

CURRICULUM VITAE
DR. GERALD R. VAN HECKE
Donald A. Strauss Professor of Chemistry
Harvey Mudd College
Claremont, CA

EDUCATION

- 1961 B.S. with Distinction, Harvey Mudd College. Major in Chemistry.
1963 A.M. Princeton University
1966 Ph.D. Princeton University: Physical Chemistry.
Thesis title: "Spectral and Magnetic Studies of Ditertiary Phosphine Complexes of Cobalt and Nickel"

PROFESSIONAL BACKGROUND

Long term appointments

- 2023 Donald A. Strauss Professor of Chemistry Emeritus, Harvey Mudd College
2006–9 Associate Dean of Faculty for Research
2001-2022 Donald A. Strauss Professor of Chemistry, Harvey Mudd College
2001 Visiting Professor of Chemistry, Graduate School of Science, Osaka University
1997 Academic Visitor Department of Chemistry, University of Southampton
1994-96 Camille and Henry Dreyfus Scholar, Harvey Mudd College
1989 Chair, Chemistry Department, Harvey Mudd College.
1984 and 1989 University Guest Researcher, Chemical Thermodynamics Laboratory, Osaka University, Osaka, Japan. Hosts: Prof. H. Suga, Prof. M. Sorai.
1983 National Academy of Sciences Exchange Scientist. Central Institute for Electron Physics, Berlin, GDR. Host: Prof. H.D. Koswig.
1982/1983 NASA Science Faculty Summer Fellow, Jet Propulsion Laboratory, Pasadena, Ca.
1980 National Academy of Sciences Exchange Scientist. Institute of Physical Chemistry, Warsaw, Poland. Host: Prof. J. Stecki.
1980-2001 Professor of Chemistry, Harvey Mudd College.
1977 Visiting Researcher Biophysics, Boston University School of Medicine. Host: Prof. D.M. Small.
1977 Visiting Researcher Fundamental Physics, University of Lille, France. Host: Prof. J. Billard.
1974-80 Associate Professor, Harvey Mudd College.
1970-74 Assistant Professor, Harvey Mudd College.
1966-70 Chemist, Shell Development, Emeryville, Ca.

Short term workshops, schools, short courses

- 1999 Workshop on Modern Methods in Light Scattering, Wyatt Corp. Santa Barbara.
1999 Workshop on liquid crystals honoring Prof. G.R. Luckhurst. Erice, Sicily.
1997 NSF Workshop MathCad in Physical Chemistry, U. South Alabama
1992 NSF Lasers in Chemistry Workshop, James Madison University
1991 NATO Workshop on Molecular Dynamics of Liquid Crystals, Barga, Italy.
1991 NATO School on Phase Transitions in Liquid Crystals, Erice, Sicily.
1990 Chautauqua Short Course: Dynamical Systems, Chaos, and Fractals, Christian Brothers U.
1989 NSF Laser Workshop, Lawrence University.
1988 NSF Workshop Computers in Physics and Chemistry, Evergreen State University
1987 ACS Short Course: Fundamentals of Experimental Design.
1979 ACS Short Course Chemical Engineering for Chemists.
1973 Society for Applied Spectroscopy Short Course on Spectroscopy.
1971 NSF Workshop Digital Electronics for Scientists, University of Illinois.
1967 ACS Short Course Organometallics.

HONORS

2019 Fellow of the Royal Society of Chemistry (London)
2016 Harvey Mudd College Alumni Association Award: The Van Hecke Prize
2001 Outstanding Alumnus Award Harvey Mudd College
The Henry T. Mudd Prize 2000, Harvey Mudd College
Camille and Henry Dreyfus Scholar (1994)
Phi Lambda Upsilon (1993)
Certified Professional Chemist, National Certification Commission (1988)
NASA Science Faculty Fellow (1982, 1983)
National Academy of Sciences Exchange Scientist: Poland (1980) and GDR (1983)
LeRoy Wiley McKay Fellow, Princeton University (1964)
NSF Fellowships for Teaching Assistants, Princeton University (1962,1963)
ARCS Scholar Harvey Mudd College (1960-61)
Dean's List four years, Harvey Mudd College (1958-1961)
Eagle Scout (1957)
Listed in "American Men and Women in Science" and "Who's Who in Science and Engineering"
Selected as an Albert Nelson Marquis Lifetime Achievement Award recipient

PROFESSIONAL SOCIETIES

50+ year member - American Chemical Society, Chair-Elect, Chair, Past-Chair, San Geronio Section
50+ year member - The Royal Chemical Society (London)
50+ year member - American Association for the Advancement of Science
50+ year member - Sigma Xi
American Institute of Chemists
Council for Undergraduate Research
International Union for Pure and Applied Chemistry
Phi Lambda Upsilon
International Liquid Crystal Society
Member Advisory Committee for International Symposia on Metallomesogens

RESEARCH INTERESTS

Thermodynamics and statistical thermodynamics of liquids, particularly liquid crystals. Preparation of new liquid crystalline materials. Polarized light spectroscopy of metal containing liquid crystals. Light-scattering methods for determination of thermodynamic properties. Physical properties of binary liquid mixtures of small molecules.

Synthesis Compounds already reported in the literature are synthesized with the aim of using them for testing various physical models of liquid crystalline behavior. Most recently we have synthesized molecules that exhibit discotic liquid crystalline phases or reentrant phases. Transition metal containing liquid crystals are of interest.

Physical Measurements We have looked at the volume-temperature behavior of a discotic material and found that the discotic phase we studied was less dense than the higher temperature isotropic phase it transforms into, that is dp/dT is negative rather than the expected positive. Measurements of density, speed of sound, viscosity, refractive index, heat capacity lead to estimates of isobaric thermal expansivity, isentropic and isothermal compressibility of liquids and liquid mixtures.

Binary Mixtures Generally when two liquid crystalline materials with the same type of liquid phase mix under the appropriate conditions of temperature and pressure, a liquid phase with the same structure as the starting liquids results. For some liquid crystals, however, mixing two similarly structured liquids gives a liquid phase different in structure from the original and never observed in either of the pure materials. One of our current projects is to understand the origin of such phases. We approach such problems experimentally and theoretically. Experimental techniques involve the determination of various physical properties of the mixtures followed by thermodynamic analysis of the results. Theoretical approaches involve statistical thermodynamic calculations based on various models for intermolecular potentials, or purely thermodynamic approaches using what is called the equal Gibbs energy analysis.

Polarized Spectroscopy Metal containing liquid crystals are now well known. Since liquid crystals are orientable fluids, it is possible to orient a transition metal with respect to some known coordinate frame and study the metal's electronic spectra with polarized photons.

PUBLICATIONS Harvey Mudd College student co-authors are denoted by *

Books:

3. K.K. Karukstis and G.R. Van Hecke, *Chemistry Connections: The Chemical Basis of Everyday Phenomena*, 2nd Edition, Harcourt/Academic Press: San Diego, **2003**.
2. K.K. Karukstis and G.R. Van Hecke, *Chemistry Connections: The Chemical Basis of Everyday Phenomena*, Academic Press: San Diego, **1999**.
1. G.R. Van Hecke and K.K. Karukstis, *A Guide to Lasers in Chemistry*, Jones and Bartlett, Boston, **1997**.

Journal articles:

74. H.S. Slocumb*, G.R. Van Hecke, "Density, viscosity, refractive index, speed of sound, molar volume, isobaric thermal compressibility, excess Gibbs activation for fluid flow and isentropic compressibility of binary mixtures of methanol with anisole and with toluene at 298.15 K and 0.1 MPa," *Liquids*, **2024**, 4, 402-414.
73. B.C. Wada*, O.W.M. Baldwin, G.R.* Van Hecke, "Heat-Cool: A simpler differential scanning calorimetry approach for measuring the specific heat capacity of liquid materials," *Thermo*, **2023**, 3, 537-548.
72. G.R. Van Hecke, O.W.M. Baldwin*, B.C. Wada*, "Density, viscosity, refractive index, isobaric specific heat capacity, ultrasonic, velocity, molar volume, isentropic compressibility, isothermal compressibility, and heat capacity ratio for binary mixtures of the organic liquids ethylbenzene, ethylcyclohexane, pentylbenzene, and pentylcyclohexane at 298.15 K and 0.1 MPa," *J. Chem. Eng. Data*, **2022**, 67, 1037-1053.
71. G.R. Van Hecke, K.K. Karukstis, and Scott Rayermann*, "Deriving binary phase diagrams for chromonic materials in water mixtures via fluorescence spectroscopy: cromolyn and water," *Phys. Chem. Chem. Phys*, **2015**, 17(2), 1047-1052.
70. K.K. Karukstis, W.C. Duim*, G.R. Van Hecke, and Nagiko Hara*, "Biologically relevant lyotropic liquid crystalline phases in mixtures of *n*-octyl- β -D-glucoside and water. Determination of the phase diagram by fluorescence spectroscopy," *J. Phys. Chem. B*, **2012**, 116(2), 3816-3822.
69. G. R. Van Hecke, Book Review: "The road to flat TVs," by D. Dunmur and T.J. Slukin, *Science*, **2011**, 331, 1388-89.
68. G.R. Van Hecke, "What to teach in physical chemistry: is there a single answer?" *Advances in Teaching Physical Chemistry*, Eds., M.D. Ellison and T.A. Schoolcraft, ACS Symposium Series: 79, American Chemical Society: Washington, D.C., **2008**.
67. G.R. Van Hecke, "How to design, implement, and sustain an interdisciplinary laboratory," *How to Design, Implement, and Sustain a Research-Supportive Curriculum: A Compendium of Successful Practices*, K.K. Karukstis and T.E. Elgren, Eds., Council on Undergraduate Research: Washington, D.C. **2007**, 415-424.
66. G.R. Van Hecke, Book Review: "Light Scattered by Air," *Science*, **2006**, 311, 338-339.
65. G.R. Van Hecke, K.K. Karukstis, H. Li*, H. C. Hansford*, A.J. Cosand*, M.M. Fox*, "Synthesis and Physical Properties of Liquid Crystals: An Interdisciplinary Experiment for the First-Year Laboratory," *J. Chem. Educ.*, **2005**, 82, 1349-1354.
64. K.K. Karukstis, G.R. Van Hecke, "The Chemistry of Every Day Life," *The World and I*, Nov. 2003, 146-153.
63. G.R. Van Hecke, T. Nakamoto, T.G. Clements*, M. Sorai, "Adiabatic calorimetry of the metallomesogen, purple cobalt stearate $\text{Co}(\text{O}_2\text{CC}_{17}\text{H}_{35})_2$," *Liquid Crystals*, **2003**, 30, 831-837.
62. G.R. Van Hecke, Robert A. Westervelt*, "Excess Thermodynamic Functions of Binary Liquid Mixtures Using Rayleigh Laser Light Scattering," *Netsu Sokutei*, **2003**, 30, 76-84. [Japan Society of Calorimetry and Thermal Analysis]
61. G.R. Van Hecke, "Reflections on CCLI Proposal Preparation and Proposal Reviewing," *CUR Quarterly*, **2002**, 22(3), 137-140.
60. G.R. Van Hecke, K.K Karukstis, R.C Haskell, C.S McFadden, F.S Wettack "An integration of chemistry, biology, and physics: the interdisciplinary laboratory," *J. Chem. Educ.*, **2002**, 79(7), 837-844.
59. K.K. Karukstis, G.R. Van Hecke, K.A. Roth*, M.A Burden*, "A Structure-Activity Investigation of Photosynthetic Electron Transport: An Interdisciplinary Experiment for the First-Year Laboratory," *J. Chem. Educ.*, **2002**, 79, 985-988.
58. G.R. Van Hecke, K.K Karukstis, F.S Wettack, "The Interdisciplinary Laboratory: An Integration of Chemistry, Biology, and Physics, a chapter in *Reinvigorating the Undergraduate Curriculum: Lessons Learned from the Integration of Research and Education*," Kaufman, L.; Stocks, J., Eds. in press.
57. G.R. Van Hecke, Book Review, "The Basis of Chemical Thermodynamics," M. Graetzel; P. Infelta, *J. Chem. Educ.*, **2001**, 78, 1187.

56. G.R. Van Hecke, "Phase transitions and the effect of pressure," *EMIS DATA REVIEW SERIES* a publication of The Institute of Electrical Engineers (U.K.), INSPEC: London, 2001, Chapter 3.1.
55. G.R. Van Hecke, "What is an exothermic reaction?" *Scientific American* : Ask the Experts: Chemistry Web column. <http://www.sciam.com/askexper/chemistry/chemistry18/chemistry18.html> - **1999**
54. A.E. Hassel* and G.R. Van Hecke, "The Nature of Phase Transitions in Reentrant 4-cyanobenzoyloxy-4'-octylbenzoyloxy-*p*-phenylene CBOBP," *Mol. Cryst. Liq. Cryst.* **1999**, 330, 53-63.
53. G.R. Van Hecke, K.K. Karukstis, and J.M. Underhill*, "Using Lasers to Demonstrate the Concept of Polarizability: Variations in the Refractive Indices of the *o*-Halobenzenes," *The Chemical Educator*, **1997**, 2, December issue of an all electronic journal.
52. G.R. Van Hecke, "Liquid Crystals," in *McMillan Encyclopedia of Chemistry*, J.J. Lagowski, Ed., McMillan, New York, **1997**.
51. G.R. Van Hecke, "Complex Questions as Final Examinations in Physical Chemistry," *The Hidden Curriculum: Faculty Made Tests in Science, Part 2.*, S. Tobias and J. Raphael, Eds., Plenum Press, New York, **1997**, 97-98.
50. G.R. Van Hecke, "Teaching Industrial Chemistry," *Scientific Computing and Automation*, **1995**, Sept. 30.
49. J.M. Sorenson*, and G.R. Van Hecke, "A Thermodynamic Analysis of Reentrant Cyano-ester Liquid Crystal Systems," *J. Phys. Chem.*, **1994**, 98, 10289.
48. J.M. Sorenson*, and G.R. Van Hecke, "A Simple Method for Equal Gibbs Analysis of Phase Boundaries," *Calphad*, **1994**, 18, 329.
47. G.R. Van Hecke, and K.K. Karukstis, "Curriculum Using the Unique Capabilities of Lasers," *J. Chem. Educ.*, **1993**, 70, 323.
46. G.R. Van Hecke, "Chemistry in Chaos," published in the Proceedings of the 1992 Harvey Mudd Alumni College, **1992**.
45. G.R. Van Hecke, "An Upbeat, Elaborate Physical Chemistry Experiment Featuring the Determination of Thermodynamic Excess Functions by the Combination of Several Techniques Including Laser Light Scattering," *Undergraduate Physical Chemistry Laboratory Development*, R. Moore and R. Schwenz, Eds., American Chemical Society Books, Washington, **1992**.
44. G.R. Van Hecke and M. Sorai, "The Heat Capacity of the Doubly Reentrant Mesogen 4-Cyanobenzoyloxy-4'-octylbenzoyl-*p*-phenylene," *Liq. Cryst.*, **1992**, 12, 503.
43. G.R. Van Hecke, "A Modern Vapor Pressure Apparatus Based on the Isotenoscope," *J. Chem. Educ.*, **1992**, 69, 681.
42. H. Van Ryswyk and G.R. Van Hecke, "Attaining Optimal Conditions. An Advanced Undergraduate Experiment Introducing Experimental Design and Optimization," *J. Chem. Educ.*, **1991**, 68, 878.
41. K.A. Lawler* and G.R. Van Hecke, "Dilatometry of the Discotic Mesogen 2,3,6,7,10,11-Hexa-*n*-octanoyloxytriphenylene (HAT-C8): An Anomalous Columnar-Isotropic Phase Transition," *Liq. Cryst.*, **1991**, 10, 341.
40. G.E. Nebel* and G.R. Van Hecke, "Equal G Analysis of Ternary Liquid Crystalline Systems," *Liq. Cryst.*, **1989**, 5, 601.
39. G.E. Nebel* and G.R. Van Hecke, "Extension of the Kofler Contact Method to Ternary Systems," *Mol. Cryst. Liq. Cryst. Letters*, **1988**, 5, 171.
38. G.R. Van Hecke, K. Kaji, and M. Sorai: "Heat Capacity of the Discotic Mesogen, 2,3,6,7,10,11-Hexa-*n*-octanoyloxytriphenylene: A Complex Solid State Polymorphism", *Mol. Cryst. Liq. Cryst.*, **1986**, 136, 197.
37. G.R. Van Hecke, "The Equal G Analysis. A Comprehensive Thermodynamics Treatment for the Calculation of Liquid Crystalline Phase Diagrams", *J. Phys. Chem.*, **1985**, 89, 2058.
36. G.R. Van Hecke, "On the Observation of Liquid-Liquid Immiscibility in Binary Mixtures of Liquid Crystals", *Mol. Cryst. Liq. Cryst.*, **1984**, 102, 81.
35. S.R. Lunt*, and G.R. Van Hecke: "Statistical Thermodynamic Calculation of Nematic-Isotropic Coexistence Lines in Binary Mixtures of Liquid Crystals: 4,4'-di-*n,n'*Alkoxyazoxybenzenes", *Mol. Cryst. Liq. Cryst.*, **1984**, 111, 1.
34. R. A. Wheeler* and G. R. Van Hecke, "Application of Regular Solution Theory to Discotic Mesophases: Calculation of Phase Diagrams Exhibiting Minima," *Liquid Crystals and Ordered Fluids*, 4, A. C. Griffin, J. F. Johnson, Eds. Plenum Press, N. Y. **1984**, 4, 283.
33. A. C. Pineda*, T. J. Jones*, and G. R. Van Hecke, "Application of Generalized van der Waals Theory to Homologous Nematogens," *Liquid Crystals and Ordered Fluids*, 4, A. C. Griffin, J. F. Johnson, Eds. Plenum Press, N. Y. **1984**, 4, 265.
32. G. R. Van Hecke and J. Stecki, "Pretransitional Behavior of the Density of the Nematic Phase," *Phys. Rev. A.*, **1982**, 25, 1123.
31. T. H. Smith* and G. R. Van Hecke, "Dilatometric Studies of Discotic Mesophases," *Mol. Cryst. Liq. Cryst.*, **1981**, 58, 23.
30. B. W. Williams* and G. R. Van Hecke, "Homologous *trans*-4-Ethoxy-4'- ω -cyclohexyl-*n*-alkanoyl-oxyazobenzenes. Calorimetry," *J. Phys. Chem.*, **1980**, 84, 2580.

29. G. R. Van Hecke, T. H. Smith*, and R. D. Prottas*, "Excess Volumes as Functions of Composition and Temperature for Binary Mixtures of Asymmetric, Homologous Nematogenic Azobenzenes," *Conference Proceedings*, ed. S. Chandrasekhar. Heyden-Stone, 1980.
28. G. R. Van Hecke, "Thermodynamics of the Liquid Two-Phase Regions in Binary Mixtures of Mesogenic Materials," *The Physics and Chemistry of Liquid Crystal Devices*, G. D. Sprokel, Ed., Plenum, 1980.
27. G. R. Van Hecke, T. S. Cantu*, M. Domon, and J. Billard, "Use of Regular Solution Theory for Calculating Binary Mesogenic Phase Diagrams Exhibiting Azeotrope-like Behavior for Liquid Two-phase Regions. II. Complex Maxima Forming Systems," *J. Phys. Chem.*, **1980**, *84*, 263.
26. G. R. Van Hecke, "Use of Regular Solution Theory for Calculating Binary Mesogenic Phase Diagrams Exhibiting Azeotrope-Like Behavior for Liquid Two-Phase Regions. I. Simple Minimum Forming Systems," *J. Phys. Chem.*, **1979**, *83*, 2344.
25. G.R. Van Hecke, B.D. Santarsiero*, and L.J. Theodore*, "Physical Studies of Homologous *trans*-4-Ethoxy-4'-*n*-alkanoyloxyazobenzenes: Birefringence," *Mol. Cryst. Liq. Cryst.*, **1978**, *45*, 1.
24. G.R. Van Hecke and L.J. Theodore*, "Dilatometry of Binary Nematogenic Mixtures. 4-Ethoxy-4'-*n*-pentanoyl- and 4-Ethoxy-4'-*n*-nonanoyloxyazobenzene," *J. Phys. Chem.*, **1978**, *82*, 1669.
23. G.R. Van Hecke, Review of "American Chemical Society Standard Examinations in Physical Chemistry," D. Burros, Editor, Vol. 2, The Gryphon Press, Highland Park, N.J., **1978**, 1378.
22. G.R. Van Hecke, Book Review, "Introduction to Liquid Crystals," by E.B. Priestley, P.J. Wojtowicz, and P. Sheng, for *J. Am. Soc.*, **1978**, *100*, 1331.
21. G.R. Van Hecke, "Thermotropic Liquid Crystals: A Use for Chemical Potential-Temperature Phase Diagrams," *J. Chem. Educ.*, **1976**, *53*, 161.
20. C.L. Hillemann* and G.R. Van Hecke, "Homologous *trans*-4-Ethoxy-4'-cycloalkanecarbonyloxyazobenzenes: Calorimetry," *J. Phys. Chem.*, **1976**, *80*, 944.
19. G.R. Van Hecke, "W.A. Tilden," *Dictionary of Scientific Biography*, C.S. Gillespie, Editor, Charles Scribners Sons, New York, N.Y., **1976**, Vol. XIII, 410.
18. C.L. Hillemann*, G.R. Van Hecke, and (in part) S.R. Peak*, J.B. Winther*, M.A. Rudat*, D.A. Kalman*, and M.L. White*, "Physical Studies of Homologous *trans*-4-Ethoxy-4'-*n*-alkanoyloxyazobenzenes: Calorimetry," *J. Phys. Chem.*, **1975**, *79*, 1566.
17. G.R. Van Hecke, "W.A. Noyes," *Dictionary of Scientific Biography*, C.S. Gillespie, Editor, Charles Scribners Sons, New York, N.Y., **1974**, Vol. X, 157.
16. G.N. La Mar and G.R. Van Hecke, "Proton Nuclear Magnetic Resonance Studies of the Electronic Structure of Outer Sphere Reducing Agents of Chromium (II). IV. Solvation of Tris(α -diimine) Chelates," *Inorganic Chemistry*, **1973**, *12*, 1767.
15. G.N. La Mar and G.R. Van Hecke, "Proton Nuclear Magnetic Resonance Studies of the Electronic Structure of Outer Sphere Reducing Agents of Chromium (II). III. Mixed α -Diimine Chelates," *J. Am. Chem. Soc.*, **1972**, *94*, 9049.
14. G.N. La Mar and G.R. Van Hecke, "Proton Nuclear Magnetic Resonance Studies of the Electronic Structure of Outer Sphere Reducing Agents of Chromium (II). II. Metal-Ligand Covalency in Mixed α -Diimine Chelates," *J. Am. Chem. Soc.*, **1972**, *94*, 9042.
13. D.J. Eatough and G.R. Van Hecke, "A Calorimetric Study of the Relative Donor Strength of Benzene, Toluene, and the Xylenes," *Thermochim. Acta*, **1972**, *3*, 165.
12. G.N. La Mar and G.R. Van Hecke, "Eluciation of Electronic Effects on Methyl Rotational Barriers in Reduced Chromium Complexes by ¹H Nuclear Magnetic Resonance Spectroscopy," *Chem. Comm.*, **1971**, 275.
11. G.N. La Mar and G.R. Van Hecke, "Determination of the Orbital Ground State Symmetry of Paramagnetic Complexes by Nuclear Magnetic Resonance," *J. Magn. Resonance*, **1971**, *4*, 384.
10. G.R. Van Hecke, "John Norman Collie," *Dictionary of Scientific Biography*, C.S. Gillespie, Editor, Charles Scribners Sons, New York, N.Y., **1971**, Vol. III, 347.
9. G.N. La Mar and G.R. Van Hecke, "Anomalous Temperature Dependence of Isotropic Proton NMR Shifts in Paramagnetic Cr(II) and Co(II) Complexes," *J. Am. Chem. Soc.*, **1970**, *92*, 3021.
8. G.N. La Mar and G.R. Van Hecke, "A Proton NMR Investigation of Hindered Methyl Rotation in Paramagnetic Cr(II) Complexes," *J. Chem. Phys.*, **1970**, *52*, 5676.
7. G.N. La Mar and G.R. Van Hecke, "Proton NMR Investigation of Some Paramagnetic Transition Metal *Tris* Chelates with Unsymmetrically Methyl Substituted *o*-Phenanthrolines," *Inorganic Chem.*, **1970**, *9*, 1546.
6. G.N. La Mar and G.R. Van Hecke, "Proton Nuclear Magnetic Resonance Studies of Spin Delocalization in Low Spin Chelates of Chromium(II) and Iron(III) with Symmetrically Substituted *o*-Phenanthrolines and α , α -Bipyridines," *J. Am. Chem. Soc.*, **1969**, *91*, 3442.
5. G.N. La Mar and G.R. Van Hecke, "Anomalous Proton Magnetic Resonance Line widths in Paramagnetic Complexes," *J. Phys. Chem.*, **1969**, *50*, 537.
4. G.R. Van Hecke, Book Review. "Molecular Complexes" by J. Rose, for *J. Chem. Educ.*, **1968**, *46*, A450.

3. W.D. Horrocks, Jr., G.R. Van Hecke, and D.D. Hall, "Ditertiary Phosphine Complexes of Cobalt. Spectral, Magnetic, and Electron Paramagnetic Resonance Studies," *Inorganic Chem.*, **1967**, *6*, 694.
2. G.R. Van Hecke and W.D. Horrocks, Jr., "Ditertiary Phosphine Complexes of Nickel. Spectral, Magnetic, and Proton Resonance Studies," *Inorganic Chem.*, **1966**, *5*, 1968.
1. G.R. Van Hecke and W.D. Horrocks, Jr., "Approximate Force Constants for Tetrahedral Metal Carbonyls and Nitrosyls," *Inorganic Chem.*, **1966**, *5*, 1960.

ARTICLES IN PROGRESS

- G.R. Van Hecke, "First and second order reentrant binary liquid crystal mixtures."
- T.G. Clements, and G.R. Van Hecke, "Polarized spectroscopy and properties of cobalt soaps."
- R. Pearman, R. Rosenfeld, G.R. Van Hecke, "Polarized spectroscopy of copper stearate"
- T. Tamura* and G.R. Van Hecke, "Semi-empirical Modelling of Excess Gibbs Energies from Liquid Crystalline Binary Phase Diagrams," for submission to *J. Phys. Chem.*
- G.R. Van Hecke, B.D. Santarsiero*, and L.J. Theodore*, "Volume-Temperature Studies on the Homologous Mesogens: 4-Ethoxy-4'-*n*-alkanoyloxyazobenzenes," for submission to *J. Phys. Chem.*
- G.R. Van Hecke, B.G. Marten*, Naomi R. Naito*, Jonathan M. Sorenson*, and W. Wagner, "Binary Liquid Crystalline Phase Diagrams with One or Both Components Singly Reentrant. A Thermodynamic Analysis by the Equal Gibbs Potential Method," for submission to *J. Phys. Chem.*
- G.R. Van Hecke, D.W. Ryba*, and K.K. Tsujimoto*, "Formation of Enhanced Mesomorphic Phases: Donor-Acceptor Complexes or Non-ideality in the Mesophase? An Analysis by the Equal G Technique," for submission to *Liq. Cryst.*
- R. Westervelt*, and G.R. Van Hecke, "Excess Thermodynamic Functions and Raman Spectra of Methanol/Water Mixtures," in preparation for *J. Am. Chem. Soc.*
- R. Westervelt*, and G.R. Van Hecke, "Excess Thermodynamic Functions and of Ethanol/Toluene Mixtures," in preparation for *J. Phys. Chem.*

MONOGRAPHS IN PROGRESS

- "Laboratory Records and Data Analysis," with HMC Lab Manual Group based on the version authored by an interdisciplinary group of faculty.

PROFESSIONAL REVIEWS

Journal articles

Inorganic Chemistry

- 1968 "Thermodynamic Studies of the Relative Stabilities...."
- 1997 "Mixed-valent diruthenium long-chain carboxylates: 2. Magnetic Properties"
- 2001 "Lower melting points asymmetrically substituted salen-copper(II) complexes exhibiting liquid crystal.."

J. Chemical Education

- 1975 "Three Liquid Crystals Teaching Experiments"
- 1977 "The Estimation of the Resonance Energy of Hexamethylbenzene"
- 1980 "Understanding a Crystal Structure"
- 1981 "Wave Functions in One Dimension"
- 1989 "A GWBASIC Program for Determination of Glycerol Molecule"
- 1997 "About Thermodynamic Selectivity"
- 1998 "Some Why's of Common DSC Practice"
- 1998 "Demonstration of Optical Activity of Sucrose"
- 1998 "A Novel Re-Usable Bulb for Solution Calorimeters"
- 1998 "About Thermodynamic Selectivity- Use of Calculated Species Distribution Diagrams ..."
- 1999 "Standard States and Standard Quantities"
- 1999 "On the Thermodynamics of Coalescing Droplets"
- 1999 "Construction of the First Working Model of a Water Barometer"
- 2000 "MeasureNet in the Introductory Laboratory"
- 2000 "Use of an inexpensive laser pointer in the introductory chemistry lab to perform laser refractometry.."
- 2001 "Measuring Enthalpy Change of Chem.l Rxns Using a Recently Developed Laser Deflection Calorimeter"
- 2002 "An Experiment on Fluid Mechanics: Verification of Stokes' Law Using an Electronic Balance"
- 2002 "Training tool for dynamic simulation of distilling column with chemical reaction"
- 2002 "A graphical user interface for PC GAMESS"
- 2002 "Understanding entropy with the Boltzmann formula"
- 2002 "Entropy in chemistry"
- 2003 "Entropy via Boltzmann distribution in undergraduate physical chemistry"
- 2015 "Rethinking undergraduate physical chemistry curriculum"
- 2015 "Visualizing molecular chirality in the organic chemistry laboratory using cholesteric liquid crystals"
- 2012 "Cost-effective thermal stage for optical chemical microscopy"

Molecular Crystals and Liquid Crystals

- 1977 "Liquid Crystalline Phases in 4-Acetyl-4'-n-Alkanoyloxyazobenzenes"
- 1979 "Influence of Cyclohexanone Admixture in Molecular Arrangement of Order S of Cholesterol Nonanoate"
- 1979 ditto
- 1980 "Phase Diagrams of Binary Liquid Crystal Mixtures"
- 1980 ditto
- 1980 "Refractive Indices of PAA and PPAB and their Mixtures"
- 1980 ditto
- 1981 "Optical Studies on Binary Mesophase Mixtures Containing PAP"
- 1981 "Studies on Some Binary Mixtures.."
- 1981 ditto
- 1982 "Order Parameter and Molecular Polarizabilities of Liquid Crystals with Nematic and Smectic Phases"
- 1982 "Ratio of the Bend to Splay Constants..."
- 1982 ditto
- 1982 "Heat Capacity of N-p-n-Hexyloxybenzylidene..."
- 1983 "Mesophasic Properties of Dimeric Model Compounds"
- 1984 "Birefringence Measurements in Lyotropic Nematic Phases"
- 1985 "Biphasic Regions in Binary Mixtures of PAA and 4,4'-di-n-hyxyloxyazoxybenzene"
- 1990 "On the effective use of the original van Laar theory for the construction of the phase diagrams of the binary lc systems"
- 1990 "An Estimation of the Latent Liquid Crystal-Isotropic Liquid Transition Temperature of a Non-Liquid Crystalline Compound by Equal G Analysis"
- 1991 "Enthalpies of Mixing in Binary Systems of Nematic Liquid Crystals"
- 1991 ditto

- 1992 "Non-equilibrium phase transitions exemplified by phase transitions: metastable phase to stable phase in an adiabatic calorimetric method"
 1992 ditto
 1992 ditto
 1995 "Classification des systems aux cristaux liquides"
 1995 ditto
 2002 "Phase transitions in liquid crystals studied by DSC and polarizing microscopy"

J Physical Chemistry

- 1982 "The Effect of Chain Length on ..."
 1983 "Liquid Crystalline Properties of ..."
 1986 "Liquid Crystals - A New Fast Method in Determining Phase Transitions"
 1986 "Molecular Polarizabilities in ..."
 1996 "Computer Stimulation of an Antiferroelectric Liquid Crystalline Molecule: The Origin of Bent Structure Formation and the Molecular Packing of MHPOBC in Crystalline Phase"
 1999 " "Owienreem articles
 2001 "Smectic A - Nematic and N-I phase equilibria in alkylcyanobiphenyls and the effect of sphere solutes...
 2002 "Reentrant behavior in binary mixtures of octyloxycyanobiphenyl and heptyloxycyanobiphenyl"
 2003 "The effect of N-(4-n-butylbenzylidene)4-amino-2,2,6,6-tetramethylpiperidine 1-oxide on the N-I transition
 2007 "The influence of the lanthanide contraction on liquid crystals"
 2013 "The phase diagram of trans-cis-isomers for photoactive and mesogenic 4-hexyl-4'-propoxyazobenzene" 2x
 2014 "Cold crystallization in Schiff-base nickel (II) complexes derived from three toluidine isomers"
 2014 "Thermodynamic and conformational study of proline stereoisomers"

Liquid Crystals

- 1986 "Induced Smectic Phases..."
 1986 "Equal G Analysis ... "[W.Wagner]
 1989 "Effect of Molecular Structure on Mesomorphism 23. Monomer-dimer binary..."
 1992 "X-ray and calorimetric study of Smectic ~C-smectic A2-smectic C2 transitions in a liquid crystal mixture"
 1992 "Landau Second-Order to Tricritical Crossover Behavior for Smectic A Smectic C* Transitions"
 1992 "Density Studies in Terephthalylidene-bis-p-n-Alkylanilines"
 1996 "Influence of nonmesogenic impurities on a nematic to isotropic phase transition"
 2000 "Induced smectic-G phase through intermolecular hydrogen bonding IV:
 2000 "Thermal properties of a disc-like compound benzene-n-pentanoate: a precursor of discotic mesogens"
 2001 "Crystallization kinetic study on higher homologues of benzylidene aniline compounds: Impact of phase
 2002 "Mesophase behavior of binary mixtures of 5CB/8CB Liquid Crystals

Synthesis and Reactivity in Inorganic and Metal-Organic Chemistry

- 1997 "Cadmium(II) complexes containing 1,3-propanediamine with HTUC and TUC and its 6-methyl derivative (H,TUC-2-thiouracil)
 1997 "4-Acylpyrazoloneimine Schiff bases and their metal complexes..."
 1998 "Synthesis and complexation of new unsymmetrical N-(6-benzylidene-1,5-diaza hexane) glyoxime"
 1998 ditto
 1998 "Synthesis and Characterization of Some Mixed-ligand Picrate Complexes of Nickel(II)"

Chemical Educator

- 1999 " "
 2000 "Measurement of the bulk modulus of a liquid using a pump-probe laser technique"
 2001 "Simple Statistical Treatment of the Chemical Potential and Chemical Equilibrium"
 2001 "Towards an alternative course of chemical thermodynamics"
 2001 "An inexpensive laser Raman spectrophotometer based on CCD detection"
 2002 "Alternative deduction of the fundamental equation of chemical thermodynamics"
 2003 "A study of hydrogen bonding using vapor-liquid equilibria"

European Journal of Physics

- 2003 "Mesomorphism of lanthanide(III) 4-hexyloxybenzoates"

Physical Chemistry Chemical Physics

- 2015 "Glass polymorphism in glycerol-water mixtures: II Experimental studies"
 2015 "Exploring the nature of the liquid-liquid transition in silicon: a non-activated transformation"
 2015 "Characterization of the phase behaviour of a novel polymerizable lyotropic ionic liquid crystal" 2x
 2015 "Disruption of self-molecular association of pentanol in binary mixtures with alkylbenzoates: a dielectric relaxation spectroscopy study"
 2015 An adjudicative review

- 2015 “Phospholipid- based self-assembled mesophase systems for light-activated drug delivery”
- 2016 “A quantitative assessment of chemical perturbations in thermotropic cyanobiphenyls” 2x
- 2016 “Exploring optical mechanotransduction in fluorescent liquid crystal elastomers” 2x
- 2016 “Glycine molecules in ionic liquid based reverse micelles: investigation of structure and dynamics using molecular dynamics simulations”
- 2016 “Mirror symmetry breaking by mixing equimolar amounts of two gyroid phase-forming achiral molecules”
- 2016 “Hierarchical spatial heterogeneity in liquid crystals composed of graphene oxides”
- 2016 “Solid-liquid equilibria of binary mixtures of fluorinated ionic liquids”
- 2016 “Chirality from achiral molecules”
- 2016 “Binary mixtures of ionic liquids forming liquid crystals”
- 2016 “Liquid crystal phase diagrams”
- 2016 “Gemini surfaces”
- 2016 “Mixtures”
- 2017 “Use of 3rd derivatives in thermodynamics”
- 2017 “Hydrides”
- 2017 “Liquid crystals modeled by Lebwohl-Lasher theory”
- 2018 “Mpemba effect”
- 2018 “Dielectric properties of liquid crystals”
- 2018 “Sulfoxides”

Soft Matter

- 2015 “The structural transition of cinnamate-based light-responsive ionic liquids in aqueous solutions and their light-tunable rheological properties”
- 2015 “Capillary and winding transitions in a confined cholesteric liquid crystal”

New Journal of Chemistry

- 2015 “Application of ultrasound in assessing strength of molecular non-covalent interactions in ternary liquid mixtures”
- 2014 “A Jouyban-Acree model for prediction of density, viscosity and surface tension of imidazolium-based dialkylphosphate ionic liquids with sulfolane”

Industrial & Engineering Chemistry Research

- 2012 “Preparation, characterization and applications of magnesium stearate, cobalt stearate, and copper stearate”

Thermochimica Acta

- 2014 “Monotropic or enantiotropic mesophases? Liquid-crystalline and solid state polymorphism of 4-chloro-1,3-phenylene bis-[4-(4-alkyloxyphenylazo)benzoate”

Journal of Chemical and Engineering Data

- 2023 “Binary mixtures of n-alkylcyclohexanes with undecane: densities and speeds of sound...”
- 2023 “Binary mixtures of n-alkylcyclohexanes with nonane: densities and speeds of sound...”
- 2024 “Binary mixtures of n-alkylcyclohexanes with decane: densities and speeds of sound...”

Bulletin of the Chemical Society of Japan

- 2017 “Liquid crystal phases as sums of subspaces in linear algebra”

Books

- 1982 Addison-Wesley *Physical Chemistry*
- 1997 Jones and Bartlett *Principles of Thermodynamics*

Research proposals

Petroleum Research Fund

- 1978 Lafayette College
- 1979 University of Maryland
- 1979 Aurora College
- 1983 College of William and Mary
- 1991 Princeton University
- 1995 Williams College
- 1996 Georgetown University
- 1997 College of Holy Cross
- 1999 Williams College
- 2002 Pace University

National Science Foundation

- 1983 Review panel Washington, D.C. Chemical Instrumentation Program

1983 Small Business Innovation Research Program “Crystal Nematic Transition Behavior of Multi-component Liquid Crystal Materials”

1984 Chemical Instrumentation “Preparative and Analytical HPLC”

1984 Chemical Instrumentation “Acquisition of an Ion Chromatograph for Analytical Research”

1987 “Amplitude Relations in Binary Fluid Mixtures”

2000 “Development of a Metallomesogenic Route to New One-Dimensional Materials”

2003 State University of Moldova and University of Alabama Cooperative Grants Program US Civilian Research and Development Foundation CRDF

2004 “Solid State Reactivity in Laser Dye Molecules”

2004 “Designing Electrically Anisotropic Materials via Self-Assembly of Liquid Crystalline Components”

Thomas F. Jeffress and Kate Miller Jeffress Memorial Trust

1985 “The Orientation Dependent Energy in Nematic Liquid Crystals”

Research Corporation

1996 Williams College

1997 Saint Mary’s College Moraga, CA

1998 Saint Mary's College Moraga, CA

External promotion, tenure reviews

1995 Williams College

1998 King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia

2004 Santa Clara University

2008 Willamette University

External college departmental reviews

2001 Willamette University chemistry

2004 Pacific Lutheran University chemistry

2006 Santa Clara University chemistry

2010 Whittier College science programs

PRESENTATIONS AT NATIONAL AND INTERNATIONAL MEETINGS: POSTERS

Undergraduate coauthors noted with *

April 2019 National ACS Meeting, Orlando, FL, posters with

- Daphne Guo*, “Systematic binary isobaric solid-liquid phase diagrams of straight-chained carboxylic acids.”
- Brandon Wada*, Oliver Baldwin*, “Excess volumes, refractive index increments, viscosity increments, speed of sound, heat capacity measurements of binary mixtures.”

March 2018 National ACS Meeting, New Orleans, LA posters with

- Daphne Guo*, “Systematic binary isobaric solid-liquid phase diagrams of straight-chained carboxylic acids.”
- Liyla Zhu*, Kerry K Karukstis, “Fluorescence detection of aggregation of chromonic dyes in the isotropic phase.”

April 2017 National ACS Meeting, San Francisco, CA, posters with

- Colin Adams*, “Systematic binary isobaric solid-liquid phase diagrams of straight-chained carboxylic acids”
- Hannah Slocumb*, “Excess volumes, refractive index increments, and viscosity increments of selected alcohol/alkane mixtures.”
- Leah Stevenson*, “Static light scattering studies of the aggregation process in the isotropic phase of chromonic surfactants in water.”

August 2016 26th International Liquid Crystal Conference Kent State University OH, poster with

- Kerry K. Karukstis, Marie Kirkegaard*, J. Chance Crompton*, “Determination of the binary phase diagram of n-octyl- β -D-glucoside in ionic liquid.”

July 2014 25th International Liquid Crystal Conference, Dublin, Ireland poster with

- Kerry K. Karukstis, J. Chance Crompton*, Marie C. Kirkegaard*, “Prevalence of ordered mesophases of alkyl glucosides in aprotic ionic liquids as detected by fluorescence.”

April 2013 National ACS Meeting New Orleans, posters with

- J. Chance Crompton*, Kerry K. Karukstis, Determination of the lyotropic liquid crystalline phases formed by green surfactants in ionic liquids through fluorescence spectroscopy,”
- Marie Kirkegaard*, Kerry K. Karukstis, “Determination of the binary phase diagrams of n-octyl- β -D-glucoside and n-heptyl- β -D-thioglucoside in the ionic liquid 1-n-butyl-3-methylimidazolium tetrafluoroborate,”
- Morgan Luckey*, “Formaldehyde detection using liquid crystalline birefringence,”

August 2012 24th International Liquid Crystal Conference, Mainz, Germany, poster with

•Scott Rayermann*, Kerry K Karukstis, “Determination of chromonic/water phase diagrams using fluorescence.”

March 2012 National ACS Meeting Anaheim, CA, posters with

- Emma N Burns*, Kerry K Karukstis, “Binary phase diagram of n-octyl- β -D-galactoside in water using fluorescence spectroscopy.”
- Bram Carlson*, “Liquid crystal detectors.”
- John W Robinson*, “Detection of toxic vapors using liquid crystalline media.”
- J. Chance Crompton*, Kerry K Karukstis, “Determination of the binary lyotropic liquid crystal phases formed by n-octyl- β -D-thioglucoside in water.”
- Nagiko Hara, “New library of 2,7-disubstituted fluorenes for liquid crystal applications.”

August 2010, 21st International Chemical Conference on Thermodynamics, Tsukuba, Japan posters with

- Thomas R Avila*, Arthur S Vasek*, “Isothermal piezo-optic coefficients: measurement and applications.”
- Kerry K Karukstis, “Combining two traditional thermodynamic measurements to create a highly visual and engaging experiment to introduce binary eutectic phase diagrams.”

July 2010 23rd International Liquid Crystal Conference, Krakow, Poland poster with

- Maxwell Kushner-Lenhoff*, Trevor A McQueen*, “Classifying and predicting reentrancy in liquid crystalline mixtures by the equal Gibbs energy equation.”

March 2010 National ACS Meeting San Francisco, CA, posters with

- Maxwell Kushner-Lenhoff*, Trevor A McQueen*, “Classifying and predicting reentrancy in liquid crystalline mixtures by the equal Gibbs energy equation.”
- Thomas R Avila*, Arthur S Vasek*, “Isothermal piezo-optic coefficients: measurement and applications.”

September 2009, Thermodynamics 2009, Imperial College, London posters with

- Kerry K. Karukstis, Gerald R. Van Hecke, Judy P. Hines*, Mary E. Daub*, Chiara H.C. Giammanco*, Alison R. Lee*, Whitney C. Duim*, Kristen N. Chellis*, Christine A. Synder*, Sarah L. Poe*, “Characterization of

- the aqueous phase behavior of alkyl glucosides and alkyl thioglucosides using fluorescence spectroscopy and polarizing optical microscopy”.
- Maxwell Kushner-Lenhoff*, Trevor A. McQueen*, Gerald R. Van Hecke, “Classification and prediction of reentrant behavior in binary liquid mixtures by the thermodynamic equal Gibbs equation.”
- June 2009**, Gordon Research Conference, Colby-Sawyer College, NH poster with
- Aurora A. Pribram-Jones*, Gerald R. Van Hecke, “Bulk Chirality: The influence of molecular asymmetry on the phase behaviors of the mesomorphic 2,7-diacyl fluorenes.”
- March 2009**, American Chemical Society Meeting, Salt Lake City, UT posters with
- Aurora A. Pribram-Jones*, Gerald R. Van Hecke, “Bulk Chirality: The influence of molecular asymmetry on the phase behaviors of the mesomorphic 2,7-diacyl fluorenes.”
 - Mark P. Cyffka*, Minseok Jang*, Christine L. Kalcic*, Gerald R. Van Hecke, “Excess thermodynamic functions of n-hexan-1-ol or cyclohexan-1-ol + n-alkane mixtures using viscometry, dilatometry, refractometry, and laser light scattering.”
 - Trevor A. McQueen*, Gerald R. Van Hecke, “Investigation of liquid crystal binary phase diagrams exhibiting reentrance calculated by the equal Gibbs energy method.”
 - Joshua M. Cobb*, Gerald R. Van Hecke, “Nonideality in the binary phase diagrams of homologous 4'-n-alkyl-4-cyanobiphenyls”.
- August 2008**, 20th International Conference on Chemical Thermodynamics, Warsaw, Poland posters with
- Kerry K. Karukstis, Gerald R. Van Hecke, Judy P. Hines*, Mary E. Daub*, Chiara H.C. Giammanco*, Alison R. Lee*, Whitney C. Duim*, Kristen N. Chellis*, Christina A. Synder*, Sarah L. Poe*, “Characterization of the aqueous phase behavior of alkyl glucosides and alkyl thioglucosides using fluorescence spectroscopy and polarizing optical microscopy.”
 - Gerald R. Van Hecke, Minseok Jang*, Christine L. Kalcic*, “Excess thermodynamic functions of alcohol + n-alkane mixtures using viscometry, dilatometry, refractometry, and laser light scattering.”
- April 2008**, American Chemical Society Meeting, New Orleans, LA posters with
- Minseok Jang*, Gerald R. Van Hecke, “Excess thermodynamic functions of alcohol + n-alkane mixtures using viscometry, dilatometry, refractometry, and laser light scattering.”
 - Joshua M. Cobb*, Gerald R. Van Hecke, “Nonideality in the binary phase diagrams of homologous 4'-n-alkyl-4-cyanobiphenyls.”
 - Kristen N. Chellis*, Kerry K. Karukstis, Gerald R. Van Hecke, “Constructing the phase diagram of water and n-octyl- β -D-thioglucoside by fluorescence spectroscopy.”
- October 2007**, Regional American Chemical Society Meeting, San Diego, Invited speaker
- Gerald R. Van Hecke, “How to design, implement, and sustain an interdisciplinary investigative lab.”
- June 2007**, Gordon Research Conference on Liquid Crystals, Colby-Sawyer College, NH poster
- Gerald R. Van Hecke, Kerry K. Karukstis, Judy P. Hines*, “Preliminary studies of metallomesogenic phase behavior in mixtures of water and n-alkylglucosides or n-alkylthioglucosides.”
- May 2007** 10th International Symposium on Metallomesogens, Cetraro, Italy poster with
- Kerry K. Karukstis, Judy P. Hines*, “Preliminary studies of lyotropic metallomesogenic phase behavior in mixtures of water and n-alkyl-glucosides or n-alkyl-thioglucosides.”
- March 2007**, American Chemical Society Meeting Chicago, IL posters with
- James McDonough*, Whitney C. Duim*, Kerry K. Karukstis, Gerald R. Van Hecke, “Determination of biologically relevant lyotropic liquid crystalline phases in mixtures of water and n-alkyl-glucosides.”
 - Minseok Jang*, Christine L. Kalcic*, Gerald R. Van Hecke, “Excess thermodynamic functions of alcohol + n-alkane mixtures using viscometry, dilatometry, refractometry, and laser light scattering.”
- July 2006** 20th International Liquid Crystal Conference, Keystone, CO posters with
- Whitney C. Duim*, Kristen Chellis*, Kerry K. Karukstis, “Determination of biologically relevant lyotropic liquid crystalline phases in mixtures of water and n-alkyl-glucosides or n-alkyl-thioglucosides.”
 - Rachel N. Harris*, Lucas Baker*, Kimberly Dallas*, Aurora Pribram-Jones*, “A library of mesomorphic materials for the systematic study of structure and physical properties: smectogenic 2,7 diacyl fluorenes.”
- June 2006** CUR National Meeting, Greencastle, IN, poster with
- Whitney C. Duim*, Kristen Chellis*, Kerry K. Karukstis, “Determination of biologically relevant lyotropic liquid crystalline phases in mixtures of water and n-alkyl-glucosides or n-alkyl-thioglucosides.”
- March 2006** National ACS Meeting Atlanta, GA, posters with
- Christine L. Kalcic*, Sarah A. Price*, “Excess thermodynamic functions of anisole+alcohol mixtures using Rayleigh light scattering.”
 - Rachel N. Harris*, Lucas Baker*, Kimberly Dallas*, Aurora Pribram-Jones*, “A library of mesomorphic materials for the systematic study of structure and physical properties: smectogenic 2,7 diacyl fluorenes.”

- July 2005**, 60th International Calorimetry Conference, Gaithersberg, MD posters with
- Whitney C. Duim*, Kerry K. Karukstis, “Determination of biologically relevant lyotropic liquid crystalline phases in mixtures of water and n-alkyl-glucosides or n-alkyl-thiogluco-sides.”
 - Christine L. Kalcic*, “Excess thermodynamic functions of anisole+alcohol mixtures using viscometry and light scattering including quasi-elastic scattering.”
- June 2005**, 9th International Symposium for Metallomesogens, Lake Arrowhead, CA a poster with
- Elaine K. Hart*, Todd G. Clements*, Robert J. Cave, “Polarized spectroscopy of metallomesogens: comparison of theory and experiment for copper(II) carboxylate dimer and cobalt(II) stearate.”
- April 2005**, Council for Undergraduate Research Program: Posters on the Hill poster with
- Whitney C. Duim*, Kerry K. Karukstis, “Determination of biologically relevant and industrially useful liquid crystals.”
- March 2005**, American Chemical Society Meeting, San Diego, CA, posters with
- Whitney C. Duim*, Kerry K. Karukstis, “Determination of biologically relevant lyotropic liquid crystalline phases in mixtures of water and n-alkyl-glucosides or n-alkyl-thiogluco-sides.”
 - Christine L. Kalcic*, Sarah A. Price*, “Excess thermodynamic functions of anisole+alcohol mixtures using Rayleigh light scattering.”
 - Rachel N. Harris*, Lucas Baker*, Kimberly Dallas*, “A library of mesomorphic materials for the systematic study of structure and physical properties: the smectogenic 2,7 diacyl fluorenes.”
- September 2004** International Conference on Chemical Thermodynamics, Sardinia, Italy, poster with
- Whitney C. Duim*, Sarah L. Poe*, Kerry K Karukstis “Determination of biologically relevant lyotropic liquid crystalline phases in mixtures of water and n-alkyl-glucosides or n-alkyl-thiogluco-sides.”
- July 2004**, The 20th International Liquid Crystal Conference, Ljubljana, Slovenia, posters with
- Lucas Baker*, Kimberly A. Dallas*, and Rachel N. Harris* “A library of mesomorphic materials for the systematic study of structure and physical properties: the smectogenic 2,7 diacyl fluorenes”
 - David Liao*, Kit T. Rodolfa*, and Martin Smith-Martinez* NPT Monte Carlo simulation of binary mixtures of Gay-Berne mesogens and Lennard-Jones spheres”
- June 2004**, Council for Undergraduate Research National Meeting, La Crosse, WI. Poster with
- K.K. Karukstis, F.S. Wettack, R.C. Haskill, and C.S. McFadden. “Research leads the way to investigative laboratories”
- April 2004**, NSF/AAAS Invention and Impact Conference, Crystal City, VA, invited poster with
- K.K. Karukstis, F.S. Wettack, R.C. Haskill, and C.S. McFadden “An integration of chemistry, biology, and physics: the interdisciplinary laboratory”
- March 2004**, American Chemical Society Meeting, Anaheim, CA, posters with
- Whitney C. Duim*, Sarah L. Poe*, “Determination of biologically relevant lyotropic liquid crystalline phases in mixtures of water and n-alkyl-glucosides or n-alkyl-thiogluco-sides.”
 - Christine L. Kalcic*, Sarah A. Price*, “Excess thermodynamic functions of anisole+alcohol mixtures using Rayleigh light scattering.”
 - Elaine K. Hart*, Todd G. Clements*, Robert J. Cave, “Polarized spectroscopy of metallomesogens: comparison of theory and experiment for copper(II) carboxylate dimer and cobalt(II) stearate.”
 - David Liao*, Kit T. Rodolfa*, Martin Smith-Martinez*, “Liquid-crystalline phases in an NPT Monte-Carlo ensemble of Lennard-Jones spheres and Gay-Berne (3,5,1,3) ellipsoids.”
- August 2003**, CALCON 2003, Joint Meeting 58th Calorimetry Conference and the Japanese Society of Calorimetry and Thermal Analysis, Turtle Bay, HI, posters with
- K.K. Karukstis, Whitney C. Duim-Quirk*, Sarah L. Poe* “Determination of Biologically Relevant Lyotropic Liquid Crystalline Phases in Mixtures of n-Alkyl-Glucosides and n-Alkyl-Thiogluco-sides and Water”
 - K.K. Karukstis, G.R. Van Hecke, Eric W. Hall*, Shelley A. McCormack*, C.A. Zieleniuk,* Courtney F. Rotstan* “Characterization of Self-Assembled Aggregates in Catanionic and Bicationic Surfactant Mixtures”
- March 2003**, American Chemical Society Meeting, New Orleans, LA, posters with
- Sarah Poe*, “Study of Biologically Relevant Lyotropic Liquid Crystals.”
 - Sarah Price*, “Thermodynamic Excess Functions in Anisole/Alcohol Mixtures.”
 - Kit Rodolfa*, “NPT Monte Carlo Simulations on Gay-Berne Mesogens and Leonard-Jones Spheres.”
- June 2003**, 8th International Symposium on Metallomesogens, Namur, Belgium, poster with
- Todd G. Clements*, Elaine K. Hart*, Joshua G. Middendorf*, R.J. Cave “Mesomorphic Cobalt Soaps: Adiabatic Calorimetry of Purple Cobalt Stearate”
- November 2002**, Saddle Rock Presentation Oral and Poster presentation Kit T. Rodolfa* presenter:
- “NPT Monte Carlo Simulations on Gay-Berne Mesogens and Leonard-Jones Spheres.”
- October 2002**, 13th International Light Scattering Colloquium, San Barbara, poster with

- R.A. Westervelt*, G.A. Munroe*, Brad A. Pindzola*, Christine T. Loftus*, Erik J. Torgenson*, Ryan M. Danell*, Aaron D. Schuler*, Cyril Jacquot*, and Sarah A. Price* “Determination of Excess Gibbs Energies of Binary Mixtures by Light Scattering”
- August 2002**, 17th IUPAC Conference on Chemical Thermodynamics, Rostock, poster with
 - Sarah A. Price*, Jennifer L. Godwin* and Aaron T. Grossman* “Thermodynamic Excess Functions of Ainsole/Alcohols”
- July 2002**, 19th International Liquid Crystal Meeting, Edinburgh, posters with
 - Sarah L. Poe* and Michel S. Nelson* “Lyotropic Phase Diagrams Determined by DSC for Mono- and Disaccharide/Water Systems”
 - Kit T. Rodolfa*“Preliminary Results for NPT Monte Carlo Simulations on Gay-Berne Mesogens and Leonard-Jones Spheres”
- June 2002**, Council for Undergraduate Research National Meeting, New London, poster with
 - Aaron D. Schuler*, and Cyril Jacquot* “Novel Thermodynamic Experiment Using Laser Light Scattering,”
- March 2002**, National American Chemical Society Meeting, Orlando, poster with
 - Aaron D. Schuler*, and Cyril Jacquot* “Novel Thermodynamic Experiment Using Laser Light Scattering”
- June 2001**, 7th International Symposium on Metallomesogens, Chino, Japan poster with
 - T. Nakamoto, Todd G. Clements*, and M. Sorai “Mesomorphic Cobalt Soaps: Adiabatic Calorimetry of Purple Cobalt Stearate”
- March 2001**, American Chemical Society Meeting, San Diego, CA, poster with
 - Jennifer A. Godwin* “Piezo-optic coefficients of water and miscible alcohol binary mixtures measured by a Michelson interferometry.”
- December 2000**, PacifiChem Conference Honolulu, HI, posters with
 - K.K. Karukstis, R.C. Haskell, C.S. McFadden, and F.S. Wettack, “The Interdisciplinary Laboratory: An Integration of Chemistry, Biology, and Physics”
 - Martin Smith-Martinez*, “Monte Carlo Simulations Using a Gay-Berne Potential to Seek Liquid Crystalline Behavior in Binary Mixtures of Ellipsoids and Spheres”
- August 2000**, American Chemical Society, Washington, DC, talk and poster:
 - Jennifer A. Godwin*, “Piezo-optic coefficients of water and miscible alcohol binary mixtures measured by a Michelson interferometry”
 - K.K. Karukstis, R.C. Haskell, C.S. McFadden, and F.S. Wettack, “The Interdisciplinary Laboratory: An Integration of Chemistry, Biology, and Physics”
- August 2000**, *16th Conference on Chemical Thermodynamics, Halifax, Nova Scotia, Canada, posters with
 - Jennifer A. Godwin* “Piezo-optic coefficients of water and miscible alcohol binary mixtures measured by a Michelson interferometry”
 - “K.K Karukstis, Spectroscopic determination of ternary phase diagrams”
- July 2000**, 18th International Liquid Crystal Conference, Sendai, Japan with
 - Elizabeth A. Schoene,* Bernie D. Santarsiero,* and Louis J. Theodore*, “Density-temperature studies of two analogous and homologous series of calametic mesogens: trans-4-ethoxy -4'- alkanecarbonyloxyazobenzenes and trans-4-ethoxy-4'-cylcoalkanecarbonyloxyazobenzenes”
 - Jon M. Sorenson*, “On the Gibbs potential energy analysis of 1st and 2nd order reentrant phase transitions in binary mixtures of mesogens”
- June 2000**, Council for Undergraduate Research 8th National Conference,, Wooster, OH, poster with and invited talk:
 - K.K. Karukstis, R.C. Haskell, C.S. McFadden, and F.S. Wettack, “The Interdisciplinary Laboratory: An Integration of Chemistry, Biology, and Physics”
 - “Thirty years of an integrated junior laboratory”
- March 2000**, American Chemical Society Meeting, San Francisco, CA, posters with
 - Carolyn Meyers*, “Synthesis and examination of a symmetric alpha-branched carboxylic acid and its copper(II) derivative”
 - Elizabeth Schoene*, Density temperature studies of two analogous and homologous series of calametic mesogens”
 - Martin Smith-Martinez*, ”Monte Carlo simulations using a Gay-Berne potential seeking liquid crystalline behavior in binary mixtures of ellipsoids and spheres”
 - Jennifer Godwin*, ”Piezo-optic coefficients measured by a Michelson interferometric method for binary mixtures of water and miscible alcohols”
- October 1999** Regional American Chemical Society Meeting, Ontario, CA posters with
 - Jennifer Godwin*, “Piezo-optic coefficients measured by a Michelson interferometric method for binary mixtures of water and miscible alcohols”

- Elizabeth Schoene*, Density- temperature studies of two analogous and homologous series of calametic mesogens”
- June 1999**, 6th International Symposium on Metallomesogens, Rotenburg, Germany poster with
 - Maggie Wiseman*, “Synthesis of copper carboxylate based metallomesogens”
- April 1999**, American Chemical Society Meeting,, Anaheim, CA, posters with
 - Maggie Wiseman* ,“Synthesis of copper carboxylate based metallomesogens”
 - Anna Hollifield*, “Piezo-optic coefficients: pre-phenomena to phase behavior”
- June 1998** ,16th International Liquid Crystal Conference, Strasbourg, France poster with
 - April Hassel*, “The Nature of Phase Transitions in Reentrant 4-cyanobenzoyloxy-4'-octylbenzoyloxy-*p*-phenylene”
- March 1998**, American Chemical Society Meeting, Dallas, TX, poster with and talk
 - April Hassel* .“On the Nature of Phase Transitions in CBOBP.”
 - MathCad in Physical Chemistry Symposium “Visualization of Thermodynamic Surfaces for H(T,p), S(T,p), and G(T,p).”
- June 1997**, 5th International Symposium on Metallomesogens, Neuchatel, Switzerland,
 - T.G. Clements*, “Mesomorphic Cobalt Soaps: Synthesis, Calorimetry, and Polarized Spectroscopy”
- April 1997**, American Chemical Society Meeting,, San Francisco, posters with
 - Samuel Mikes*, “Solvation Effects in Mixtures of Small Molecules.”
 - Todd Clements*, “Mesomorphism and Polarized Spectroscopy of Cobalt Soaps.”
 - Brook Novak*, “Synthesis and Characterization of *hexa*-Substituted Triphenylene Discotic Liquid Crystals.”
- August 1996**, 14th IUPAC Conference on Chemical Thermodynamics, Osaka, Japan poster with
 - G.A. Munroe*, Brad A. Pindzola*, Christine T. Loftus*, Erik J. Torgerson*, and Ryan M. Danell*, “G^E, H^E, S^E, and V^E of Mixtures of Cyclic Ethers and Water Determined by Laser Light Scattering and Correlated with Raman Spectra”
- June 1996**, 16th International Liquid Crystal Conference, Kent, OH poster with
 - J.L. Wesemann and T.G. Clements*, “Determining the Geometry of Nickel bis-(2-amino-tetradecylthiophenol): Polarized Spectroscopic Studies of the Near-IR Absorption”
- June 1995**, 4th International Symposium on Metallomesogens, Cetraro, Italy with
 - R. Pearman,* Robin Rosenfeld,* and Chistine M. Knuckey*, “Polarized Spectra of Metallomesogenic Copper(II) Alkanoates”
- March 1995**, American Chemical Society Meeting,, Anaheim, CA, posters with
 - Kevin Meagher*, “Synthesis and Characterization of Low Molar Mass Liquid Crystalline Polymers.”
 - Ryan Pearman*, “Synthesis of Substituted Benzoquinones for Use a Metal Complexing Ligands.”
 - Jon Sorenson*, “Monte Carlo simulation of hard Sphereocylinder Mixtures in Two Dimensions.”
 - Susanah Bloch*, “Photoacoustic Thermal Characterization of Liquid Crystals.”
- August 1993**, Gordon Research Conference on the Physics and Chemistry of Liquids, New Hampshire poster with
 - R.A. Westervelt*, T.A. Tanzer*, and S.W. Suljak*, "Excess Properties as Functions of Temperature and Composition for the Mixtures: water/methanol, water/ethanol, water/2-propanol"
- August 1993**, *The Undergraduate Physical Chemistry Symposium* ACS Meeting Chicago, IL, poster with
 - K.K. Karukstis" The Langmuir Isotherm: Kinetics of Adsorption followed by Absorption Spectroscopy"
- June 1992**, 14th International Liquid Crystal Conference, Pisa, Italy, poster
 - "On the Thermodynamics of 1st and 2nd Order Reentrant Phase Transitions in Binary Mixtures of Mesogens"
- November 1990**, Pacific Coast Meeting of the ACS and the Society for Applied Spectroscopy, S.F. CA, poster with
 - Kimberly A. Lawler*, "Dilatometry of the Discotic Mesogen 2,3,6,7,10,11 Hexa-*n*-octanoyloxytriphenylene (HAT-C8): An Anomalous Columnar-Isotropic Phase Transition"
- July 1990**, 13th International Liquid Crystal Conference, Vancouver, Canada, posters with
 - M.Sorai, "The Heat Capacity of the Doubly Reentrant Mesogen 4-Cyanobenzoyloxy-4'-octylbenzoyl-*p*-phenylene"
 - Bryan G. Marten* and W. Wagner, "Binary Liquid Crystalline Phase Diagrams with One or Both Components Singly Reentrant. A Thermodynamic Analysis by the Equal Gibbs Energy Method"
- August 1988**, 12th International Liquid Crystal Conference, Freiburg, Germany poster with
 - Grant E. Nebel*, "Equal Gibbs Analysis of Ternary Liquid Crystalline Systems"
- July 1986**, 11th International Liquid Crystal Conference, Berkeley, posters with
 - David W. Ryba* and Kim K. Tsujimoto*, "Formation of Enhanced Mesomorphic Phases: Donor-Acceptor Complexes or Non-ideality in the Mesophase? An Analysis by the Equal G Technique"
 - K. Kaji and M. Sorai, "Heat Capacity of the Discotic Mesogen 2,3,6,7,10,11 Hexa-*n*-octanoyloxytriphenylene (HAT-C8): A Complex Solid State Polymorphism"
- July 1980**, 8th International Liquid Crystal Conference, Kyoto, Japan, posters with

- Thomas H. Smith*, "Dilatometric Studies of Discotic Mesophases"
 - J. Stecki, "Pretransitional Behavior of the Density of the Nematic Phase"
- December 1979**, International Liquid Crystal Conference at the Raman Research Institute, Bangalore, India poster with
- Thomas H. Smith* and Robert D. Prottas*, "Excess Volumes as Functions of Composition and Temperature for Binary Mixtures of Asymmetric, Homologous Nematogenic Azobenzenes"
- February 1979**, IBM Symposium on the Physics and Chemistry of Liquid Crystals, San Jose,
- "Thermodynamics of the Liquid two-Phase Regions in Binary Mixtures of Mesogenic Materials."
- July 1978**, 7th International Liquid Crystal Conference, Bordeaux, France, posters with
- Terry S. Cantu*, M. Domon and J. Billard, "A Thermodynamic Treatment Based on Regular Solution Theory for Calculating Binary Mesogenic Phase Diagrams Exhibiting Azeotrope-like Behavior in Liquid Two-Phase Regions,"
 - Louis J. Theodore*, "Dilatometric Studies of Homologous Trans-4-ethoxy-4'-cycloalkanecarboxyloxyazobenzenes,"
- August 1976**, 6th International Liquid Crystal Conference, Kent, OH poster with
- Bernard D. Santarsiero*"Physical Studies of Homologous Trans-4-ethoxy-4'-alkanoyloxyazobenzenes: Birefringence and Dilatometry"

LECTURES/SEMINARS PRESENTED

Undergraduate students noted with *

- 2018** *March* National ACS Meeting, New Orleans, LA. Presentation to alumni and friends at the chemistry reception on the state of the department.
- 2015** *March* National ACS Meeting Denver, CO oral presentation, "Collaborative research with undergraduates: research project and research group design"
- 2014** *April* Alumni Day Wine panel
- 2010** *March* National ACS Meeting San Francisco, CA oral presentation with Kerry K Karukstis, "What types of research should a new faculty member pursue. Selection of and working with undergraduates"
- 2008** *October* HMC Alumni Event Presentation at Brander Vineyard: "Wine is Chemistry"
- 2007** *September* Presentation for Parent's College Day given for Admission Office: "Research at HMC"
- 2006** *March* National ACS Meeting Atlanta, GA. Invited panel speaker
"President's Dialog on Finding a Job at a PUI"
- 2005** *December* Pacific Chem Conference Honolulu, HI. Oral with Whitney C. Duim*, Kerry K. Karukstis, "Determination of biologically relevant lyotropic liquid crystalline phases in mixtures of water and n-alkyl-glucosides or n-alkyl-thioglucosides"
- 2005** *July* Introduction of Whitney Duim* at the Beckman Scholars Symposium, Irving, Ca who gave an invited oral talk: "Determination of biologically relevant lyotropic liquid crystalline phases in mixtures of water and n-alkyl-glucosides or n-alkyl-thioglucosides"
- 2005** *August* Fall ACS Meeting Washington, DC. Invited Oral presentations.
"What should be taught in Physical Chemistry: Is there a single answer?"
"MathCad: A tool for all seasons"
July Introduction of Whitney Duim* at the Beckman Scholars Symposium, Irving, Ca who gave an invited oral talk: "Determination of biologically relevant lyotropic liquid crystalline phases in mixtures of water and n-alkyl-glucosides or n-alkyl-thioglucosides"
- 2004** *December*, Liquid Crystal Institute, Kent State U. Invited seminar: "Intermolecular interactions or why love a phase diagram"
April, Galileo Society Meeting: "Chemical Connections," with K.K. Karukstis
April, NSF/AAAS Invention and Impact Conference, Crystal City, VA
October, St. Antonio Gardens, "Chemical Connections," with K.K. Karukstis
August, Fall ACS Meeting, Philadelphia, invited talk: "Too soon, too late, or too much? An alternate view of undergraduate physical chemistry"
- 2003** *June 5*, Stauffer Talk, "Photons as Thermodynamic Probes."
June 7, "Chemical Connections," presented with K.K. Karukstis in the Claremont Seniors Series.
June 12, "Chemical Connections," presented with K.K. Karukstis on the radio program Education Today hosted by Dan Angelo for broadcast on KUCR 88.3 fm and KVCR 91.9 fm.
November 12, Sunrise Rotary Club, "Chemical Connections," presented with K.K. Karukstis.
November, Teaching and Learning Committee Talk HMC, "Using the Personal Response Systems in Small Classes"
Presentation "The ID Lab," to a team of visiting Chinese Academics
- 2002** *February 19*, "Chemical Connections," presented with K.K. Karukstis in the Claremont Discourse Series.
- 2001** *May 8*, "Polarized Spectroscopy of Metallomesogens," National Institute of Advanced Industrial Science and Technology, Ikeda, Japan,
June 11, Shinshu University, Ueda, Japan
July 9, Hokkaido University, Sapporo, Japan
June 1, "Phase Behaviors in Binary Mixtures," a lecture in Molecular Thermodynamics, Osaka University
June 28, "Use of Laser Light to Measure Thermodynamic Excess Properties from Gibbs Energies to Piezo-Optic Coefficients," Osaka University
September Convocation Speaker, Harvey Mudd College
- 1997** *October 9*, "Polarized Spectroscopy of Metallomesogens," University of Exeter,
"Thermodynamics of Reentrant Liquid Crystals,"
October 8, University of Exeter
October 14, Southampton Liquid Crystal Institute, University of Southampton
- 1994** *August 13th* Bien Conference, Bucknell University,
"Let Laser Light Illuminate the Chemistry Curriculum."
- 1993**, Invited speaker: *NSF Catalyzed Innovations in the Undergraduate Laboratory Symposium* American Chemical Society Meeting Denver, CO,

- K.K. Karukstis, "Lasers Are Not Just For Research Anymore"
- 1993** 3rd International Symposium on Metallomesogens, Peniscola, Spain,
- C.M. Knuckey*, "Spectroscopic and Calorimetric Studies of Picoline Derivatives of Copper(II) Alkanoates"
- 1992**, March 23rd Lunar and Planetary Science Conference, Houston, Texas,
"Chemical Working Fluid Mechanism for Recycling and Exothermic Heating of Io's Surface," with Douglas Nash presenter.
- 1991** August Invited speaker: *Undergraduate Physical Chemistry Laboratory Development Symposium* at the American Chemical Society Meeting New York,
"Though the Questions are Old, with Techniques that are New, a Revitalized PChem Lab makes its Debut."
- 1991**, August NSF Catalyzed Innovations in the Undergraduate Laboratory Symposium at the American Chemical Society Meeting New York,
"Attaining Optimal Conditions. An Advanced Undergraduate Experiment Introducing Experimental Design and Optimization," with H. Van Ryswyk
- 1989** June 15, "Reentrant Phase Behavior in Binary Liquid Crystalline Systems: A Thermodynamic Analysis by the Equal Gibbs Energy Method," Osaka University, Osaka, Japan.
- 1984** July 20, "Reentrant Liquid Crystal Phase Diagram Studied by Equal G Analysis," 10th International Liquid Crystal Conference, York, England.
"The Equal G Analysis - A Comprehensive Treatment for the Calculation of Liquid Crystalline Phase Diagrams,"
May 25, Department for Electrical Engineering, Tokyo U. of Agriculture and Technology, Japan.
May 26, Tokyo Institute of Technology, Tokyo, Japan.
May 28, Hitachi Research Laboratories, Hitachi, Japan.
June 28, Osaka University, Osaka, Japan.
July 10, Mahidol University, Bangkok, Thailand.
May 14, "Review of Thermodynamics of Binary Mixtures of Liquid Crystals," Chemical Thermodynamics Laboratory, Osaka University, Osaka, Japan.
April 9, American Chemical Society Meeting, St. Louis, Missouri.
"An Introduction to the Equal G Analysis for Liquid Crystalline Phase Diagrams"
•Sharon R. Lunt*, "Statistical Thermodynamic Calculation of Nematic-Isotropic Coexistence Lines in Binary Mixtures of Liquid Crystals: 4,4'-di-n,n'-Alkoxyazoxybenzenes"
- 1983** "Binary Liquid Crystal Diagrams: Facts and Fallacies,"
November 9, Karl Marx University, Leipzig, Germany.
November 22, Martin Luther University, Halle, Germany.
December 6, Central Institute for Electron Physics, Berlin, Germany.
December 12, "Comments on Higher Education in the USA," Central Institute for Electronic Physics, Berlin, Germany.
December 15, "Equal G Analysis of Reentrant Liquid Crystal Phase Diagrams," Technical University of Berlin.
- 1982** March American Chemical Society meeting, Las Vegas, student oral presentations:
•Andrew C. Pineda*, "Application of Generalized van der Waals Theory to Homologous Nematogens," with.
•Ralph A. Wheeler*, "Application of Regular Solution Theory to Discotic Mesophases: Calculation of Phase Diagrams Exhibiting Minima,"
- 1980** "Thermodynamics of Binary Mixtures of Liquid Crystals,"
May 24, Jagellonian University, Krakow, Poland.
May 30, Second Spring School of Physics of Liquid Crystals, Blazejewko, Poland.
June, Institute of Physical Chemistry, Warsaw, Poland.
- 1979** March, "Thermotropic and Lyotropic Liquid Crystals," La Verne University.
- 1977** March, "Use of Regular Solution Theory for Calculating Binary Mesogenic Phase Diagrams," University Lille, France.
September, "Liquid Crystals," Harvey Mudd College.
- 1976** January, Freshman mini course, "Symmetry in Solid State".
- 1975** March, "Liquid Crystals," California Polytechnic State University at Pomona.
- 1972** October, "Liquid Crystals," University of Southern California.

CONFERENCES ATTENDED

- 2019** *March* National ACS Meeting, Orlando, FL
August National ACS Meeting, San Diego, CA
- 2018** *March* National ACS Meeting, New Orleans, LA
August International Calorimetry Conference, Lake Tahoe, CA
- 2017** *March* National ACS Meeting, San Francisco, CA
- 2016** *March* National ACS Meeting, San Diego, CA
August 25th International Liquid Crystal Conference, Kent, OH
- 2015** *March* National ACS Meeting, Denver, CO
June Gordon Research Conference on Liquid Crystals, Mt Holyoke, MA
- 2014** *March* National ACS Meeting, Dallas, TX
June, 24th International Liquid Crystal Conference, Dublin, Ireland
- 2013** *April* National ACS Meeting, New Orleans, LA
July IUPAC Meeting Istanbul, Turkey
- 2012** *March* National ACS Meeting Anaheim, CA
August 23th International Liquid Crystal Conference, Mainz, Germany
- 2011** *March* National ACS Meeting Anaheim, CA
June Gordon Research Conference Mt Holyoke, MA
August IUPAC/ACS International Meeting San Juan, PR
- 2010** *March* National ACS Meeting San Francisco, CA
June 23rd International Liquid Crystal Conference Krakow, Poland
July 22st International Chemical Thermodynamics Conference, Tsukuba, Japan
- 2009** *March* ACS National Meeting Salt Lake City, UT
June Gordon Research Conference Liquid Crystals, Colby-Sawyer, NH
September Thermodynamics 2009 Imperial College, London, UK
- 2008** *March* American Chemical Society Meeting, New Orleans, LA
April Washington, DC, NSF Committee of Visitors
June Council for Undergraduate Research National Meeting, College of St Benedict, MN
August International Conference on Chemical Thermodynamics, Warsaw, Poland
August American Chemical Society Meeting, Philadelphia, PA
- 2007** *June 10th* International Symposium on Metallomesogens, Cetraro, Italy
June Gordon Research Conference on Liquid Crystals Colby College, NH
August American Chemical Society Meeting, Boston, MA
April American Chemical Society Meeting, New Orleans, LA
September National Academy of Sciences Workshop on Emerging Research Institutions, DC
- 2006** *March* American Chemical Society Meeting, Atlanta, GA
June Council for Undergraduate Research National Meeting, Greencastle, IN
July 21st International Liquid Crystal Conference, Keystone, CO
- 2005** *June 9th* International Symposium on Metallomesogens, Lake Arrowhead, CA
July Beckman Scholars Symposium, Irving, CA
August American Chemical Society Meeting, DC
December Pacific Chem Conference 2005 Honolulu, HI
March American Chemical Society Meeting, San Diego, CA
April Council for Undergraduate Research Posters on the Hill, DC
- 2004** *June, 20th* International Liquid Crystal Conference, Ljubljana, Slovenia.
June CUR National Meeting La Cross, WI
July Washington, DC, NSF CCLI panel
April NSF/AAAS Invention and Impact Conference Crystal City, VA
March American Chemical Society Meeting, Anaheim, CA
September, 13th International Conference on Chemical Thermodynamics, Chia Laguna, Sardinia, Italy
- 2003** *March,* American Chemical Society Meeting, New Orleans, LA
June, 8th International Symposium on Metallomesogens, Namur, Belgium
July, CALCON 2003 Thermodynamics and Calorimetry Meeting, Turtle Bay, HI
- 2002** *April,* American Chemical Society Spring Meeting, Orlando, FL
June, 9th National Council for Undergraduate Research, New London, Connecticut College
June, 19th International Liquid Crystal Conference, Edinburgh
August, 17th Conference on Chemical Thermodynamics, Rostock, Germany

- 2001** June, 7th International Symposium on Metallomesogens, Chino, Japan
- 2000** March, American Chemical Society Spring Meeting, San Francisco, CA
 June, 8th National Council for Undergraduate Research, Wooster, Ohio
 July, 18th International Liquid Crystal Conference, Sendai, Japan
 August, 16th Conference on Chemical Thermodynamics, Halifax, Nova, Scotia, Canada
 August, American Chemical Society Spring Meeting, Washington, DC
 December, American Chemical Society, PacificChem, Honolulu, HI
- 1999** March, American Chemical Society Spring Meeting, Anaheim, CA
 April, Council for Undergraduate Research April Dialog Meeting Washington, D.C.
 May, Workshop on liquid crystals honoring Prof. G.R. Luckhurst. Erice, Sicily.
 June, 6th International Symposium on Metallomesogens, Rotenburg, Germany.
 June, Meeting of AIRE Grant Directors sponsored by the NSF, Washington, D.C.
 August, National American Chemical Society Meeting, New Orleans.
 October, Regional American Chemical Society Meeting, Ontario, CA
- 1998** March, American Chemical Society Spring Meeting, Dallas, TX
 June, 17th International Liquid Crystal Conference, Strasbourg, France
 August, American Chemical Society Fall Meeting, Boston, MA
 November, American Association of Higher Education Conference, Washington, D.C.
- 1997** April, American Chemical Society Spring Meeting, San Francisco, CA
 June, 5th International Symposium on Metallomesogens, Neuchatel, Switzerland
 June, 71st Colloid and Surface Science Symposium, U. of Delaware, Newark, DE
 August, Gordon Research Conference on the Chemistry of Supramolecules & Assemblies, Newport, RI
 August, NSF Workshop on the Use of MathCad in Physical Chemistry, U of South Alabama, Mobile, AB
 November, 5th Chemical Congress of North America, Cancun, Mexico
- 1996** March, American Chemical Society Spring Meeting, New Orleans, LA.
 June, 16th International Liquid Crystal Conference, Kent, Ohio.
 June, CUR Conference North Carolina Central State U., Durham, NC
 August, 14th IUPAC Conference on Chemical Thermodynamics, Osaka, Japan.
- 1995** January, Gordon Research Conference on Chemical Education, Ventura, CA.
 March, American Chemical Society Spring Meeting, Anaheim, CA
 June, 4th International Symposium on Metallomesogens, Cetraro, Italy.
- 1994** July, 15th International Liquid Crystal Conference, Budapest, Hungary.
 August, 13th Bien Conference, Bucknell University, Lewisburg, PA.
- 1993** March, American Chemical Society Spring Meeting, Denver
 June, 3rd International Symposium on Metallomesogens, Peniscola, Spain
 August, Gordon Research Conference on Physics and Chemistry of Liquids, New Hampshire
 August, American Chemical Society Fall Meeting, Chicago
- 1992** March, American Chemical Society Spring Meeting, San Francisco.
 June, 14th International Liquid Crystal Conference, Pisa, Italy.
 June, CUR Conference, Hope College, Holland, MI.
 August, 12th BIEN Conference Davis, CA.
- 1991** May, NATO Advanced Workshop on Phase Transitions in Liquid Crystals, Erice, Sicily.
 June, 2nd International Symposium on Metallomesogens, St. Pierre de Chartheuse, France.
 August, American Chemical Society Fall Meeting, New York City.
 August, Gordon Research Conference on Physics and Chemistry of Liquids, New Hampshire
 September, NATO Advanced Research Workshop on Computer Simulation of Liquid Crystals, Barga, Italy
- 1990** July, 12th International Liquid Crystal Conference, Vancouver, British Columbia.
- 1989** June, Laser Workshops for Undergraduate Faculty sponsored by the National Science Foundation.
- 1988** July, Computer-Based Laboratories for Integrating Introductory Classes in Chemistry and Physics sponsored by the National Science Foundation, Evergreen State College, Olympia, Washington.
- 1987** August, Gordon Research Conference on Physics and Chemistry of Liquids, New Hampshire.
- 1986** July, 11th International Liquid Crystal Conference, Berkeley, California.
- 1985** June, Gordon Research Conference on Liquid Crystals, New Hampshire.
 August, North American Thermal Analysis Society Meeting San Francisco, California.
- 1984** July, 10th International Liquid Crystal Conference, York, England.
 March, American Chemical Society Spring Meeting, St. Louis, Missouri.
- 1982** March, American Chemical Society Spring Meeting, Las Vegas, Nevada.

- December, 9th International Liquid Crystal Conference, Bangalore, India.*
- 1981** *July, Gordon Research Conference on Liquid Crystals, Colby, New Hampshire.*
- 1980** *April, Czech-Polish Colloquium on Chem Thermo and Physical Organic Chem, Kazimierz, Poland.*
May, 2nd Polish Liquid Crystal School, Pozan, Poland.
July, International Liquid Crystal Conference, Kyoto, Japan.
August, California Chemistry Teachers Association Conference, Asilomar, California.
- 1979** *February, IBM Symposium of Physics and Chemistry of Liquid Crystal Devices, San Jose, California.*
June, ACS Short Course in Chemical Engineering for Chemists, Los Angeles, California.
December, International Liquid Crystal Conference, Bangalore, India.
- 1978** *January, Gordon Research Conference on Liquid Crystals, Santa Barbara, California.*
March, American Chemical Society Spring National Meeting, Anaheim, California.
June, ACS Sponsored Symposium: Industry and Academia in Chemistry, Occidental College, California.
July, 7th International Liquid Crystal Conference, Bordeaux France.
- 1976** *August, 6th International Liquid Crystal Conference, Kent Ohio.*
- 1975** *August, Meeting for Undergraduate Research Program Directors, NSF, Chicago Illinois.*
- 1974** *June, 5th International Liquid Crystal Conference, Stockholm, Sweden.*
- 1973** *September, American Chemical Society Fall National Meeting, Chicago.*
- 1971** *September, American Chemical Society Fall National Meeting, Washington D.C..*

GRANT HISTORY

- 2016** Dreyfus Foundation Boosevian Lectureship
HMC Incubator Grant for Core Education Program: "Adapting Effective Pedagogical Approaches to Meet the Needs of Incoming HMC Students"
- 2015** NSF MRI Proposal for a modern differential scanning calorimeter
Mellon Foundation Presidential Leadership Proposal for a Chemistry and Art Course to be taught with Erik Doehne funded but withdrawn for lack of funding for Doehne.
- 2013** NSF RUI Renewal of 2007 grant denied
- 2012** HMC Research Committee
- 2011** HMC Research Committee - Baker Foundation
- 2010** HMC Research Committee - Baker Foundation
- 2009** HMC Research Committee - Baker Foundation
HMC Core Curriculum Revision Grant
- 2007** NSF RUI: "Innovative Determination of Phase Diagrams of Green Surfactants in Water and Ionic Liquids," funded for 2008 -2011. With Kerry K. Karukstis.
- 2006** Camille and Henry Dreyfus Foundation: "Support for a Multidisciplinary Laboratory." Denied but with reasonable comments. Re-submission not done because of college strategic planning was not clear.
- 2005** ACS PRF Type SE, 9th International Symposium on Metallomesogens," \$3,600.
NSF, 9th International Symposium on Metallomesogens: Broadening the Research Horizons," \$3,900.
NSF RUI: Aqueous Phase Behavior of "Green" Glucoside and Thioglucoside Surfactants, \$226,623 denied.
- 2003** HMC Research Committee Summer Grant, "Lyotropic Phase Diagrams Determined by DSC for Mono- and Di-Saccharide/Water Systems," denied.
Quantitative Life Sciences Proposal, "NPT Monte Carlo Simulation of Mixtures of Gay-Berne Mesogens and Leonard-Jones Spheres," denied.
- 2002** NSF RUI: "Biophysical Investigations of the Interactions of Synthetic Antimicrobial Peptides with Catanionic Surfactant Nanostructures," \$248,648 - Denied.
HHMI Grant for "Mixtures of rods and spheres subject to a Gay-Berne potential seeking mesogenic behavior," **\$3,300**
- 2000** HMC Research Committee Summer Grant, "Mixtures of rods and spheres subject to a Gay-Berne potential seeking mesogenic behavior," **\$3,100**
Lancy Foundation, "Initiation of biological chemistry research with public outreach." Denied.
- 1999** National Science Foundation, CCLI A&I "Introduction of Modern Light Scattering Methods in Chemistry Laboratories," \$52,209.
HMC Research Committee Summer Grant, "Mixtures of rods and spheres subject to a Gay-Berne potential seeking mesogenic behavior," **\$3,100**
- 1998** Jonsson Foundation for a tunable laser system based on an optical parametric oscillator, \$37,500.
- 1997** National Science Foundation, "Introduction of Circular Dichroism and Stopped-Flow Spectroscopy in Chemistry Laboratories," co-investigator with K.K. Karukstis and A.McCurdy, **\$72,880**
- 1996** HMC Research Committee Summer Grant, "Photoacoustic Thermal and Dynamic Differential Scanning Calorimetric Characterization of Liquid Crystals," **\$3,000**
- 1995** National Science Foundation, "Microcalorimeters in Chemistry," **\$52,328**
HMC Research Committee Summer Grant, "Photoacoustic Thermal Characterization of Liquid Crystals," **\$3,000**
- 1994** Camille and Henry Dreyfus Scholar/Fellow Grant, **\$60,000**
Council on Undergraduate Research Academic-Industrial Undergraduate Research Partnership Fellowship, "The Chemistry of Hard Rod Molecules Studied by Computer Simulation," **\$2,500**
- 1993** HMC Jonsson Grant, "Computers in Chemistry." **\$20,200**
HMC Research Committee Summer Grant, "Thermodynamic Excess Functions Measured by Laser Light Scattering," **\$100**
- 1992** National Science Foundation with K.K. Karukstis, "A Fresh Approach to the General Chemistry Curriculum Using the Unique Capabilities of Lasers." **\$92,180**
Petroleum Research Fund, "Thermodynamic Excess Functions Measured By Laser Light Scattering." **\$20,000**
Research Corporation, "Photoacoustic Thermal Characterization of Liquid Crystals." **\$22,600**
HMC Jonsson Grant with K.K. Karukstis, "Laser Demonstrations in Chemistry." **\$7,000**
HMC Research Committee Summer Grant, "Photoacoustic Thermal Characterization of Liquid Crystals." **\$2,500**

- IBM/Sloan Software Dissemination Project Grant, "Data Acquisition and Analysis Software," **\$2,230**
- 1991** PEW Faculty Curriculum Development Grant with K.K. Karukstis and R.N. Zare, "Curriculum Development to Illustrate Applications of Lasers in Chemistry." **\$12,770**
HMC Research Committee Summer Grant for "Initiation of Studies on Liquid Crystals Using Photoacoustic-thermal Characterization." **\$3,000**
- 1990** HMC Harvey S. Mudd Travel Grant to attend the NATO School on Phase Transitions in Liquid Crystals in Sicily and the 2nd International Conference on Metal Liquid Crystals in France. **\$500**
- 1989** Pew Science Grant for Visitor Support. **\$3,000**
HMC Research Committee Summer Grant for "Heat Capacity of the Mesogen 4-Cyano benzoyloxy-4'-octylbenzoyloxy-*p*-phenylene: A Calorimetric Study of Reentrant Behavior." **\$1,400**
- 1988** National Science Foundation with K.K. Karukstis and H. Van Ryswyk, "Utilization of Laser Light Sources in Chemistry". **\$106,435**
Thermal Sciences Corporation, "Materials for Low Temperature Thermal Storage". **\$3,000**
HMC Research Committee Summer Grant for "The Formation of Induced Liquid Mesophases: Complexes or Non-ideality in the Mesophase? An Analysis by the Equal G Technique". **\$3,000**
- 1987** HMC Research Committee Summer Grant for "Determination of Ternary Phase Diagrams Using The Contact Method". **\$2,250**
- 1986** Research Corporation "Excess Gibbs Energy Analysis of Polymorphic Mesogen Systems"-denied.
National Science Foundation Research at Undergraduate Institutions proposal "Excess Gibbs Energy Analysis of Polymorphic and Enhanced Mesomorphic Mixtures"-denied.
HMC Research Committee Summer Grant for "Multivariate Analysis of Excess Gibbs Energy Data from Binary Phase Diagrams of Liquid Crystals". **\$2,000**
- 1985** HMC Research Committee Summer Grant for "A Proposal for Syntheses of Various Types of Liquid Crystals". **\$2,600**
- 1984** National Science Foundation, "Automated Liquid Chromatography System," **\$42,750**
- 1982** Research Corporation "Discotic Liquid Crystalline Temperature-Volume Studies"-denied.
- 1980** Research Corporation "Liquid Crystalline Mixtures: Non-ideality Measured by Light Scattering Techniques"-denied.
HMC Research Committee Summer Grant for submission of a paper at 8th International Liquid Crystal Conference.
- 1979** HMC Research Committee Summer Grant for "Determination of Activity Coefficients in Binary Mixtures of Liquid Crystals by Light Scattering".
- 1978** HMC Research Committee Summer Grant for "Determination of Activity Coefficients in Binary Mixtures of Liquid Crystals by Light Scattering".
- 1977** Lilly Foundation Endowment Fund, "Study of Azeotropy in Binary Mixtures of Thermotropic Liquid Crystals".
National Science Foundation Research Proposal "An Investigation of the Equilibrium and Non-equilibrium Properties of Highly Ordered Fluids" with G. Morrison co-Principal Investigator-denied.
Petroleum Research Fund, "Thermodynamics of Ordered Fluids: Liquid Crystals".
- 1976** Shell Faculty Assistance Grant.
National Science Foundation Local Course Improvement Program "Audio-Visual Homework Problems"-denied.
National Science Foundation, "Differential Scanning Calorimeter," **\$21,800**
- 1975** National Science Foundation Undergraduate Research Participation Program "Summer Student Research".
HMC Research Committee Summer Grant for "Physical Studies on Homologous 4-Ethoxy-4'-alkanoyloxybenzenes: Powder X-ray".
Research Corporation Grant, "Birefringence: Comparison of Theory and Experiment".
- 1974** HMC Research Committee Summer Grant for "Synthesis of Some New Liquid Crystalline Compounds based on Carboxylic Acid Ester Derivatives of Azoxybenzene".
- 1973** HMC Research Committee Summer Grant for "Calorimetry of Mesomorphic Materials in the Presence of External Fields".
- 1972** Research Corporation "Calorimetry of Mesomorphic Materials in the Presence of External Electric Fields"-Denied.
- 1971** Shell Faculty Assistance Grant.

Senior Research Students

Year	Student	Post HMC position	Thesis title
2022	Stephen Gross	Stanford	Developing a Molecular Dynamics Approach for the Calculation of Thermochemical Properties of Aromatic and Non-Aromatic Organic Ring Liquids
2021			
2020			
2019	Daphne Guo	Stanford	Binary mixtures of organic acids have potential applications in thermal energy storage
	Leah Stevenson	Caltech	Determination of the reentrant nematic phase in binary mixtures of n-alkyl-cyanobiphenyl liquid crystals
2018	Paul Sonner	selfemploy	Inkjet Bronzing and Accelerated Sedimentation in Multiple-Specie Pigment Suspensions
2017			
2016			
2015			
2014			
2013	Chance Crompton w/ Kerry Karukstis	Caltech	Determination of the Lyotropic Liquid Crystalline Phases Formed by Green Surfactants in Ionic Liquids through Fluorescence Spectroscopy
2012	Samantha Fisher w/ Kerry Karukstis		Determining the Lyotropic Phases of n-Heptylthioglucoside in Methylimidazolium Tetrafluoroborate
	Nagiko Hara	employed	A New Library of 2, 7-Disubstituted Flourenes for Liquid Crystal Applications
	John Robinson		Vapor Detection using Nematic Liquid Crystals
2011	Heidi Linder		Determining the Binary Phase Diagram of N-Octyl- β -D-Thioglucoside and Water using Polarizing Microscopy and Fluorescence Spectroscopy
	Arthur Vasek		Multi-Angle Light Scattering Study of the Binary Liquid Mixture of Tetrahydrofuran and Water
2010	Christine Kim w/ Kerry Karukstis		Aggregation Behavior of N-Octyl- β -D-Glucoside in 1-Butyl-3-Methylimidazolium Tetrafluoroborate
	Mark Cyffka	employed	Analyte Detection Via Surface-Anchored Liquid Crystals
2009	Joshua Cobb	employed	Regioselectivity in Bimolecular Thermal Reactions through Liquid Crystalline Control
	Judy Hines		Characterization of Phase for n-octyl- β -D-galactopyranoside in Water using Florescence SprectroscopicTechniques

	Aurora Pribram-Jones	UC Irvine	Binary Liquid Mixtures and Bulk Chirality: Two New Explorations of the 2, 7-Diacyl Fluorenes
2008	Kristen Chellis		Contracting the Phase Diagram of Water and n-Octyl- β -D-Thioglucoside by Fluorescence Spectroscopy
	Minseok Jang		Excess Thermodynamic Functions of Binary Mixtures
2007	James McDonough w/ Kerry Karukstis	Stanford	Determination of Biologically Relevant Binary Lyotropic Liquid Crystalline Phase Diagrams Formed by n-Nonyl- β -D-Glucosides in Water
2006	Rachel Harris	U North Carolina	A Library of Mesomorphic Materials for the Systematic Study of Structure and Physical Properties: The Smectogenic 2, 7-Diacyl Fluorenes
	Christine Kalcic	U Michigan	Excess Thermodynamic Functions of Binary N-Alkane + Alkanol Mixtures
2005	Whitney Duim w/ Kerry Karukstis	Stanford	Determination of Biologically Relevant Lyotropic Liquid Crystalline Phases in Mixtures of Water and n-Alkyl-Glucosides or n-Alkyl-Thioglucosides
2004			
2003	Lucas Baker	employed	Synthesis of 2,7-disubstituted fluorenes
	Joshua Middendorf		Cobalt stearate lyometallomesomorphism
2002	Andrew Grossman	Scripps	Excess Gibbs Potential of Binary Liquid Mixtures through Laser Light Scattering
	Michael Nelson		Analysis of Lyotropic Liquid Crystalline Systems Using Differential Scanning Calorimetry and Polarized Light Microscopy
2001	Jennifer A. Godwin	Employed	Piezo-optic coefficients measured by a Michelson interferometric method for binary mixtures of anisole with miscible alcohols
2000	Carolyn Meyers	Employed	Synthesis and characterization of a homologous series of symmetric α carboxylic acids and their metallomesogens.
1999	Anna Holifield	Amgen	Piezo-optic coefficients of binary liquid mixtures: Pre-phenomena to Phase Separation.
	Maggie Wiseman	Price-waterhouse	Synthesis of copper carboxylate based metallomesogens.
	Jennifer Godwin	employed	Piezo-optic coefficients measured by a Michelson interferometric method for binary mixtures of water and miscible alcohol
	Elizabeth Schoene		Density temperature studies of two analogous and homologous series of calametic mesogens
1998			
1997	Todd G. Clements	UCSD	Mesomorphism and Polarized Spectroscopy of Cobalt Soaps
	Samuel O. Mikes	Lund	Solvation Effects in Mixtures of Small Molecules

	Brook Novak	U.Illinois	Synthesis and Characterization of <i>Hexa</i> -Substituted Triphenylene Discotic Liquid Crystals
1996	Robert Minneman	Boeing	Instrumentation for Determining Thermal Conductivity of Liquid Crystals
	Patrick Navolanic	Employed	Synthesis and Characterization of Copper(II) Carboxylates Complexed with Dipyridyls
1995	Susannah H. Bloch	U.Wash	Instrumentation for the Photoacoustic Thermal Characterization of Liquid Crystals
	Tanya L. Marc-Aurele	Teacher	Polarized Spectroscopy of Metallomesogens Containing Copper(II)
	Kevin K. Meagher	Princeton	Synthesis and Characterization of Liquid Crystal Polymers Based on Dipyridal Compounds
	Ryan B. Pearman	U.Illinois	Synthesis of Tetrasubstituted Benzoquinones
	Jonathan M. Sorenson	UCB	Monte Carlo Studies of Two-Dimensional Hard Rod Mixtures
	John M. Underhill	UCD	Liquid Surface Waves: Exploring Methods for Measuring the Surface Tension of Aqueous Solutions
1994	Josiah Brown	employed	Emission of Acetic Acid Studied by Raman Spectroscopy
	Neva Howard	Yale	Polarized Spectroscopy of 1,3-Diketonate Vanadium-Oxo-Metallomesogens
1993			
1992	Gordon Hogenson	U.Wash.	The Chloride Effect on the Belousov-Zhabotinsky Reaction
	Timothy Kuo	BostonU.	The Chloride Effect on the Belousov-Zhabotinsky Reaction (Special report)
	Robert Westervelt	U. Penn.	Excess Thermodynamic Functions of Binary Liquid Mixtures by Using Rayleigh Light Scattering
1991	Glenn Rawsky	U.Illinois	Polarized Spectroscopy: The Marriage of Lasers and Liquid Crystals
1990	Grant Nebel	UCSD	Particle Paths and Fractional Brownian Motion
	Charles Williamson	Caltech	Chaos and Chemical Oscillators.
1989	Glen Okui	employed	Polarized Light Spectroscopy on Transition Metal Liquid Crystals
1988	Todd Tamura	UCLA, MIT	Semiempirical Modelling of Excess Gibbs Energies from Liquid Crystalline Binary Phase Diagrams
1987	Kim K. Tsujimoto	Stanford	A Study of Excess Energies in Binary Systems: A Special Look At Di-Substituted Pyrimidines of the Form 2-[4- <i>n</i> -alkylphenyl]-5-[4- <i>n</i> -alkyloxyphenyl]pyrimidine
1986	David Ryba	UCSB	A Study of the Excess Energy in Binary Systems
1985			
1984			

1983	Denise M. Gudzikowski	employed	Assessing Purity of Benzene Hexa- <i>n</i> -alkanoates and 2,3,6,7,10,11-Hexa- <i>n</i> -alkanoyltriphenylenes with High Performance Liquid Chromatography
	Anthony Jacob	U. Wisconsin	Liquid Crystals and Other Weird Stuff Like That (Special report)
	Sharon R. Lunt	Caltech	Calculation of Phase Diagrams for Binary Mixtures of Nematic Liquid Crystals
	Mark McCoy	Princeton	The Application of Regular Solution Theory for Calculating Binary Mesogenic Phase Diagrams
	Mike Sailor	Northwes.	Synthesis of Hexasubstituted Triphenylenes (Special report)
1982	John S. Oliver	Northwes.	Synthesis of 2,3,6,7,10,11-Hexa- <i>n</i> -alkanoyltriphenylenes and 1,2,3,5,6,7-Rufigallol Hexa- <i>n</i> -alkanotes
	Andrew C. Pineda	Harvard	Applications of Generalized van Der Waals Theory to Homologous Nematogens, Part 1: <i>Trans</i> -4-ethoxy-4'- <i>n</i> -alkanoyloxyazobenzenes and Statistical Mechanics of Binary Nematic Liquid Crystal Mixtures
	Ralph A. Wheeler	Cornell	Application of Regular Solution Theory to Discotic Mesophases: Calculation of Phase Diagrams Exhibiting Minima
1981	Robin L. Cole	employed	Synthesis of 2,3,6,7,10,11-Hexa- <i>n</i> -octanoyltriphenylene or Finicky Molecules
	Todd J. Jones	Caltech	Testing the Generalized van Der Waals Theory of Liquid Crystals
1980	Scott Pace	MIT	An Apparatus for the Study of Liquid Crystals by Laser Light-Scattering
	Robert D. Prottas	U. Conn.	Excess Volume of Binary Nematogenic Mixtures Through the Use of Dilatometry
	Thomas H. Smith	UCD	Synthesis and Volumetric Studies of Discotic Mesogens
	Phillip Szuromi	Caltech	A Review of Some Statistical Theories of Liquid Crystals and DSC Studies on Mesogenic Spindle Systems
1979	Arturo Galindo III	Boston U.	Discotic Liquid Crystals
1978	James C. McComb	U. Illinois	Determination of the Binary Phase Diagrams of Two Systems Containing Bovine Brain Sphingomyelin
1977	Richard D. Loft	US Navy	Determination and Theoretical Treatment of the Binary Phase Diagrams of Three Homologues of <i>Trans</i> -4-ethoxy-4'- <i>n</i> -alkanoyloxyazobenzenes
	Louis Theodore	U. Wash.	Dilatometry Studies of an Homologous Series of Nematogens
	Brian W. Williams	Cornell	Synthesis and Calorimetry of Homologous <i>Trans</i> -4-ethoxy-4'- ω -Cyclohexyl- <i>n</i> -alkanoyl- and <i>Trans</i> -4-ethoxy-4'- ω -phenyl- <i>n</i> -alkanoyl-oxyazobenzenes
1976	Charles J. Adams Richard D. Loft Wallace A. McClure	special report	Theoretical Calculations of the Isotropic Transition Temperatures for Binary Mixtures of Liquid Crystals

1975	Craig L. Hillemann	Harvard	Synthesis and Calorimetry of Homologous <i>Trans</i> -4-Ethoxy-4'-Cycloalkancarboxyloxyazobenzenes
	Bernard Santarsiero	U. Wash.	Birefringence Studies of an Homologous Series of Nematogens
	Sean Wise	UCI	The Study of the Phase Diagram of a Lyotropic Liquid Crystal System with a Differential Scanning Calorimeter
1974	Martin Rudat	Cornell	Heat Capacities of a Homologous Series of Nematic Liquid Crystals By Differential Scanning Calorimetry," and, "Use of a Non-Chiral NMR Shift Reagent for Resolution of a Racemic Mixture in a Chiral Solvent
	Martha L. White	employed	Thermotropic Phase Transitions of <i>p</i> -(<i>p</i> -Ethoxyphenylazo)-Phenyl nonanoate
1973	Robert Frueholz	Caltech	Construction of a Linear Temperature Programmer and Its Integration Into a DTA Apparatus
	Robert Peak	employed	Synthesis and Properties of Some <i>p</i> -(<i>p</i> -Ethoxyphenylazo)-Phenyl Carboxylic Acid Esters
	Mark Poindexter	employed	Construction of a Differential Thermal Analysis Apparatus
1972			
1971	Selena Billington	Cornell	Nematic Liquid Crystals as Solvents in NMR Spectroscopy
	Peter Brumbaugh	U. Ariz.	Use of NMR Shift Reagents to Resolve Racemic Mixtures in Optically Active Solvents
	Robert C. Harney	UCD	Determination of Electric Field Ordering Effects in Liquid Crystals
	James Harris	Talbot Seminary	Investigation of Methanol-Water Solvent Interaction with <i>Tris-o</i> -Phenanthroline Nickel(II) Chloride
	Christopher Powell	employed	The Reaction of Gaseous Molecules in a Microwave-Induced Glow Discharge
	Jay Rubin	teacher	The Reaction of Methane and Carbon Monoxide in a Microwave Discharge

Summer Research Students

Year	Student	Project title
2022	Retirement	
2021	sabbatical	
2020	covid	
2019	Brandon Wada	Excess volumes, refractive index increments, viscosity increments, speed of sound, heat capacity measurements and adiabatic compressibilities in binary liquid mixtures
	Oliver Baldwin	Excess volumes, refractive index increments, viscosity increments, speed of sound, heat capacity measurements and adiabatic compressibilities in binary liquid mixtures
2018	Brandon Wada	Excess volumes, refractive index increments, viscosity increments, speed of sound, heat capacity measurements and adiabatic compressibilities in binary liquid mixtures
	Oliver Baldwin	Excess volumes, refractive index increments, viscosity increments, speed of sound, heat capacity measurements and adiabatic compressibilities in binary liquid mixtures
	Daphne Guo	Binary phase diagrams of C12 through C15 carboxylic acids
2017	Hannah Slocum	Excess volumes, refractive index increments, and viscosity increments
	Daphne Guo	Binary phase diagrams of C12 through C15 carboxylic acids
	Liya Zhu	Fluorescence detection of aggregation of chromonic dyes in the isotropic phase
2016	Alex Echevarria	Photographing oscillating chemical reaction
	Paul Sonner	Using quantum dots to determine surfactant/water phase diagrams
	Leah Stevenson	Fluorescence spectroscopy to determine surfactant/water phase diagrams
	Hannah Slocum	Excess volumes, refractive index increments, and viscosity increments
	Ben Iten	Self-assembling liquid crystalline polymers containing metallomesogens
	Colin Adams	Binary phase diagrams of C12 through C15 carboxylic acids
2015	Kevin Huang	Excess functions of propanol with 1,1,1-trifluoroethanol
	Kamau Waller	Use of fluorescence quantum dots to detect phase changes in water/surfactant mixtures
	Alex Echevarria	Using digital photography to follow the course of an oscillating reaction in particular the Belousov-Zhbotinsky reaction
2014		
2013		

2012	Morgan Luckey	Formaldehyde detection using liquid crystal birefringence
	Annalise Nunn North Arizona State	DSC of metallomesogens
	Bradely Nakamura Xavier U	A new library of 2,7-disubstituted fluorenes
	Kelsey Jindra	Metal ionic solutions of glucosides
	Nagiko Hara	Synthesis of 2,7-disubstituted fluorenes
	Chris Zazurata	Binary phase diagram
	Maria Kirkegaard	Determination of the binary phase diagrams of n-octyl- β -D-glucoside and n-heptyl- β -D-thioglucoside in the ionic liquid 1-n-butyl-3-methylimidazolium tetrafluoroborate
	Je Sue Lee	Binary phase diagram
	Emma Van Burns	Binary phase diagram of octyl galactoside in water
	Scott Rayermann	Determination of chromonic/water phase diagrams using fluorescence
2011	Chance Crompton	Phase diagram octyl thioglucoside in water
	John Robinson	Liquid crystal vapor detectors
	Scott Rayermann	Determination of chromonic/water phase diagrams using fluorescence
	Bram Carlson	Liquid crystal vapor detectors
	Emma Van Burns	Binary phase diagram of octyl galactoside in water
2010	Arthur Vasek	Piezo-optic coefficients of alkanes and alkane alcohol mixtures
	Thomas Avila	Piezo-optic coefficients of alkanes and alkane alcohol mixtures
	John Robinson	Liquid crystal vapor detectors
	Karen Hinselman w/ Kerry Karukstis	Binary phase diagram of heptyl thioglucoside in water
	Hayden Hatch w/ Kerry Karukstis	Binary phase diagram of nonyl thioglucoside in water
	Malous Kossarian w/ Kerry Karukstis	Binary phase diagrams of maltoside and galactoside in water
	Heidi Linder w/ Kerry Karukstis	Binary phase diagram of octyl thioglucoside in water
2009	Arthur Vasek	Remeasuring Rayleigh ratios of toluene and other standard solvents
	Thomas Avila	Measuring piezo-optic coefficients of water alcohol mixtures
	Max Kkushner-Lenhoff Yale U.	Investigation of liquid crystal binary phase diagrams exhibiting reentrance calculated by the equal Gibbs energy method
	Hufsa Ahmad	DSC studies of pure alkyl glucosides
	Heather Audesirk w/ Kerry Karukstis	Binary phase diagrams by fluorescence: alkyl oxo- and thioglucosides

	Cassie George w/ Kerry Karukstis	Binary phase diagrams by fluorescence: alkyl oxo- and thioglucosides
	Mark Cyffka	Excess functions via laser light scattering and other techniques
2008	Josh Cobb	Nonideality in the binary phase diagrams of homologous 4'-n-alkyl-4-cyanobiphenyls.”
	Trevor McQueen	Investigation of liquid crystal binary phase diagrams exhibiting reentrance calculated by the equal Gibbs energy method
	Mark Cyffka	Excess functions via laser light scattering
	Aurora Pribram-Jones	Synthesis of 2,7-disubstituted fluorenes, a library of mesomorphic materials for the systematic study of structure and physical properties
2007	Kristen Chellis w/ Kerry Karukstis	Determination of biologically relevant lyotropic liquid crystalline phases in mixtures of water and n-alkyl-glucosides or n-alkyl-thioglucosides
	Judy Hines w/ Kerry Karukstis	Preliminary studies of lyotropic metallomesogenic phase behavior in mixtures of water and n-alkyl-glucosides or n-alkyl-thioglucosides
	Trevor McQueen	Investigation of liquid crystal binary phase diagrams exhibiting reentrance calculated by the equal Gibbs energy method
	Colleen Small Bloomsburg U.	Synthesis of 2,7-disubstituted fluorenes
	Josh Cobb	Nonideality in the binary phase diagrams of homologous 4'-n-alkyl-4-cyanobiphenyls
	Ali Lee w/ Kerry Karukstis	Ternary diagrams of homologous alkyl-glucosides in water
	Christina Synder w/ Kerry Karukstis	Ternary diagrams of homologous alkyl-glucosides in water
2006	Minsoek Jang	Excess molar volumes and activation energies of viscous flow from densities and viscosities of binary liquid mixtures
	Kristen Chellis w/ Kerry Karukstis	Determination of biologically relevant lyotropic liquid crystalline phases in mixtures of water and n-alkyl-glucosides or n-alkyl-thioglucosides
	Aurora Pribram-Jones	Synthesis of 2,7-disubstituted fluorenes, a library of mesomorphic materials for the systematic study of structure and physical properties
2005	Whitney Duim	Calorimetric and fluorescence studies of biologically lyotropic liquid crystals
	Christine Kalcic	Laser light scattering for excess functions
	Rachel Harris	Synthesis of 2,7-disubstituted fluorenes, a library of mesomorphic materials for the systematic study of structure and physical properties
2004	Rachel Harris	Synthesis of 2,7-disubstituted fluorenes, a library of mesomorphic materials for the systematic study of structure and physical properties
	Whitney Duim	Calorimetric and fluorescence studies of biologically lyotropic liquid crystals
	Christine Kalcic	Laser light scattering for excess functions
	Cole Witham	Synthesis of 2,7-disubstituted fluorenes
2003	Kim Dallas -Villanova	Synthesis of 2,7-disubstituted fluorenes

	Whitney Duim	Calorimetric and fluorescence studies of biologically lyotropic liquid crystals
	David Liao	Monte Carlo simulations using Gay-Berne and Leonard-Jones potentials
	Elaine Hart	Polarized spectroscopy of metallomesogens: experiment and theory
	Christine Kalcic	Laser light scattering for excess functions
	Hanhan Li	ID lab development: biological polymers synthesis and tensile strength
	Hansford Hendargo	ID lab development: biological polymers synthesis and tensile strength
2002	Joshua Middendorf	Cobalt stearate lyometallomesomorphism
	Sarah Poe (Wellesley)	DSC of biologically relevant molecules
	Sarah Price	Laser light scattering for excess functions
	Kit Rodolfa	Monte Carlo simulations using Gay-Berne and Leonard-Jones potentials
2001	Michael Nelson	Calorimetry of Lyotropic Systems
2000	Monica Jo Patten	Stereochemical separations: alpha carboxylic acids
	Sarah Lane (U. of Florida)	Hydrogen bonded liquid crystals and polarized spectroscopy
	Leah Fargotstein	Polarized spectroscopy of metallomesogens
	Aaron Schuler	Development of experimental techniques with the DAWN EOS light scattering photometer
	Cyril Jacquot	Determination of excess Gibbs energies and piezo-optic coefficients of binary liquid mixtures using light scattering
1999	Martin Smith-Martinez	Ellipses and spheres subject to a Gay-Berne potential
	Elizabeth Schoene	Volumes of homologous azoxybenzene liquid crystals
	Kiyomi Onogi (U. of Redlands)	CD of cholesteryl derivatives
	Jennifer Godwin	Piezo-optic coefficients of alcohol/water mixtures
	Marja Fox John Staroba Matt Burden Andy Cosand Katherine Roth	Interdisciplinary laboratory development Interdisciplinary laboratory development Interdisciplinary laboratory development Interdisciplinary laboratory development Interdisciplinary laboratory development
1998	Anna Hollifield	Piezo-optic coefficients of nonionic surfactants in water
1997	Sabbatical	
1996	Todd Clements	Cobalt Soaps synthesis and spectroscopy
	April Hassel	Dynamic DSC: Reinvestigation of CBOBP
	Kevin Kee (Whitworth College)	Hydrogen-Bonding Polymers of Dicarboxylic Acids and Dipyrindals
	Geoffrey Munroe	Excess Thermodynamic Functions of Binary Liquid Mixtures by Laser Light Scattering and Raman Spectroscopy

	Bradford Pindzola (Carleton College)	Excess Thermodynamic Functions of Binary Liquid Mixtures by Laser Light Scattering and Raman Spectroscopy
1995	Todd Clements	Polarized spectroscopy of cobalt Soaps
	Rebecca Moore (Wellesley College)	Synthesis of substituted benzoquinones for use as metal complexing ligands
	Robert Minneman	Instrumentation for Determining Thermal Conductivity of Liquid Crystals
	Patrick Navolanic	Synthesis and Characterization of Copper(II) Carboxylates Complexed with Dipyridyls
	Eric Torgerson	Excess Gibbs potentials measured by laser light scattering for dioxane/water and THF/water mixtures
	Mike Underhill	Laser Demonstrations for General Chemistry
1994	Steve Bordelon	Laser Demonstrations for General Chemistry
	Micah Gearhart	Biological Calorimetry
	Christine Loftus	Excess Thermodynamic Functions of Binary Liquid Mixtures by Laser Light Scattering and Raman Spectroscopy
	Robert Minneman	Instrumentation for Determining Thermal Conductivity of Liquid Crystals
	Ryan Pearman	Polarized Spectroscopy of Copper(II) Carboxylates
	Jon Sorenson	Hard Rod Simulations of Liquid Crystals
	Mike Underhill	Laser Demonstrations for General Chemistry
1993	Josiah Brown	Laser Demonstrations for General Chemistry
	Micah Gearhart	Laser Demonstrations for General Chemistry
	Kevin Meagher	Photoacoustic Thermal Characterization of Liquid Crystals
	Ryan Pearman	Synthesis and Polarized Spectroscopy of Copper(II) Carboxylates
	Robin Rosenfeld	Synthesis and Polarized Spectroscopy of Copper(II) Carboxylates
	Jon Sorenson	Excess Gibbs Potential from Binary Liquid Crystalline Phase Diagrams Using the Equal G Analysis
	Steve Suljak	Excess Thermodynamic Functions of Binary Liquid Mixtures by Laser Light Scattering
1992	Ryan Frazier	Synthesis of Copper(II) Metallomesogens
	Christine Knuckey (U. Arizona)	Synthesis and Polarized Spectroscopy of Copper(II) Carboxylates
	Naomi Naito	Excess Gibbs Potentials in Reentrant Binary Liquid Crystalline Phase Diagrams Using the Equal G Analysis
	Jeremy Pietron	Polarized Spectroscopy in Liquid Crystalline Solvents
	Jon Sorenson	Excess Gibbs Potential from Binary Liquid Crystalline Phase Diagrams Using the Equal G Analysis

	Robert Westervelt	Excess Thermodynamic Functions of Binary Liquid Mixtures by Laser Light Scattering and Raman Spectroscopy
1991	Christine Knuckey (U. Arizona)	Synthesis and Polarized Spectroscopy of Copper(II) Carboxylates
	David Nash	Fluorescence Quenching by Lanthanides
	Robert Westervelt	Excess Thermodynamic Functions of Binary Liquid Mixtures by Laser Light Scattering and Raman Spectroscopy
1990	David Finnie	Development of Lasers in Chemistry Experiments
	Robert Westervelt	Excess Thermodynamic Functions of Binary Liquid Mixtures by Laser Light Scattering and Raman Spectroscopy
1989	Mark Minto	Multifunctional Laser Laboratory Assembly and Set-up
	Charles Williamson	Multifunctional Laser Laboratory Assembly and Set-up
1988	Kimberly Lawler	Synthesis and Properties of a Doubly Reentrant Liquid Crystal
	Bryan Marten	Studies of Singly Reentrant Liquid Crystals by the Equal G Analysis
	Grant Nebel	Molecular Dynamic Calculations on Liquid Crystals
	David Orvis	Materials for Low Temperature Thermal Storage
1987	Kimberly Lawler Grant Nebel	Synthesis and Properties of a Doubly Reentrant Liquid Crystal Ternary Liquid Crystalline Phase Diagrams
1986	Glen Okui	Development of New General Chemistry Experiments
	Todd Tamura	Multivariate Analysis of Excess Gibbs Potentials
1985	David Ryba	Equal G Analysis of Induced Phases
	Kim Tsujimoto	Equal G Analysis of Smectic Phases
1984		
1983	Anthony Jacobs	Synthesis of Discotic Mesogens
1982	Mike Sailor	Synthesis of Discotic Mesogens
1981	John Oliver	Synthesis of Discotic Mesogens
	Andrew Pineda	Generalized van der Waals Models for Liquid Crystals
1980		
1979	William Gonzales (Williams College)	Lyotropic Liquid Crystals
	Timothy Murdock	Laser Light Scattering by Liquid Crystals
	Phillip Szuromi	Calculations of Ideal Binary Liquid Crystalline Phase Diagrams
1978	Mark Burch	Laser Light Scattering by Liquid Crystals
	Thomas Harris	Binary Phase Diagrams
	Thomas Smith	Dilatometry of Liquid Crystals

1977	Timothy Murdock	Laser Light Scattering by Liquid Crystals
1976	Charles Adams	Binary Phase Diagrams Calculated from Gibbs Potentials
	Richard Loft	Binary Phase Diagrams Studied by DSC
	Louis Theodore	Dilatometry of Binary Liquid Crystalline Mixtures
	Brian Williams	Powder X-ray Studies of Liquid Crystalline Azoxybenzenes
1975	Richard Loft	Binary Phase Diagrams Studied by DSC
	Bernard Santarsiero	Birefringence and Dilatometry of Liquid Crystalline Azoxybenzenes
	Brian Williams	Powder X-ray Studies of Polymorphic Liquid Crystals
1974	Craig Hillemann	Synthesis and DSC Characterization of New Liquid Crystals
	Bernard Santarsiero	Birefringence of Liquid Crystalline Azoxybenzenes
1973	Craig Hillemann	Synthesis and DSC Characterization of New Liquid Crystals
1972	Martin Rudat	Microscopic Studies of Homologous Liquid Crystals
1971	David Kalman	Electric Field Effects on Liquid Crystal Transition Temperatures
	John Winther	Microscopic Studies of Homologous Liquid Crystals

SEMESTER COURSES TAUGHT

2022 Fall C51 Physical Chemistry C53 Physical Chemistry Laboratory	
2021 Fall C51 Physical Chemistry C166 Industrial Chemistry C53 Physical Chemistry Laboratory C151 Senior research 1 student	2022 Spring C52 Group Theory, Quantum and Spectroscopy C194 Chemistry of Modern Materials C152 Senior research 1 student
2020 Fall Sabbatical	2021 Spring Sabbatical
2019 Fall C166 Industrial Chemistry C53 Physical Chemistry Laboratory	2020 Spring C52 Group Theory, Quantum and Spectroscopy C24 General Chemistry Laboratory C40 First year introduction to research
2018 Fall C51 Physical Chemistry C53 Physical Chemistry Laboratory C151 Senior research 2 students	2019 Spring C193e Chemistry of Modern Materials C24 General Chemistry Laboratory C40 First year introduction to research C152 Senior research 2 students
2017 Fall C166 Industrial Chemistry C193e Chemistry of Modern Materials C53 Physical Chemistry Laboratory C151 Senior research 1 student	2018 Spring C52 Group Theory, Quantum and Spectroscopy C24 General Chemistry Laboratory C40 First year introduction to research C152 Senior research 1 student
2016 Fall C163e Advanced Group Theory C53 Physical Chemistry Laboratory	2017 Spring C52 Group Theory, Quantum and Spectroscopy C161 Classical and Statistical Thermodynamics C24 General Chemistry Laboratory C40 First year introduction to research
2015 Fall C53 Physical Chemistry Laboratory C23A Chemistry in the Modern World	2016 Spring C23B Chemistry in the Modern World C166 Industrial Chemistry C40 First year introduction to research C193f Chemistry and Physics of Stuff
2014 Fall C161 Classical and Statistical Thermodynamics C166 Industrial Chemistry C53 Physical Chemistry Laboratory	2015 Spring C193e Chemistry of Modern Materials C24 General Chemistry Laboratory C40 First year introduction to research C193f Chemistry and Physics of Stuff
2013 Fall Sabbatical	2014 Spring Sabbatical
2012 Fall C161 Classical and Statistical Thermodynamics C166 Industrial Chemistry C53 Physical Chemistry Laboratory C151 Senior research 1 student	2013 Spring C24 General Chemistry Laboratory C52 Group Theory, Quantum and Spectroscopy C40 First year introduction to research C152 Senior research 1 student

2011 Fall C23 General Chemistry Energetics C53 Physical Chemistry Laboratory C197 Reading course Nelson lectures C151 Senior Research 2 students	2012 Spring C52 Group Theory, Quantum and Spectroscopy C104 Inorganic Chemistry C40 First year introduction to research C152 Senior Research 2 students C199 Advanced glass blowing
2010 Fall C23 General Chemistry Energetics C53 Physical Chemistry Laboratory C166 Industrial Chemistry C151 Senior Research 1 students	2011 Spring C52 Group Theory, Quantum and Spectroscopy C24 General Chemistry Laboratory C168E Advanced Group Theory C152 Senior Research 1 students
2009 Fall C23 General Chemistry Energetics C53 Physical Chemistry Laboratory C151 Senior Research 1 students	2010 Spring C52 Group Theory, Quantum and Spectroscopy C26 General Chemistry Laboratory C198 Reading course Glass working C152 Senior Research 2 students
2008 Fall C53 Physical Chemistry Laboratory C161 Classical and Statistical Thermodynamics C166 Industrial Chemistry C151 Senior Research 2 students	2009 Spring C52 Group Theory, Quantum and Spectroscopy C168 Special Topics Lasers in Chemistry C198 Reading course Glass working C152 Senior Research 2 students
2007 Fall C21 General Chemistry C53 Physical Chemistry Laboratory C151 Senior Research 2 students	2008 Spring C114 Instrumental Analysis C152 Senior Research 2 students
2006 Fall C21 General Chemistry C53 Physical Chemistry Laboratory C151 Senior Research 1 student	2007 Spring C22 General Chemistry C152 Senior Research 1 student
2005 Fall C21 General Chemistry C25 General Chemistry Laboratory C151 Senior Research 2 students	2006 Spring C104 Inorganic Chemistry C110 Inorganic Chemistry Laboratory C152 Senior Research 2 students
2004 Fall Sabbatical year C151 Senior Research 1 student	2005 Spring Sabbatical year C152 Senior Research 1 student
2003 Fall C51 Physical Chemistry C25i Interdisciplinary Laboratory	2004 Spring C52 Group Theory, Quantum and Spectroscopy P28i Interdisciplinary Laboratory P178 Physics and Chemistry of Stuff
2002 Fall C51 Physical Chemistry C53 Physical Chemistry Laboratory C151 Senior Research 2 students	2003 Spring C52 Group Theory, Quantum and Spectroscopy P28i Interdisciplinary Laboratory C152 Senior Research 2 students
2001 Fall C51 Physical Chemistry C53 Physical Chemistry Laboratory C151 Senior Research 2 students	2002 Spring C52 Group Theory, Quantum and Spectroscopy P28i Interdisciplinary Laboratory P178 Physics and Chemistry of Stuff C152 Senior Research 2 students

2000 Fall C51 Physical Chemistry C53 Physical Chemistry Laboratory C199 Chemical Literature C151 Senior Research 1 student	2001 Spring P28i Interdisciplinary Laboratory C166 Industrial Chemistry C168 Special Topics Lasers in Chemistry C152 Senior Research 1 student
1999 Fall C25i Interdisciplinary Laboratory C161 Classical and Statistical Thermodynamics C199 Chemical Literature C151 Senior Research 1 student	2000 Spring C104 Inorganic Chemistry C110 Inorganic Chemistry Laboratory C152 Senior Research 1 student
1998 Fall C25 Freshman Chemistry Laboratory C161 Classical and Statistical Thermodynamics C166 Industrial Chemistry C168 Special Topics Lasers in Chemistry C195 Chemical Literature C151 Senior Research 2 students	1999 Spring C104 Inorganic Chemistry C110 Inorganic Chemistry Laboratory P178 Physics and Chemistry of Stuff C152 Senior Research 2 students
1997 Fall Sabbatical year	1998 Spring Sabbatical year
1996 Fall C25 Freshman Chemistry Laboratory C161 Classical and Statistical Thermodynamics C168 Special Topics Lasers in Chemistry C195 Chemical Literature C151 Senior Research 3 students	1997 Spring C104 Inorganic Chemistry C108 Junior Laboratory C152 Senior Research 3 students
1995 Fall C25 Freshman Chemistry Laboratory C161 Classical and Statistical Thermodynamics C166 Industrial Chemistry C195 Chemical Literature C151 Senior Research 2 students	1996 Spring C104 Inorganic Chemistry C108 Junior Laboratory C152 Senior Research 2 students
1994 Fall C53 Physical Chemistry Laboratory C161 Classical and Statistical Thermodynamics C168 Special Topics Lasers in Chemistry C151 Senior Research 6 students	1995 Spring C52 Group Theory, Quantum, and Spectroscopy C26 Freshman Chemistry Laboratory C152 Senior Research 6 students
1993 Fall C53 Physical Chemistry Laboratory C195 Chemical Literature C166 Industrial Chemistry C151 Senior Research 2 students	1994 Spring C52 Group Theory, Quantum, and Spectroscopy C26 Freshman Chemistry Laboratory C152 Senior Research 2 students
1992 Fall C53 Physical Chemistry Laboratory C195 Chemical Literature C151 Senior Research 2 students	1993 Spring C114 Advanced Analytical/Instrumental Analysis C108 Junior Laboratory C152 Senior Research 2 students
1991 Fall C53 Physical Chemistry Laboratory C151 Senior Research 2 students C166 Industrial Chemistry C195 Chemical Literature	1992 Spring C22 Freshman Chemistry C26 Freshman Chemistry Laboratory C168 Special Topics Lasers in Chemistry C152 Senior Research 2 students

1990 Fall Sabbatical year C151 Senior Research 1 student	1991 Spring Sabbatical year C152 Senior Research 1 student
1989 Fall C51 Physical Chemistry C53 Physical Chemistry Laboratory C151 Senior Research 2 students C195 Chemical Literature	1990 Spring C104 Inorganic Chemistry C108 Junior Laboratory C166 Industrial Chemistry C198 Reading course Ceramics Chemistry C152 Senior Research 2 students
1988 Fall C51 Physical Chemistry C53 Physical Chemistry Laboratory C151 Senior Research 1 student	1989 Spring C104 Inorganic Chemistry C108 Junior Laboratory C152 Senior Research 1 student
1987 Fall C51 Physical Chemistry C53 Physical Chemistry Laboratory C151 Senior Research 1 student	1988 Spring C22 Freshman Chemistry AP section C26 Freshman Chemistry Laboratory C163 Group Theory C166 Industrial Chemistry C152 Senior Research 1 student
1986 Fall C22 Freshman Chemistry AP section C25 Freshman Chemistry Laboratory C151 Senior Research 1 student	1987 Spring C22 Freshman Chemistry AP section C26 Freshman Chemistry Laboratory C163 Group Theory C152 Senior Research 1 student
1985 Fall C51 Physical Chemistry - 110 students C53 Physical Chemistry Laboratory C197 Reading course Computers in Chemistry C151 Senior Research 1 student	1986 Spring C114 Advanced Analytical/Instrumental Analysis C108 Junior Laboratory C163 Group Theory C152 Senior Research 1 student
1984 Fall C51 Physical Chemistry C53 Physical Chemistry Laboratory	1985 Spring C22 Freshman Chemistry C26 Freshman Chemistry Laboratory C164 Quantum Chemistry
1983 Fall Sabbatical year	1984 Spring Sabbatical year
1982 Fall C21 Freshman Chemistry C25 Freshman Chemistry Laboratory C161 Advanced Thermodynamics C162 Statistical Thermodynamics C151 Senior Research 3 students	1983 Spring C51 Physical Chemistry C26 Freshman Chemistry Laboratory C198 Reading course Liquid Crystal Synthesis C152 Senior Research 3 students
1981 Fall C51 Physical Chemistry - 90 students C53 Physical Chemistry Laboratory C161 Advanced Thermodynamics C151 Senior Research 3 students	1982 Spring C114 Advanced Analytical/Instrumental Analysis C108 Junior Laboratory C163 Group Theory C166 Industrial Chemistry C152 Senior Research 2 students

1980 Fall C51 Physical Chemistry - 94 students C21 Freshman Chemistry C151 Senior Research 2 students	1981 Spring C114 Advanced Analytical/Instrumental Analysis C108 Junior Laboratory C163 Group Theory C152 Senior Research 2 students
1979 Fall C51 Physical Chemistry - 125 students C21 Freshman Chemistry C197 Reading course Group Theory C151 Senior Research 4 students	1980 Spring Half-semester leave to research in Poland C114 Advanced Analytical/Instrumental Analysis C108 Junior Laboratory C166 Industrial Chemistry C152 Senior Research 4 students
1978 Fall C53 Physical Chemistry Laboratory C162 Statistical Thermodynamics C151 Senior Research 1 student	1979 Spring C114 Advanced Analytical/Instrumental Analysis C108 Junior Laboratory C166 Industrial Chemistry C198 Reading course Quantum Chemistry C152 Senior Research 1 student
1977 Fall Lilly Grant released time for 2 courses C25 Freshman Chemistry Laboratory C53 Physical Chemistry Laboratory C151 Senior Research 1 student	1978 Spring C114 Advanced Analytical/Instrumental Analysis C198 Reading course Mass Transport C152 Senior Research 1 student
1976 Fall Sabbatical year C151 Senior Research 3 students	1977 Spring Sabbatical year C152 Senior Research 3 students
1975 Fall C51 Physical Chemistry C53 Physical Chemistry Laboratory Special January Mini-course Crystal Symmetry	1976 Spring C163 Group Theory C26 Freshman Chemistry recitations C26 Freshman Laboratory 2 sections C53 Summer course 4 students
1974 Fall C51 Physical Chemistry C53 Physical Chemistry Laboratory C151 Senior Research 3 students	1975 Spring C163 Group Theory C26 Freshman Laboratory 2 sections C152 Senior Research 2 students
1973 Fall C103 Chemical Analysis C107 Junior Laboratory C151 Senior Research 2 students	1974 Spring C163 Group Theory C114 Advanced Analytical/Instrumental Analysis C108 Junior Laboratory C152 Senior Research 2 students
1972 Fall NP Natural Philosophy C51 Physical Chemistry C53 Physical Chemistry Laboratory C151 Senior Research 3 students	1973 Spring C163 Group Theory C198 Reading course Electronics for Instrumentation C108 Junior Laboratory C114 Advanced Analytical/Instrumental Analysis C152 Senior Research 3 students
1971 Fall C51 Physical Chemistry C53 Physical Chemistry Laboratory	1972 Spring C108 Junior Laboratory C114 Advanced Analytical/Instrumental Analysis

1970 Fall

C51 Physical Chemistry 2 sections
C53 Physical Chemistry Laboratory
C151 Senior Research 6 students

1971 Spring

C108 Junior Laboratory
C114 Advanced Analytical/Instrumental Analysis
C152 Senior Research 6 students