal Dispersions, 30.9 – 1.10.1996, Mainz, Germany].

[57] **A. R. Denton*** and H. Löwen, "Isostructural Solid-Solid Transitions in Square-Shoulder Systems," *J. Phys.: Condens. Matter* **9**, L1-L5 (1997).

[58] **A. R. Denton*** and J. Hafner, "Thermodynamically Stable One-Component Metallic Quasicrystals," *Europhys. Lett.* **38**, 189-194 (1997).

[59] **A. R. Denton*** and J. Hafner, "Thermodynamically Stable One-Component Quasicrystals: A Density-Functional Survey of Relative Stabilities," *Phys. Rev.* B **56**, 2469-2482 (1997).

[60] **A. R. Denton***, P. Nielaba, N. W. Ashcroft, "Density-Functional Theory of Quantum Freezing: Sensitivity to Liquid-State Structure and Statistics," *J. Phys.: Condens. Matter* **9**, 4061-4080 (1997).

[61] **A. R. Denton*** and P. A. Egelstaff, "Implicit Finite-Size Effects in Computer Simulations," *Z. Phys.* B **103**, 343-349 (1997).

[62] J. J. Salacuse, **A. R. Denton**, and P. A. Egelstaff, "Finite-Size Effects in Molecular Dynamics Simulations: Static Structure Factor and Compressibility I. Theoretical Method," *Phys. Rev.* E **53**, 2382-2389 (1996).

[63] J. J. Salacuse, **A. R. Denton**, P. A. Egelstaff, M. Tau, and L. Reatto, "Finite-Size Effects in Molecular Dynamics Simulations: Static Structure Factor and Compressibility II. Application to a Model Krypton Fluid," *Phys. Rev.* E **53**, 2390-2401 (1996).

[64] **A. R. Denton***, N. W. Ashcroft, and W. A. Curtin, "Density-Functional Approach to the Equation of State of a Hard-Sphere Crystal," *Phys. Rev.* E **51**, 65-73 (1995).

[65] **A. R. Denton***, C. G. Gray, and D. E. Sullivan, "Orientational Ordering of Surfactant Monolayers Adsorbed at the Air-Water Interface: Structural Model and Fit to Neutron Reflectivity Data," *Chem. Phys. Lett.* **219**, 310-318 (1994).

[66] **A. R. Denton** and N. W. Ashcroft, "Weighted-Density-Functional Theory of Nonuniform Fluid Mixtures: Application to the Structure of Binary Hard-Sphere Mixtures Near a Hard Wall," *Phys. Rev.* A **44**, 8242-8248 (1991).

[67] **A. R. Denton** and N. W. Ashcroft, "Density-Functional Approach to the Structure of Classical Uniform Fluids," *Phys. Rev.* A **44**, 1219-1227 (1991).

[68] **A. R. Denton**, N. W. Ashcroft, "Vegard's Law," *Phys. Rev.* A **43**, 3161-3164 (1991).

[69] **A. R. Denton**, P. Nielaba, K. J. Runge and N. W. Ashcroft, "Freezing of a Quantum Hard-Sphere Liquid at Zero Temperature: A Density-Functional Approach," *J. Phys.: Condens. Matter* **3**, 593-607 (1991).

[70] **A. R. Denton** and N. W. Ashcroft, "Weighted-Density-Functional Theory of Nonuniform Fluid Mixtures: Application to Freezing of Binary Hard-Sphere Mixtures," *Phys. Rev.* A **42**, 7312-7329 (1990).

[71] **A. R. Denton**, P. Nielaba, K. J. Runge, N. W. Ashcroft, "Freezing of a Quantum Hard-Sphere Liquid at Zero Temperature: A Density-Functional Approach," *Phys. Rev. Lett.* **64**, 1529-1532 (1990).

[72] **A. R. Denton** and N. W. Ashcroft, "Reply to Comment on 'Modified Weighted-Density-Functional Theory of Nonuniform Classical Liquids'," *Phys. Rev.* A **41**, 2224-2226 (1990).

[73] **A. R. Denton** and N. W. Ashcroft, "Modified Weighted-Density-Functional Theory of Nonuniform Classical Liquids," *Phys. Rev.* A **39**, 4701-4708 (1989).

[74] **A. R. Denton** and N. W. Ashcroft, "High-Order Direct Correlation Functions of Uniform Classical Liquids," *Phys. Rev.* A **39**, 426-429 (1989).

[75] R. C. Desai and **A. R. Denton**, "Fractal Properties of Clusters During Spinodal Decomposition," in *On Growth and Form*, ed. H. E. Stanley, N. Ostrowsky (Martinus Nijhoff, Dordrecht, 1986).

CONFERENCES AND PRESENTATIONS

Invited Seminar: Department of Physics, University of North Dakota, April 21, 2023.
"Modeling Particle Dispersions: From Charged Colloids to Ionic Microgels"

Invited Seminar: Conference on "Dispersions of Charged Particles: A Century of Theoretical Development," Universidad Veracruzana, Mexico, March 30, 2023.
"Modeling Particle Dispersions: From Charged Colloids to Ionic Microgels"

March Meeting of American Physical Society, Las Vegas, NV, March 6-10, 2023.
M. O. Alziyadi and A. R. Denton, "Osmotic Swelling Behavior and Structure of Ionic Microgel Mixtures"
M. Aryal and A. R. Denton, "Folding of Biopolymers in Crowded Environments"

Canadian Association of Physicists Congress, Hamilton, Canada, June 6-9, 2022.
"Osmotic Pressure and Swelling of Permeable Ionic Microgels"

March Meeting of American Physical Society, Chicago, IL, March 14-18, 2022.
A. R. Denton and W. J. Davis, "Depletion Potentials in Colloid-Polymer Mixtures: Influence of Solvent Quality"
M. Aryal, A. R. Denton, "Computational Modeling of Microgel-Nanoparticle Mixtures"

March Meeting of American Physical Society, Denver, CO, March 16-20, 2020 (cancelled).
A. Scotti, A. R. Denton, M. Brugnoni, R. Schweins, and W. Richtering, "Do Cavities Matter? Suppression of Crystallization in Hollow Microgel Solutions"
M. O. Alziyadi, A. R. Denton, "Osmotic Swelling Behavior of Ionic Cylindrical Microgels"
K. VanDonselaar, K. Kurtti, A. R. Denton, "Response of Polymer Conformations to Crowded Environments"
(Alziyadi and VanDonselaar presented at NDSU Department of Physics symposium.)

Invited Seminar: Department of Mathematics, North Dakota State Univ., April 16, 2019.
"Mathematical Challenges of Modeling Macromolecules in Crowded Solutions"

Invited Talk: CECAM Workshop on Charged Species in Bulk and Interfaces: Mobility and Motility of Macromolecular Systems: Vienna, Austria, Sept. 24-27, 2018.
"Coarse-Grained Modeling of Macroionic Mixtures: Colloids, Nanoparticles, Microgels"

Invited Seminar: Forschungszentrum Jülich, Germany, July 17, 2018.
"Coarse-Grained Modeling of Colloid-Nanoparticle Mixtures"

Invited Talk: 2nd Joint Summer School SFB 985 & Georgia Institute of Technology: Functional Microgels and Microgel Systems: Monschau, Germany, July 9-12, 2018.
"Swelling, Structure and Thermodynamics of Ionic (and Nonionic) Microgels: Theoretical and Simulation Modeling"

March Meeting of American Physical Society, Los Angeles, CA, March 5-9, 2018.
W. J. Davis, A. R. Denton, "Polymer Confinement via Crowding: Influence of Solvent Quality on Conformations"
M. Alziyadi, A. Denton, "Osmotic Swelling Behavior of Polyelectrolyte Microcapsules"
V. D. Shah, A. R. Denton, S. L. Brown, E. K. Hobbie, "Guiding Self-Assembly of Functionalized Nanoparticles by Computational Modeling of Effective Interactions"
B. M. Weight, A. R. Denton, "Swelling and Structural Properties of Polymer Microgels: Simulations of a Coarse-Grained Model"
C. Snell, A. R. Denton, "Swelling, Structure, and Phase Behavior of Microgel Mixtures"

Invited Seminar: University of Guelph, Guelph, Canada, Dec. 21, 2017.
"Thermal and Structural Properties of Microgel Suspensions"

Canadian Association of Physicists Congress, Kingston, Canada, May 28-30, 2017.
"Modelling Soft Colloidal Particles in Crowded Environments" (invited talk)

March Meeting of the American Physical Society, New Orleans, LA, March 13-17, 2017.
W. Davis, A. Denton, "Polymer Crowding in Confined Polymer-Nanoparticle Mixtures"
V. D. Shah, A. R. Denton, S. L. Brown, E. K. Hobbie, "Structure and Stability of Self-Assembling Nanoparticle Dispersions"
B. M. Weight, A. R. Denton, "Structure and Stability of Colloid-Nanoparticle Mixtures"
A. R. Denton, "Swelling, Structure, and Phase Stability of Soft, Compressible Microgels"

Invited Talk: CECAM Workshop on Structure Formation in Soft Colloids, Technical University of Vienna, Austria, September 19-22, 2016.
"Structure and Stability of Soft Colloids in Crowded Environments"

Invited Talk: CECAM Workshop on Interactions and Transport of Charged Species in Bulk and at Interfaces, Technical University of Vienna, Austria, July 4-7, 2016.
"Counterion-Induced Swelling of Ionic Microgels and Microcapsules"

March Meeting of American Physical Society, Baltimore, MD, March 2-6, 2016.
"Swelling, Compressibility, and Phase Behavior of Soft Ionic Microgels"

Invited Colloquium: Department of Physics, Minnesota State University Moorhead, Oct. 16, 2015. "From Giant Molecules to Soft Materials"

Invited Seminar: School of Physics, Georgia Institute of Technology, Atlanta, GA, April 14, 2015. "Microgels as Chemical Sensors and Drug Delivery Vehicles"

North Dakota EPSCoR State Conference, Fargo, ND, April 22, 2015.
M. M. Hedrick and A. R. Denton, "Molecular Dynamics Simulations of Ionic Micro-

gel Dispersions in the Cell Model"; W. K. Lim and A. R. Denton, "Polymer Shapes, Depletion, and Crowding in Polymer-Nanoparticle Mixtures"

March Meeting of the American Physical Society, San Antonio, TX, March 1-6, 2015.
W. K. Lim and A. R. Denton, "Polymer Crowding and Depletion-Induced Interactions in Polymer-Nanoparticle Mixtures"
A. R. Denton, "Osmotic Pressure in Ionic Microgel Dispersions"

Seminar: Department of Physics, North Dakota State University, Dec. 1, 2014.
"Microgels as Chemical Sensors and Drug Delivery Vehicles"

Invited Colloquium: Department of Physics, South Dakota State University,
Nov. 19, 2014. "From Giant Molecules to Soft Materials"

March Meeting of the American Physical Society, Denver, CO, March 2-7, 2014.
W. K. Lim and A. R. Denton, "Influence of Crowding on Polymer Conformations in Polymer-Nanoparticle Mixtures: Monte Carlo Simulations"; Q. Tang and A. R. Denton, "Polyelectrolyte Microcapsules: Ion Distributions from a Poisson-Boltzmann Model"; A. R. Denton and S. May, "Coarse-Grained Modeling of Polyelectrolyte Solutions"

Invited Seminar: Department of Physics, University of Prince Edward Island, Charlottetown, PEI, Canada, Dec. 10, 2013. "Multiscale Modelling of Screening and Crowding in Soft Materials"

Invited Seminar: Department of Physics and Physical Oceanography, Memorial University of Newfoundland, St. John's, NL, Canada, Dec. 5, 2013. "Multiscale Modelling of Screening and Crowding in Soft Materials"

Seminar: Department of Physics, North Dakota State University, Nov. 25, 2013.
"Hydration and Screening in Ionic Mixtures: Multiscale Modeling"

Congress of the Canadian Association of Physicists, University of Montreal, May 27-31, 2013, Invited Talk: "Multiscale Modelling of Nanocomposite Soft Materials"

March Meeting of the American Physical Society, Baltimore, MD, March 17-22, 2013.
J. K. Chung and A. R. Denton, "Coarse-Grained Modeling of Mixtures of Charged Macroions"; A. R. Denton, "Coarse-Grained Modeling of Colloid-Nanoparticle Mixtures"

Gordon Research Conference on Colloidal, Macromolecular, & Polyelectrolyte Solutions, Ventura, CA, Feb. 5-10, 2012. "Charged Colloid-Polymer Mixtures: From Interactions to Phase Stability"

Invited Colloquium: Department of Physics, Brandon University Brandon, Manitoba, March 30, 2012. "Stability of Nanomaterials: A Multiscale Modelling Approach"

North Dakota Symposium on Fluid Dynamics and Interfacial Phenomena, North Dakota State University, April 25, 2012. Invited Talk: "Soft Matter on the Edge: Multiscale Modeling of Charged Colloids"

Invited Talk: CECAM Workshop on New Challenges in Electrostatics of Soft and Disordered Matter, University of Toulouse, France, May 7-10, 2012. Invited Talk: "Coarse-

Grained Modelling of Charged Colloidal Mixtures"

Sustainable Materials and Light Driven Processes, North Dakota State University, Sept. 29, 2012. Invited Talk: "Multiscale Modeling of Colloid-Nanoparticle Mixtures"; "Colloid-Nanoparticle Mixtures as Templates for Photonic Band Gap Materials," J. K. Chung, B. J. Johnson, and A. R. Denton

Seminar: Department of Physics, North Dakota State University, Oct. 22, 2012. "From Colloids and Nanoparticles to Quantum Computers"

Conference and Summer School: Growth of Hierarchical Functional Materials in Complex Fluids ITPC/ITP-CAS, Beijing, China, July 5 - Aug. 5, 2011. Invited Talks: "Polymer Shapes and Demixing in Colloid-Polymer Mixtures"; "Charged Colloid-Polymer Mixtures: Where Electrostatics Meets Depletion"

Discrete Simulation in Fluid Dynamics Conference, North Dakota State University, Aug. 8-12, 2011. A. R. Denton and S. May, "Polymer Shapes and Demixing in Colloid-Polymer Mixtures"

North Dakota EPSCoR State Conference, North Dakota State University, Oct. 4, 2011. M. P. Schmidt and A. R. Denton, "Demixing of Colloid-Polymer Mixtures: Gibbs Ensemble Monte Carlo Simulations with an Implicit Vapor Phase"

Forum on Materials and Nanotechnology, North Dakota State University, June 9, 2011. "Charged Colloid-Polymer Mixtures: Where Electrostatics Meets Depletion"

Invited Colloquium: Department of Physics, Minnesota State University Moorhead, Sept. 16, 2011. "Soft Matter Physics: Hard Challenges Ahead"

Seminar: Department of Physics, North Dakota State University, Nov. 16, 2011. "Charged Colloid-Polymer Mixtures: From Interactions to Phase Stability"

Invited Seminar: Institute of Theoretical Physics, University of Düsseldorf, Germany, Nov. 9, 2009. "Polymer Shapes: A Random Walk from Depletion to Demixing in Colloid-Polymer Mixtures"

Invited Talk: Jülich Soft Matter Days Conference, Bonn, Germany, Nov. 10-13, 2009. "Poisson-Boltzmann Theory of Charged Colloids: Limits of the Cell Model for Salty Suspensions"

Invited Talk: CECAM Workshop on Applications of Classical Density-Functional Theory in Soft and Hard Matter, Lausanne, Switzerland, Oct. 21-23, 2009. "Density-Functional Methods for Effective Interactions in Soft Materials"

Invited Seminar: Department of Physics, University of Manitoba, Sept. 25, 2009. "How the Polymer Got Its Shape: Squeezed States and Demixing in Soft Materials"

Invited Seminar: Department of Physics, University of North Dakota, Oct. 10, 2008. "Seeing the Light through Colloidal Crystals"

Invited Seminar: Department of Mathematics, North Dakota State University, Nov. 20, 2008. "Polymer Geometry: A Random Walk from Fractals to Ellipsoids"

Invited Seminar: Department of Electrical & Computer Engineering, North Dakota State University, Feb. 19, 2008. "Colloidal Crystals: From Physics to Engineering"

7$^{\text{th}}$ Liquid Matter Conference, Lund, Sweden, June 27-July 1, 2008. A. R. Denton, "Demixing of Charged Colloid-Polymer Mixtures"; A. R. Denton, "The Donnan Effect and Phase Stability of Deionized Colloidal Suspensions"

82$^{\text{nd}}$ Am. Chem. Soc. Colloid & Surface Science Symp., Raleigh, NC, June 15-18, 2008. "The Donnan Effect and Phase Stability of Deionized Colloidal Suspensions"

Gordon Research Conference on Colloidal, Macromolecular, and Polyelectrolyte Solutions, Ventura, CA, Feb. 3-8, 2008. "Demixing of Charged Colloid-Polymer Mixtures"

Workshop on Structure Formation and Evolution in Soft Matter/Complex Fluids Beijing International Center for Mathematical Research, Dec. 3-7, 2007. Invited talk: "Charge Renormalization and Phase Behavior in Colloidal Suspensions"

March Meeting of the American Physical Society, Denver, CO, March 5-9, 2007.
B. Lu and A. R. Denton, "Colloid-Polymer Demixing in the Protein Limit: A Simulation Study" A. R. Denton, "Phase Behavior of Charged Colloids: Closed versus Donnan Equilibrium"

March Meeting of the American Physical Society, Baltimore, MD, March 12-17, 2006.
B. Lu, A. R. Denton, "Phase Behavior of Charged Colloid-Polymer Mixtures: Simulation"
A. R. Denton, "Demixing of Charged Colloid-Polymer Mixtures: Variational Theory"

Gordon Research Conference on Colloidal, Macromolecular, and Polyelectrolyte Solutions, Ventura, CA, Feb. 5 - 10, 2006. "Charge Renormalization and Phase Separation in Deionized Colloidal Suspensions"

6th Liquid Matter Conference, Utrecht, The Netherlands, July 2-6, 2005. B. Lu and A. R. Denton, "Anomalous Phase Behaviour of Charged Colloids: A Simulation Study"; A. R. Denton, "Phase Separation in Charged Colloids: Influence of Nonlinear Screening."

March Meeting of the American Physical Society, Los Angeles, CA, March 20-25, 2005.
B. Lu and A. R. Denton, Phase Separation in Charge-Stabilized Colloidal Suspensions: A Simulation Study" S. Shenoy and A. R. Denton, "Effect of Polymer Compression on Demixing of Colloid-Polymer Mixtures: Gibbs Ensemble Monte Carlo Simulation" H. Wang and A. R. Denton, Orientational Anisotropy and Effective Electrostatic Interactions in Polyelectrolyte Star Solutions" A. R. Denton, "Phase Separation in Charged Colloids: Influence of Nonlinear Screening"

North Dakota EPSCoR Undergraduate Poster Session, Fargo, ND, Aug. 3, 2004. J. C. Maxwell, D. Li, and A. R. Denton, "Melting of Two-Dimensional Colloidal Crystals: A Computer Simulation Study"

Gordon Research Conference on "Complex Fluids," New London, NH, July 4-9, 2004.
H. Wang and A. R. Denton, "Polyelectrolyte Stars: Influence of Arm Anisotropy on Electrostatic Interactions"; A. R. Denton, "Charge Renormalization, Effective Interactions, and Phase Behavior in Charged Colloids"

Invited Seminar: Society of Physics Students, North Dakota State University, April 15, 2004. "From Giant Molecules to Soft Materials"

Gordon Research Conference on "Colloidal, Macromolecular, and Polyelectrolyte Solutions," Ventura, CA, Jan. 31-Feb. 5, 2004. H. Wang and A. R. Denton, "Effective Electrostatic Interactions in Suspensions of Polyelectrolyte-Coated Colloids"; B. Lu and A. R. Denton, "Gibbs Ensemble Monte Carlo Simulation of Charged Colloids with Effective Interactions"; S. Shenoy and A. R. Denton, "Phase Separation in Colloid-Polymer Mixtures: Gibbs Ensemble Monte Carlo Simulation"; A. R. Denton, "Charge Renormalization, Effective Interactions, and Thermodynamics of Colloidal Suspensions"

Invited Seminar: Dept. of Polymers & Coatings, North Dakota State University, October 3, 2003. "Effective Electrostatic Interactions in Colloidal and Polyelectrolyte Systems"

Seminar: Dept. of Physics, North Dakota State University, September 17, 2003 "Effective Electrostatic Interactions in Colloidal and Polyelectrolyte Systems"

4th Biennial ND/SD Joint EPSCoR Conference, Fargo, Sept. 5, 2003. S. Shenoy, B. Lu, and A. R. Denton, "Charge Renormalization and Thermodynamics of Colloidal Crystals"

Invited Seminar: Materials Research Society Student Chapter, North Dakota State University, June 24, 2003. "Soft Matter: From Microscopics to Materials"

Los Alamos National Laboratory Conference on "The Monte Carlo Method in the Physical Sciences," Los Alamos, NM, June 9-11, 2003. B. Lu, S. Shenoy, and A. R. Denton, "Charge Renormalization and Thermodynamics of Colloidal Crystals"

Invited Seminar: Dept. of Physics, Concordia College, February 20, 2003. "Soft Matter: From Microscopics to Materials"

Invited Seminar: Dept. of Physics, University of North Dakota, October 11, 2002. "Phase Separation in Macromolecular Solutions"

5^{th} Liquid Matter Conference, Konstanz, Germany, Sept. 14-18, 2002.

Seminar: Dept. of Physics, North Dakota State University, Sept. 4, 2002. "Can Like Charges Attract? Phase Separation in Colloidal Suspensions"

Gordon Research Conference on Colloidal, Macromolecular, and Polyelectrolyte Solutions, Ventura, CA, February 3-8, 2002. "Effective Interactions in Solutions of Polyelectrolyte Stars and Microgels"

Invited Seminar: Institute for Theoretical Physics, University of Düsseldorf, July 25, 2001. "Effective Interactions in Charged Colloids"

Invited Seminar: Argonne National Laboratory, Materials Science Division, June 26, 2001. "Macromolecular Systems: Can Like Charges Attract?"

Principles of Soft Matter – Los Alamos National Laboratory, Center for Nonlinear Studies, 21st Annual International Conference, May 21-25, 2001. "Effective Three-Body Interactions in Charged Colloids"

Invited Seminar: – Dept. of Chemistry, University of Missouri – Kansas City, April 12, 2001. "Effective Interactions in Charged Colloids"

Invited Seminar: Dept. of Physics, University of North Dakota, November 17, 2000. "Colloidal Suspensions: Can Like Charges Attract?"

Workshop on Opportunities in Materials Theory 2000, National Science Foundation, Arlington, VA, October 4-6, 2000.

Congress of the Canadian Association of Physicists, Toronto, Canada, June 3-7, 2000. "Charged Colloids: Can Like Charges Attract?"

Invited Seminar: Dept. of Physics, University of Prince Edward Island, April 28, 2000. "Colloidal Suspensions: From Interactions to Phase Behaviour"

Invited Seminar: Dept. of Physics, North Dakota State University, March 20, 2000. "Colloidal Suspensions: From Interactions to Phase Behavior"

Invited Seminar: Dept. of Physics, The George Washington University, February 28, 2000. "Colloidal Suspensions: From Interactions to Phase Behavior"

Gordon Research Conference on Colloidal, Macromolecular, and Polyelectrolyte Solutions, Ventura, CA, February 6-11, 2000. "Effective Interactions and Volume Energies in Charged Colloids"

NAWeb 99 – The Fifth International Conference on Web-Based Learning, Fredericton, Canada, October 2-5, 1999. Anne M. Denton and Alan R. Denton, "Physics Demonstrations in Java" (http://www.unb.ca/wwwdev/naweb99).

4^{th} Liquid Matter Conference, Granada, Spain, July 3-7, 1999. "Effective Interactions and Phase Behaviour in Charge-Stabilized Colloidal Suspensions"

Congress of the Canadian Association of Physicists, Fredericton, Canada, June 6-9, 1999. Invited Talk: "Effective Interactions and Phase Behaviour in Colloidal Suspensions"

Meeting of the American Physical Society, Atlanta, March 20-26, 1999. "Effective Interactions and Phase Behavior in Charge-Stabilized Colloidal Suspensions"

Atlantic Undergraduate Physics & Astronomy Conference, Charlottetown, Canada, February 5-7, 1999.

Liquid and Amorphous Metals (LAM-10) Conference, Dortmund, Germany, Aug. 30-Sept. 4, 1998. Contributed paper: "Freezing of Simple Liquid Metals"

Satellite Meeting to STATPHYS 20 – Applications of Field Theory to Statistical Physics: Soft Condensed Matter, Nonequilibrium and Boundary Critical Phenomena, Bonn, Germany, July 15-18, 1998. "Stability of Colloidal Quasicrystals"

Congress of the Canadian Association of Physicists, Waterloo, Canada, June 14-17, 1998. "Stability of Colloidal Quasicrystals"

Invited Seminar: Institute of Physics, University of Chemnitz, Germany, June 3, 1998.

"Stability of Colloidal Quasicrystals"

Invited Seminar: Dept. of Physics, Acadia University, Canada, May 19, 1998. "Stability of Colloidal Quasicrystals"

Invited Seminar: Institute for Theoretical and Applied Physics, University of Stuttgart, May 5, 1998. "Stability of Colloidal Quasicrystals"

Gordon Research Conference on Colloidal, Macromolecular, and Polyelectrolyte Solutions, Ventura, CA, Feb. 8-13, 1998. "Stability of Colloidal Quasicrystals"

Invited Seminar: Dept. of Physics, Dalhousie University, November 24, 1997. "Colloidal Suspensions: From Interactions to Phase Behaviour"

Gordon Research Conference on Physics and Chemistry of Liquids, Holderness, NH, August 3-8, 1997. "Metallic and Colloidal Quasicrystals"

Invited Seminar: Condensed Matter Theory Group, Imperial College, July 7, 1997. "Unusual Phase Behaviour in Colloidal Suspensions"

Invited Seminar: Dept. of Physics, University of Prince Edward Island, May 1, 1997. "Stability of Metallic and Colloidal Quasicrystals"

Invited Seminar: Board of Directors Meeting, IFF, Forschungszentrum Jülich, April 24, 1997. "Phase Behaviour of Soft Condensed Matter Systems"

Invited Colloquium: Universität Düsseldorf, January 16, 1997. "From Liquids to Crystals and Quasicrystals"

International Workshop on Optical Methods and the Physics of Colloidal Dispersions, Mainz, Germany, Sept. 30-Oct. 1, 1996. "Unusual Phase Behaviour from Peculiar Pair Potentials"

Invited Seminar: Dept. of Materials, University of Oxford, July 12, 1996. "Relative Stabilities of Crystals and Quasicrystals"

3^{rd} Liquid Matter Conference, Norwich, England, July 6-10, 1996. "Unusual Phase Behaviour in Model Colloidal Suspensions" (poster).

March Meeting, German Physical Society, Regensburg, March 25-29, 1996. "Density-Functional Theory of Nonuniform Liquid Metals: Freezing into Crystal and Quasicrystal Structures"

Gordon Research Conference on Physics and Chemistry of Liquids, Holderness, NH, Aug. 6-11, 1995. "Implicit Finite-Size Effects in Molecular Dynamics Simulations"

Invited Seminar: Sektion Physik der Universität München, July 11, 1995. "Freezing of Ground-State Quantum Liquids"

March Meeting of the American Physical Society, San Jose, March 20-24, 1995. "Finite-Size Effects in Molecular Dynamics Simulations"

Invited Seminar: Institut für Physik, Universität Mainz, February 14, 1995. "Freezing of

Quantum Liquids at Zero Temperature: A Density-Functional Approach"

Seventh International Workshop on Computational Condensed Matter Physics: Total Energy and Force Methods, Trieste, January 11-15, 1995. "Freezing of Quantum Liquids at Zero Temperature: A Density-Functional Approach"

Invited Colloquium: Dept. of Physics, Brock University, January 27, 1994. "Orientational Ordering in Surfactant Monolayers"

2^{nd} Liquid Matter Conference, Florence, Italy, September 18-22, 1993. "Orientational Ordering of Surfactant Monolayers Adsorbed at the Air-Water Interface: Structural Model and Fit to Neutron Reflectivity Data"; "Finite-Size Effects in a Molecular Dynamics Simulation: Compressibility of a Dense Krypton Fluid"

Gordon Research Conference on Physics and Chemistry of Liquids, Holderness, NH, August 8-13, 1993

March Meeting of the American Physical Society, Anaheim, March 12-16, 1990. "Density-Functional Approximation for the Uniform-Liquid Bridge Function"; "Freezing of a Quantum Hard-Sphere Liquid at Zero Temperature: A Density-Functional Approach"

Gordon Research Conference on Molten Salts and Liquid Metals, Wolfeboro, NH, August 7-11, 1989. "Order-Disorder Transitions in Binary Alloys: A Density-Functional Approach"

Seminar: Summer School on Liquids, Freezing, and Glass Transition, Les Houches, France, July 3-28, 1989. "Density-Functional Theory of Freezing of Binary Hard-Sphere Mixtures"

March Meeting of the American Physical Society, St. Louis, March 20-24, 1989. "Density-Functional Theory of Binary Liquid Wetting"

March Meeting of the American Physical Society, New Orleans, March 21-25, 1988. "Density-Functional Theory of Inhomogeneous Mixtures and Application to Freezing"

Gordon Research Conference on Molten Salts and Liquid Metals, Wolfeboro, NH, August 17-21, 1987. "Density-Functional Theory of Freezing of Binary Hard-Sphere Mixtures"

March Meeting of the American Physical Society, New York, March 16-20, 1987. "Weighted-Density-Functional Theory of Freezing for a Binary Hard-Sphere Mixture"

TEACHING EXPERIENCE

North Dakota State University

Spring 2024: PHYS 752 (Mathematical Methods in Physics)
Spring 2023: PHYS 361 (Electromagnetic Theory)
Fall 2022: PHYS 355 (Classical Mechanics)
Spring 2022: PHYS 758 (Statistical Physics)
Fall 2021: PHYS 251 (University Physics I)
Spring 2021: PHYS 361 (Electromagnetic Theory)

PHYS 752 (Mathematical Methods in Physics)
Fall 2020: PHYS 462/662 (Thermal and Statistical Physics)
Spring 2020: PHYS 370 (Computational Physics)
Fall 2019: PHYS 462/662 (Thermal and Statistical Physics)
Spring 2019: PHYS 758 (Statistical Physics)
Fall 2018: PHYS 462/662 (Thermal and Statistical Physics)
Spring 2018: PHYS 752 (Mathematical Methods in Physics)
Fall 2017: PHYS 462/662 (Thermal and Statistical Physics)
Spring 2017: PHYS 252 (University Physics II)
Fall 2016: PHYS 462/662 (Thermal and Statistical Physics)
Spring 2016: PHYS 758 (Statistical Physics)
Fall 2015: PHYS 752 (Mathematical Methods in Physics)
Spring 2015: PHYS 463/663 (Statistical Mechanics)
Spring 2015: PHYS 215 (Research for Undergraduates)
Fall 2014: PHYS 252 (University Physics II)
Spring 2014: PHYS 758 (Statistical Physics)
Fall 2013: PHYS 752 (Mathematical Methods in Physics)
Summer 2013: Trained students in simulation methods and soft matter physics
Spring 2013: PHYS 463/663 (Statistical Mechanics)
Fall 2012: PHYS 252 (University Physics II)
Summer 2012: Trained students in simulation methods and soft matter physics
Spring 2012: PHYS 370 (Computational Physics)
Fall 2011: PHYS 485/685 (Quantum Mechanics I)
Spring 2011: PHYS 782 (Condensed Matter Physics)
Spring 2011: PHYS 489 (Physics Projects)
Fall 2010: MNT 756 (Molecular Modeling of Materials)
Spring 2010: PHYS 370 (Computational Physics)
Fall 2009: PHYS 485/685 (Quantum Mechanics I)
Spring 2009: PHYS 752 (Mathematical Methods in Physics)
Fall 2008: PHYS 370 (Computational Physics); PHYS 252 (University Physics II)
Spring 2008: PHYS 251R (University Physics I Recitation)
Fall 2007: PHYS 485 (Quantum Mechanics I)
Spring 2007: PHYS 782 (Condensed Matter Physics)
Fall 2006: PHYS 251 (University Physics I)
Spring 2006: PHYS 485 (Quantum Mechanics I)
Fall 2005: PHYS 758 (Statistical Physics)
Spring 2005: PHYS 782 (Solid State Physics)
Fall 2004: PHYS 361 (Electromagnetic Theory)
Spring 2004: PHYS 489 (Physics Projects)
Spring 2003: PHYS 758 (Statistical Physics)
Fall 2002: PHYS 252 (University Physics II)
Spring 2002: PHYS 110 (Introductory Astronomy)
Fall 2001: PHYS 252 (University Physics II)
Spring 2001: PHYS 110 (Introductory Astronomy)
Fall 2000: PHYS 753 (Mathematical Methods in Physics)

Acadia University

Winter 2000: PHYS 3253 (Electricity and Magnetism), PHYS 3343 (Statistical Physics), PHYS 4443 (Solid State), PHYS 1063 (General Physics 2) Laboratory
Fall 1999: PHYS 2523 (Optics), PHYS 3433 (Quantum Mechanics), PHYS 1053 (General Physics 1) Laboratory
Summer 1999: Trained two undergraduate students in writing Java applets for Optics and developing Monte Carlo simulations of colloidal monolayers
Winter 1999: PHYS 3253 (Electricity and Magnetism), PHYS 3343 (Statistical Physics), PHYS 4443 (Solid State), PHYS 1063 (General Physics 2) Laboratory
Fall 1998: PHYS 2523 (Optics), PHYS 3113 (Advanced Classical Mechanics), PHYS 1053 (General Physics 1) Laboratory

Dalhousie University

Summer 1999: PHYC 6601.03 (Physics of Soft Condensed Matter, new graduate course)

University of Düsseldorf

Spring 1997: Visiting Lecturer, Foundations of Classical Density-Functional Theory

University of Guelph

Winter 1993: Lecturer, PHY 76-412 (Atomic and Molecular Physics)
Winter 1992: Guest Lecturer, PHY 76-102 (Introductory Physics)

Fall 1991 – Winter 1992: Participant in *University Teaching: Theory and Practice*, a certificate program for graduate students and postdoctoral fellows, conducted by Teaching Support Services

Cornell University and University of Toronto

1984 – 1990: Tutor, Laboratory Demonstrator, and Grader for a variety of undergraduate and graduate courses

PROFESSIONAL DEVELOPMENT AND TEACHING WORKSHOPS

Faculty Fellow, NDSU Provost's Office, 2021-2023: Working with Vice Provost for Faculty Affairs and Equity to develop and revise policies on faculty positions, hiring, promotion, and administrator reviews

Peer Teaching Partnership, NDSU Office of Teaching and Learning, spring 2022

ASPIRE Alliance Workshop: How to Design and Run an Effective and Equitable Online Course, summer 2020

Change Agents Course, NDSU Provost's Office, spring 2019

Gateways-ND Cohort 2 Teaching Workshops, NDSU Office of Teaching and Learning, 2017-2019

Faculty Learning Community, NDSU Office of Teaching and Learning, 2017-2019

Peer Teaching Partnership, NDSU Office of Teaching and Learning, fall 2016

AAPT Workshop for Experienced Physics and Astronomy Faculty, March 18-20, 2016, College Park, MD

AAPT Workshop for New Physics and Astronomy Faculty, American Physical Society Meeting, March 20, 2005, Los Angeles, CA

AAPT Workshop for New Physics and Astronomy Faculty, Nov. 12-15, 1998 College Park, MD

SERVICE

Department of Physics, North Dakota State University

- Interim Chair of Physics (Jan.-Dec. 2022)
- Faculty advisor to Society of Physics Students (SPS) chapter (2021-present):
  - Received Outstanding Chapter Award from National SPS Office (2022-2023)
  - Facilitated organization of Chapter 11 Zone Meeting (March 2023)
- Graduate Program Coordinator (2013-2021):
  - Worked with Chair to facilitate and administer doubling of our graduate program
  - Wrote and implemented new guidelines for screening, advising graduate students
  - Faculty advisor for graduate student organization, *Grad Phi* (established 2014)
  - Mentored and advised graduate students in the Master's and PhD programs
  - Wrote successful proposal to the American Physical Society (APS), resulting in NDSU becoming a Partnership Institution of the APS Bridge Program, a national effort to increase the number of physics PhDs awarded to underrepresented minority students, defined as African Americans, Hispanic Americans, and Native Americans
  - Worked with Deans and Chair to finance health insurance via stipend supplements for outstanding graduate students
  - Updated and maintained listing on GradSchoolShopper, a comprehensive directory of graduate programs in the physical sciences and engineering, freely available to students worldwide and maintained by the American Institute of Physics
  - Wrote successful proposals to NDSU Graduate School for Graduate Student Recruiting Enhancement Awards to renew GradSchoolShopper subscription and finance visits of prospective students (2016-2020)
- Senior Project Committee (2013-present) – evaluated, supervised capstone projects
- Promotion, Tenure, and Evaluation Committee (2005-present)
- Faculty Search Committee (fall 2008-spring 2009) – hired Andrew Croll
- Lab Technician Search Committee Chair (summer 2008) – hired Paul Omernik

• Faculty Search Committee (spring 2008) – hired Warren Christensen

• Seminar Organizer (2000-2009) – organized over 100 seminars

• NDUS Common Course Numbering Committee for Physics (2006-13)

• Building Committee for Renovation of South Engineering 221 (2005)

• Search Committees for Department Head and four other faculty (2000-2004)

College of Arts and Sciences, North Dakota State University

• College Promotion, Tenure and Evaluation Task Force (chair, fall 2023)
– developed Promotion, Tenure and Evaluation policy for newly created college

College of Science and Mathematics, North Dakota State University

• College Strategic Initiatives Task Force (2021)
– worked with Dean to lead development of College Strategic Initiatives document

• College Strategic Initiatives DEIR working group (2022-2023)

• College Inclusion and Equity Task Force (2020-2023)

• College Nominations and Awards Committee (2014-2020)

• College Promotion, Tenure & Evaluation Committee (2007-08, 2009-11, chair fall 2010)

• College Emerging Leaders Group (2010-11)

• Dean's Advisory Committee (fall 2007)

• College Dean Search Committee – hired Dean Kevin McCaul (2005-2006)

• College Dean Search Committee – hired Dean Alan White (2001-2002)

North Dakota State University

• Poster Judge: 2023 Conference on Computational Science

• Faculty Fellow, Provost's Office (2021-2023): developed, revised faculty-related policies

• President's Council on Diversity, Inclusion, Respect/Inclusion Committee (2018-2022)

• COVID-19 Faculty Support Ad Hoc Committee (fall 2020)

• Faculty Senate Ad Hoc Committee to Review Policy 352 (2014-2023, chair 2015-2019)
– achieved numerous revisions to promote equity in Promotion, Tenure, and Evaluation

• Provost's Promotion, Tenure, and Evaluation Committee training facilitator (fall 2016)

• Provost's Ad Hoc Promotion, Tenure, and Evaluation Committee (2008, 2011)

• Promotion to Professor Task Force panel facilitator (Oct. 2018)

• Commission on the Status of Women Faculty (2015-2023): developed and revised faculty-related policies

• Advance FORWARD Advocate (2014-present) – Ally Training facilitator; PLAN-D grant senior personnel; monthly planning meetings

• Search Committee Training facilitator, with Angela Fowler (2018-present)

• Search Committee: Faculty position in Developmental Psychology (Nov. 2020-Feb. 2021)

• Search Committee: Excellence Programs Manager, Faculty Affairs & Equity (July 2020)

• Search Committee: Vice Provost for Faculty and Equity (spring 2015)

• Search Committee: Vice Provost for Academic Affairs (fall 2014)

• Faculty Senate member (2011-14)

• Facilitator at Graduate School Orientation for new students (2017-2019)

• Trio Program: Mentor for McNair Scholar, Mary (Mal) Hedrick (2014-2015)

• PICNICS Program: Mentor for high school student, Jessica Qian (summer 2013)

• New Faculty Mentoring Program: Mentored 10 junior faculty (2006-12)

• Interdisciplinary Listening Group on Teaching, Research, and Service (fall 2010)

• Grants & Awards Committee, Development Foundation Board of Trustees (2009)

• Graduate Dean Evaluation Committee (summer and fall 2007)

• Center for Computationally Assisted Science & Tech. Advisory Committee (2005-11)

Service to Profession

• Grant proposal reviewer for National Science Foundation (NSF), American Chemical Society (ACS) Petroleum Research Fund, Natural Sciences and Engineering Research Council of Canada (NSERC), German Research Foundation (DFG), Austrian Science Foundation (FWF), North Dakota EPSCoR Program, NDSU Graduate School

• Journal reviewer for *ACS Macro Letters*, *ACS Nano*, *American Journal of Physics*, *Canadian Journal of Physics*, *Chinese Journal of Polymer Science*, *Colloid & Polymer Science*, *Communications in Computational Physics*, *European Physical Journal* E, *Europhysical Letters*, *Journal of Chemical Physics*, *Journal of Chemical Theory and Computation*, *Journal of Colloid and Interface Science*, *Journal of Physical Chemistry*, *Journal of Physics: Condensed Matter*, *Journal of Statistical Physics*, *Langmuir*, *Macromolecules*, *Molecular Physics*, *Nature Communications*, *Physica* A, *Physical Chemistry Chemical Physics*, *Physical Review Letters*, *Physical Review* B, *Physical Review* E, *Physical Review* X, *Polymers*, *Proceedings of the National Academy of Sciences*, *Rheologica Acta*, *RSC Advances*, *Scinetific Reports*, *Soft Matter*, *Zeitschrift für Physikalische Chemie*

• Book reviewer for Elsevier

• Organized and chaired DPOLY/GSOFT Focus Session on "Soft Colloids: From Single Particle Properties to Bulk Phase Behavior and Dynamics" at March Meeting of American Physical Society: March 2-6, 2016, Baltimore, MD

• Chaired session at 7$^{\text{th}}$ Liquid Matter Conference: June 27-July 1, 2008, Lund, Sweden

OUTREACH

Science Outreach: *Science Fun Nights*, Fargo/Moorhead (2010-23)

- Created, organized, and facilitated 16 community outreach events for $>$ 800 students at Longfellow, Horace Mann/Roosevelt, and Horizon Schools

- Created and assembled materials for hands-on activities for 10 activity stations
- Trained $>$ 150 students (Physics and other majors) in science outreach activities
- Collaborated with colleagues to integrate science outreach into Physics curriculum
- Worked with Society of Physics Students to engage Physics majors in organizing and facilitating Science Fun Night events

Science Outreach: Liberty Middle School, West Fargo, ND (January, 2020)

- Worked with graduate students to organize and facilitate hands-on science activities

North Dakota State Science Olympiad: Facilitated Reach for the Stars (2002, 2009), Astronomy (2002, 2009, 2021), Optics (2011, 2012, 2018), Crave the Wave (2022, 2023)

Nurturing American Tribal Undergraduate Research and Education (NATURE)

- Mentored research of 9 tribal college students in *Summer Camp* program (2009-13)
- Developed workshop, "Fun with Physics and Computers" (with Anne Denton)
- Visited 5 North Dakota tribal colleges, led workshops for *Sunday Academy* (2010-11)

Science Outreach: Organized and facilitated science activities at Longfellow Elementary School, Fargo, ND; Horizon Middle School, Moorhead, MN; Moorhead High (2005-2012)

Workshop Facilitator: Turtle Mountain Community College NASA PACE project; workshop on microgravity for high school and community college teachers (2004)

LON-CAPA Facilitator: Facilitated implementation of LON-CAPA (Learning Online Network – Computer-Assisted Personalized Approach) course management software (2003-2005), now used in all introductory Physics courses at North Dakota State University

Volunteer Judge: Southeast Regional Science & Engineering Fair and North Dakota Science & Engineering Fair (2001-2011, 2015)

Science Outreach: Workshop for 8^{th}-grade class at Wolfville School, Nova Scotia (2000)