

CURRICULUM VITAE

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DATE OF BIRTH: January 29, 1949, United States Citizen

EDUCATION:

- Ph.D.** Department of Chemical Engineering, McMaster University, Hamilton, Ontario, 1981
Dissertation: "Copolymer Kinetics and Characterization"
Supervisors: Dr. A. E. Hamielec and Dr. J. F. MacGregor
- M.S.** Department of Chemical Engineering, McMaster University, Hamilton, Ontario, 1976.
Thesis: "Acrylonitrile Bulk Polymerization"
- B.S.** Department of Chemical Engineering, National University of México (U.N.A.M.) - graduated with Honors, 1972.
Thesis : "Friction Factor - Reynolds Number Correlation for Pseudo Plastic Fluids: An Experimental Study on the Rheological Properties of Drilling Muds", Sponsored by the Mexican Oil Company (PEMEX)

CURRENT POSITION:

- 2006 - Present** Founder, Principal, President and Chief Scientific Officer, Claro Scientific LLC.
2002 - Present Professor, College of Marine Science, Physics, Chemistry, Engineering, and Public Health, University of South Florida
2001 – 2002 Professor, Chemical Engineering and Chemistry, University of South Florida
2000 - 2001 R&D Ocean Optics Inc.
1997 - 2000 Chairperson, Chemical Engineering, , University of South Florida
1984 – 2002 Professor, Chemical Engineering and Chemistry, , University of South Florida
Professor, April, 1990
Associate Professor, June, 1989
Tenured, June, 1988

INDUSTRIAL EXPERIENCE:

- 2006-Present** President and Chief Scientific Officer, Claro Scientific LLC., 10100 Dr. Martin Luther King Jr. St. N. St. Petersburg, FL 33716
2004-Present Principal and Co-Founder of Claro Scientific LLC., 10100 Dr. Martin Luther King Jr. St. N. St. Petersburg, FL 33716

2002-2006	Smith & Nephew Andover, MA, Member of the Science Advisory Board
1989-Present	Principal and Co-Founder of Ocean Optics Inc., 380 Main Street, Dunedin, FL 34698
1984-Present	USF-based Consulting and Industrial Research Projects: see sections on Non-Refereed Technical Publications, Consulting and Industrial Research, and Funded Research.
1980-1983	Xerox Research Centre of Canada, 2660 Speakman Drive, Mississauga, Ontario
1972-1974	Petroleos Mexicanos (PEMEX)
1970-1971	Química Hoechst de México

RELEVANT INSTITUTIONAL AND PROFESSIONAL SERVICE:

Search Committee for Provost, 2001
 Search Committee for Engineering Dean, 2000
 Chairperson, Chemical Engineering Department 1997-2000
 Member of the Board of Directors, USF Research Foundation 1997-2001
 Search Committee, President USF Research Foundation 1999
 Faculty search Committee, Chemical Engineering Department, 2000
 MacNair Scholar Program Advisor, 1995-2001
 Editorial Advisory Board, Polymer Reaction Engineering, 1995-2001
 Editorial Advisory Board, Latin American Applied Research, 1992-1997
 Reviewed Papers for AIChE Journal, Macromolecules, Technometrics, Chemical Engineering Communications, Journal of Applied Polymer Science, Journal of Polymers Science, Journal of Photochemistry and Photobiology, Journal of Colloids and Interface Science, Latin American Applied Research, and Polymer Reaction Engineering.

AWARDS AND SCHOLARSHIPS:

2009	University of South Florida Academy of Inventors , Charter Member
2007	Inducted into the <i>McMaster Alumni Gallery</i> , McMaster University, Hamilton, Ontario, Canada, June 2, 2007.
2005	Featured in: " Quantum Leaps –College of Marine Science ", University of South Florida, December 1, 2005.
1990	Featured in: " Models of Excellence ", Published by the National Science Foundation, 1990.
1988-90	NSF Special Creativity Award (RII-850796, \$ 220,000)
1988	Phi Kappa Phi Outstanding Scholar
1988	Outstanding Researcher Award , College of Engineering University of South Florida
1972	Honors Diploma awarded by the National University to students with high grades and outstanding thesis and thesis defense
1970-71	Química Hoechst de México Training Scholarship

- 1965-71** **Petroleos Mexicanos Scholarship** - awarded by Petroleos Mexicanos to employee's relatives with outstanding academic performance
- 1958-64** **Public Education Secretary Scholarship** - (fee exemption awarded to students with outstanding performance, on a yearly basis)

REFEREED PUBLICATIONS

Published/In Press:

1. Yulia M. Serebrennikova and Luis H. García-Rubio, *Modeling and interpretation of the extinction spectra of oriented non-spherical composite particles: application to biological cells*. **Applied Optics** 49 (23), 4460-4471, **2010**.
2. Yulia M. Serebrennikova Patel, J., Milhous, W. K., and García-Rubio, L.H. *Quantitative analysis of morphological alterations in Plasmodium falciparum infected red blood cells through theoretical interpretation of spectral measurements*. **Journal of Theoretical Biology**, 265, 493-500, **2010**.
3. Yulia M. Serebrennikova, García-Rubio, L.H., Smith, J.M., and Huffman, D. *Multi-wavelength spectroscopy of oriented erythrocytes*. **Proceedings of SPIE 7572E**, (Optical Diagnostics and Sensing X: Toward Point-of-Care Diagnostics, [G. L. Coté](#), Ed.), DOI: 10.1117/12.842046. Publication Date: March 11, **2010**.
4. Yulia M. Serebrennikova, Patel, J., and García-Rubio, L.H. *Interpretation of the UV-visible spectra of malaria parasite Plasmodium falciparum*. **Applied Optics**, 49 (2), 180-188, **2010**.
5. Huffman, D.E., Y. Serebrennikova, J.M. Smith, G. Leparc and L.H. Garcia-Rubio. *A new Method for the Detection of Microorganisms in Blood Cultures: Part III. Application of a quantitative interpretation model to aerobic blood cultures*. **J. Biomed Optics**, 14 (3), 034043, **2009**.
6. Adam Spear, Kendra Daly, Debra Huffman and Luis H. Garcia Rubio, *Progress in Developing a New Detection Method for the Harmful Algal Bloom Species, Karenia brevis, through Multiwavelength Spectroscopy*, **Harmful Algae**, 8, 189-195, **2009**
7. Maria Teresa Celis,, Andres Gil, Ana Forgiarini, and Luis H. Garcia Rubio, *Characterization of monomer emulsions en terms of droplet size and stability: Effect of emulsifier concentration* , **Journal of Dispersion Science Technology**, scheduled for , 30(8), **2009**
8. Yulia M. Serebrennikova, Jennifer M. Smith, Debra E. Huffman, German F. Leparc, and Luis H. García-Rubio. *Quantitative Interpretation of Visible-NIR reflectance spectra of blood.*, 27 October 2008 / Vol. 16, No. 22 / OPTICS EXPRESS 18215, **2008**
9. Jennifer M. Smith, Yulia M. Serebrennikova¹, Debra E. Huffman, German F. Leparc², and Luis H. García-Rubio. *A NEW METHOD FOR THE DETECTION OF MICROORGANISMS IN BLOOD CULTURES PART I: Theoretical analysis and simulation of blood culture processes*. **Canadian Journal of Chemical Engineering**, Volume 86, Issue 5, Pages 947-959, October **2008**.
10. Maria-Teresa Celis, Ana Forgiarini, Maria-Isabel Briceño, Luís H. García-Rubio, *Spectroscopy measurements for determination of polymer particle size distribution*, Colloids and Surfaces A: Physicochem. Eng. Aspects 331, 91-96, **2008**.

11. Maria Teresa Celis,, and Luis H. Garcia Rubio, *Interpretacion spectral de dispersiones liquido-liquido usando espectroscopia ultravioleta-visible (Uv-vis)*, **Journal of Science and Engineering-University of the Andes-Mérida - Venezuela**, 29(1), **2008**
12. Alicia C. Garcia-Lopez and Luis H. Garcia-Rubio, *Rayleigh-Debye-Gans as a Model for Continuous Monitoring of Biological Particles: Part I, Assessment of Theoretical Limits and Approximations*, **Optics Express**, 16(7), 8849- 8865, **March , 2008**.
13. Maria-Teresa Celis and L. H. Garcia-Rubio, *Systematic Spectroscopy Study for Characterization of Emulsions*, *Journal of Industrial and Engineering Chemistry Research* 29 (1/3) **2008**.
14. Maria-Teresa Celis and L. H. Garcia-Rubio, *Characterization of Emulsions: A Systematic Spectroscopy Study*, *Journal of Dispersion Science and Technology*, 29:20–26, **2008**.
15. S. N. Thennadil and L.H. García-Rubio, *Interpretation of the Light Scattering of Dispersions,-A Hybrid Approach to Account for Inter-Particle Interactions*, **Particle and Particle Systems Characterization**, December, **2007**.
16. Marquez-Riquelme, L.H. García-Rubio, *Numerical Algorithm for the Solution of the Poisson-Boltzman Equation in rectangular coordinates for High Surface Potentials*. **Particulate Science and Technology**, 25, 449-468, **2007**.
17. Maria-Teresa Celis and L. H. Garcia-Rubio, *Spectroscopy as a tool for characterization of monomer emulsions*, **Journal of Dispersion Science and Technology**, 28(2), 271-278, **2007**.
18. Alicia C. Garcia-Lopez, Arthur David Snider, and Luis H. Garcia-Rubio, *Rayleigh-Debye-Gans as a Model for Continuous Monitoring of Biological Particles: Part I, Assessment of Theoretical Limits and Approximations*, **Optics Express**, 14(19), 8849- 8865, **September 2006**
19. V. Shastry and L. H. Garcia-Rubio, *Identification of Nucleation Loci in Emulsion Polymerization Processes –I New Information from Spectroscopy Studies*. **Journal of Applied Polymer Science**, 100(4), 2847-2857, **May 2006**.
20. V. Shastry and L. H. Garcia-Rubio, *Identification of Nucleation Loci in Emulsion Polymerization Processes –II Systematic Study of Initial Emulsion Conditions*. **Journal of Applied Polymer Science**, 100(4), 2858-2866, **May 2006**. *ibid*: 101(2), 1234, **July 2006**.
21. Stacey S. Patterson, Erica T. Casper, Luis H. Garcia-Rubio, Mathew C. Smith and John H. Paul, *Increased Precision of RNA Quantification using NASBA with an Internal Control (IC-NASBA)*. **Journal of Microbiological Methods** 60, 343-352, **2005**.
22. C. E. Alupoaei, and L. H. García-Rubio, *An Interpretation Model for the Uv-vis spectra of Microorganisms*, **Chemical Engineering Communications**, 192(1-3), 198-218, **2005**.
23. M. T. Celis de Arce and L.H. García-Rubio, *Stability of Emulsions from Multiwavelength Transmission Measurements*, **Industrial & Engineering Chemistry Research**, 43(9), **2067-2072, 2004**.
24. G. E. Iranipour, J. Harmon, and L.H. García-Rubio, *Modeling and simulation of aggregation processes in colloidal systems*, Accepted for publication in the **Journal of Dispersion Science and Technology**, 25(4), 555-565, **2004**.

25. C. E. Alupoaei, and L. H. García-Rubio, *Growth Behavior of Microorganisms using UV-Vis Spectroscopy: E. Coli*, **Biotechnology and Bioengineering**, 88(2), 893-903, April20, **2004**
26. C. E. Alupoaei, J. A. Olivares, and L. H. García-Rubio, *Quantitative Spectroscopy Analysis of prokaryotic Cells: Vegetative Cells and Spores*, **Biosensors and Bioelectronics**, 19(8), 893-903, **2004**.
27. M. C. Callahan, J. B. Rose and L.H. García-Rubio. *The Use of Multiwavelength Transmission Spectroscopy for the Characterization of Cryptosporidium parvum Oocysts: - Quantitative Interpretation*, **Environmental Science & Technology**, 37, 5254-5261, **2003**.
28. M. T. Celis de Arce and L.H. García-Rubio, *Continuous Spectroscopy Characterization of Emulsions*, **Journal of Dispersion Science and Technology**, 23 (1-3), 293-299, **2002**.
29. Narayanan, L. Galloway, G. F. Leparc, L. H. García-Rubio, and R. L. Potter, "UV-Visible Spectrophotometric Approach to Blood Typing II: Phenotyping of Subtype A2 and Weak D and Whole Blood Analysis", **Transfusion**, 42, 619-626, May **2002**.
30. P. A. Phsathas, M. L. Janowiak, L.H. García-Rubio, and K. P. Johnston, "Formation of Miniemulsions in CO₂ Using the Phase Inversion Temperature Method", **Langmuir**, 18, 3039-3046, **2002**
31. M. L. Janowiak, H. Huang, S. Chang, and L.H. García-Rubio, "Development of a pH sensor for On-line Control". **ACS Symposium Series No 795 Optical Polymers/Fibers and Waveguides**, Eds. J. P Harmon and G. K. Noren, Chapter 14, **2001**
32. S. N. Thennadil and L.H. García-Rubio, "Approximations for Calculating van del Waals Interaction Energy Between Spherical Particles: A comparison", **Journal of Colloid and Interface Science Science**, 243, 136-142, **2001**.
33. Y. Mattley, G. Leparc, R. Potter, and L.H. García-Rubio, "Light Scattering and Absorption Model for the Quantitative Interpretation of Human Platelet Spectral Data", **Photochemistry and Photobiology**, **2000**, 71(5).
34. M. E. Orazem, P. T. Wojcik, M. Durbha, I. Frateur, and L. H. García-Rubio, "Application of Measurement Models for Interpretation of Impedance Spectra for Corrosion," **Materials Science Forum**, C. Deslouis, T. EL, **2000**.
35. S. L. Carson, M. E. Orazem, O. D. Crisalle, L. H. García-Rubio, "Influence of Instrumentation on the Error Structure of Impedance Measurement," in *Electrochemical Approach to Selected Corrosion and Corrosion Control Studies* (The First Joint EFC/ISE Symposium, **1999**), P. L. Bonora and F. Deflorian, editors. Publication number 28 in European Federation of Corrosion Series. Published by The Institute of Materials, London, **2000**, 344-360.
36. Ioanna Koumarioti, L. Davis, S. Chang, and L.H. García-Rubio, "Spectroscopy Analysis of Particle Suspensions", **Development of Non-Renewable Resources: Challenges and Solutions**". Eds, H. El-Shall, A. Ismail and B. Moudgil. United Engineering Foundation, Inc. New York, pages 83-93, **1999**.

37. S. Narayanan, S. Orton, G. Leparc, L.H. García-Rubio and R. Potter, "UV-Visible Spectrophotometric Approach to Blood Typing: Objective Analysis by Agglutination Index". *Transfusion*, volume 39, 1051-1059, **1999**.
38. S. L. Carson, O. Crisalle, M. E. Orazem, and L. H. García-Rubio, "Error Analysis for Spectroscopy Applications of the Kramers-Kronig Transforms", Accepted for Publication in *Journal of the Electrochemical Society* in **1999**.
39. M. C. Callahan, J. B. Rose, L.H. García-Rubio, and R. Robertson, "New Spectrophotometric Methods for the Characterization and Detection of Cryptosporidium". *Water Sci. and Tech.*, **1998**.
40. L.H. García-Rubio, C. Bacon and M. E. Orazem, "Error Analysis for Spectroscopy Applications of the Kramers-Kronig Transforms: Monte Carlo Simulations". Submitted for Publication *Journal of Applied Physics*, **1998**.
41. S. H. Chang, L. H. García-Rubio, "Determination of pH with Acid-Base Indicators: Feasibility Analysis for Optical Fiber Probes"., Accepted for Publication to *Talanta*, **1998**.
42. S. H. Chang, R. H. Byrne and L. H. García-Rubio, "Comparison of the Behavior of Indicator Dyes in Solution and Immobilized in a Polymer Matrix for pH Measurements"., Submitted for Publication to *Analytical Chemistry*, **1998**.
43. S. Chang, Y. Koumarioti, J. Throckmorton and L.H. García-Rubio, "Particle Size Distributions from Uv-vis Turbidimetry using Inversion Techniques: Analysis of SiO₂ Particle Suspensions", *J. Coll. and Interface Science*. Submitted for Publication, **1998**.
44. C. Bacon, and L.H. García-Rubio, "Multiangle-Multiwavelength Detection for Particle Characterization". *ACS Symposium Series 693, "Particle Size Distribution III: Assessment and Characterization"*, Chapter 5, T. Provder, Ed., American Chemical Society, Washington, D. C. **1998**.
45. P. Sacoto, F. Lanza, H. Suarez and L. H. García-Rubio., "A Novel Automatic Dilution System for On-Line Particle Size Analysis", *ACS Symposium Series ACS Symposium Series 693, "Particle Size Distribution III: Assessment and Characterization"*, Chapter 4, T. Provder, Editors., American Chemical Society, Washington, D. C. **1998**.
46. L. C. Langebrake, P. Betzer, R. Byrne, K. Carder, D. Costello, T. Hopkins, L. H. Garcia-Rubio, D. Fries, R. T. Short, R. Waterbury, "Development of Sensors and Sensor Systems for AUVs/UUVs", in *AUVs/UUVs, Litoral Oceanography, Remote Sensing & Positioning, SCAWVEX: Wave Measurement, Wave Modelling & Integrating Models & Observations, Volume 3, (ISBN:0 900254 21 1)*, **1998**.
47. H. Huang and L. H. García-Rubio., "Development of Optical Fiber/Polymer Interface for Immobilized Sensors", *Interfacial Aspects of Multicomponent Polymer Materials*, D. J. Lohse, T. P. Russell, and L. H. Sperling, Eds., Plenum Press, New York, **1997**.
48. M. Durbha, M. E. Orazem, and L.H. García-Rubio., "Spectroscopy Applications of the Kramers-Kronig Relations: Implications for Error Structure Identification". *Journal of the Electrochemical Society*, 144, 48-55, **1997**.
49. M. E. Orazem, P. T. Wojcik, M. Durbha, I. Frateur and L.H. García-Rubio., "Application of Measurement Models for the Interpretation of Impedance Spectra for Corrosion". In Press, *Materials Science Forum*, **1997**.
50. L.H. García-Rubio., "Studies in Free Radical Initiation". *Macromolecular Symposia*, Vol. 111, December ,

1996.

51. M.E. Orazem, L.H. García-Rubio, "Propagation of Spectroscopy Errors Through the Kramers Kronig Relations: A common Ground for Interpretation of Measurements". Accepted for publication *Journal of the Electrochemical Society*, **1996**.
52. P. Agarwal, M.E. Orazem, L.H. García-Rubio, "The Influence of the Error Structure on Interpretation of Impedance Spectra". in Press, *Electrochimica Acta*, **1996**.
53. P. Agarwal, M.E. Orazem, L.H. García-Rubio, "Measurement Models for Electrochemical Impedance Spectroscopy: 3. Evaluation of Consistency with the Kramers-Kronig Relations". *Journal of the Electrochemical Society*, 142, 4159-4168, **1995**.
54. P. Agarwal, O. D. Crisalle, M.E. Orazem, L.H. García-Rubio, "Application of Measurement Models to Impedance Spectroscopy: 2. Determination of the Stochastic Contribution to the Error Structure". *Journal of the Electrochemical Society*, 142, 4149-4158, **1995**.
55. M.E. Orazem and L.H. García-Rubio, "Applications of Impedance Spectroscopy to Corrosion Research", in *Electrochemical Methods in Research V*, M. G. S. Ferreira and A. M. P. Simoes, editors, Trans Tech Publications, Switzerland, 563-572, **1995** (also published as *Materials Science Forum*, 192-194, **1995**).
56. P. Agarwal, M.E. Orazem, L.H. García-Rubio, "Application of Measurement Models to Impedance Spectroscopy: 3. Evaluation of Consistency with the Kramers-Kronig Relations". *Journal of the Electrochemical Society*, **142**, 4159-4168, **1995**.
57. P. Agarwal, M.E. Orazem, L.H. García-Rubio, "Critical Issues Associated Interpretation of Impedance Spectra". *Journal of Electroanalytical Chemistry and Interfacial Electrochemistry*, 378, 51-62, **1994**.
58. Arthur Jutan and L.H. García-Rubio, "Application of Multivariate Discrimination and Eigenvalue Analysis to the Resolution of Spectroscopic Data". *Journal of Process Control and Quality*, 4, 235-243, **1993**.
59. L.H. García-Rubio, C.A. García and S. Grossman, "Spectroscopy Characterization of Proteins: Use of Model Molecules for Porcine Somatotropin Analysis". *Chem. Eng. Comm.*, 122, 85-101, **1993**.
60. E. Marquez, V.R. Bhethanabotla and L.H. García-Rubio, "Conformation Effects on the Absorption Spectra of Macromolecules". *Macromolecules*, 26, 479-484, **1993**.
61. S. Shetty and L.H. García-Rubio, "Size Exclusion Chromatography and End-Group Analysis of Polymethyl Methacrylate". *ACS Symposium Series No 521*, Chapter 11, **1993**.
62. M. Orazem, P. Agarwal, A. N. Jansen, P. T. Wojcik and L.H. García-Rubio, "Development of Physico-Chemical Models for Electrochemical Impedance Spectroscopy. *Electrochimica Acta*, Vol 38, 1903-1911, **1993**.
63. P. Agarwal, O. C. Moghissi, M. E. Orazem and L.H. García-Rubio, "Application of Measurement Models for Analysis of Impedance Spectra". *Corrosion*, Vol. 49, No 4, 278-289, **1993**.
64. P. Agarwal, M.E. Orazem, L.H. García-Rubio, "Application of the Kramers-Kronig Relations to Electrochemical Impedance Spectroscopy Analysis and Interpretation". J. Scully, D. Silverman, M. Kendig, Editors, *American Society for Testing and Materials, ASTM, STP, Philadelphia, PA, 115-139*, **1993**.
65. M. E. Orazem, P. Agarwal and L.H. García-Rubio, "Critical Issues in Electrochemical Impedance Spectroscopy", Paper No93-349, National Association of Corrosion Engineers, Houston, Texas, **1993**.

66. P. Agarwal, M.E. Orazem and L.H. García-Rubio, "Measurement Models for Electrochemical Impedance Spectroscopy: 1. Demonstration of Applicability". *Journal of the Electrochemical Society*, 139, 1917-1927, **1992**.
67. P. Agarwal, O. C. Moghissi, M.E. Orazem and L.H. García-Rubio, "Application of Measurement Models to Electrochemical Impedance Spectroscopy. Paper No 92-227, National Association of Corrosion Engineers, Houston, Texas, **1992**. Also published in *Techniques for Corrosion Measurement*, A. Bronson and G. Warren, editors, National Association of Corrosion Engineers, Houston Texas, **1992**.
68. L.H. García-Rubio, "Refractive Index Effects on the Absorption Spectra of Macromolecules". *Macromolecules*, 25, 2608-2613, **1992**.
69. G. Frontini, L.H. García-Rubio and G. Meira, "Interpretation of Size Exclusion Chromatography of Copolymers I, Scope and Generation of the Joint Molecular Weight Composition Distribution". *Journal of Applied Polymer Science, Applied Polymer Symposium*, 48, 141-160, **1991**.
70. G. Frontini, L.H. García-Rubio and G. Meira, "Interpretation of Size Exclusion Chromatography of Copolymers II, Secondary Fractionation Effects in Ideal Size Exclusion Chromatography". *Journal of Applied Polymer Science, Applied Polymer Symposium*, 48, 161-183, **1991**.
71. Adriana Brandolin, L.H. García-Rubio, T. Provder, M.E. Koehler and C. Kuo, "Latex Particle Size Distribution from Turbidimetry Using Inversion Techniques, Experimental Validation". *ACS Symposium Series No.472, Ch 2*, **1991**.
72. Adriana Brandolin and L.H. García-Rubio, "On-Line Particle Size Distribution Measurements for Latex Reactors. *ACS Symposium Series No.472, Chapter 4*, **1991**.
73. S.H. Grossman, F. Akinado, and L.H. García-Rubio, " A PhysicoChemical comparison of Creatine Kinase Isozymes from Rabbit Muscle and Brain". *Biochem. Biophys. Acta*, 1040, 311-316, **1990**.
74. G. Eliçabe and L.H. García-Rubio, "Latex Particle Size Distribution from Turbidimetry using a Combination of Regularization Techniques and Generalized Cross Validation". *Advances in Chemistry Series Vol 227, ACS Washington DC*, **1990**.
75. L.H. García-Rubio, "Determination of the Absorption Coefficient of Proteins in the Presence of Protein Aggregates using Turbidimetry". *Chem. Eng. Comm*, 80, 193, **1989**.
76. G. Meira and L.H. García-Rubio, "Corrections for Instrumental and Secondary Broadening in The Chromatography Analysis of Linear Copolymers". *J. of Liq. Chromatography*, 12(6), 997-1021, **1989**.
77. Darmasena Peramunage, Jack Fernandez and L.H. García-Rubio, "Poly(Crown Ether): A Potential Candidate For Solid State Electrolytes". *Macromolecules*, 22(6), 2845, **1989**.
78. G. Eliçabe and L.H. García-Rubio, "Latex Particle Size Distribution from Turbidimetry using Inversion Techniques". *J. Coll. and Interface Sci.*, 129(1), 192, **1988**.
79. Co-Author in the IUPAC Working Party on Free Radical Polymerization, "Consistent Values of Rate Parameters in Free Radical Polymerization Systems". *J. Polym. Sci., Part C, Polymer Letters Ed.*, 26, 293-297, **1988**.
80. L.H. García-Rubio, "The Effect of The Molecular Size on The Absorption Spectra of Macromolecules".

Macromolecules, 20, 3070-3075, **1987**.

81. L.H. García-Rubio, "Multiple Detectors in Size Exclusion Chromatography. Part I, Signal Analysis". *ACS Symposium Series*, 352, on *Detection and Data Analysis in Size Exclusion Chromatography*, T. Provder editor, **1987**.
82. L.H. García-Rubio, "Averages from Turbidity Measurements". *ACS Symposium Series* **332**, T. Provder, editor, Chapter **11**, 161-178, **1987**.
83. S. Grossman and L.H. García-Rubio, "Interaction of Brain Type Creatine Kinase with its Pseudotransition State Complex: Kinetics of Inhibition and Conformational Changes". *J. Enzyme Inhibition*, 1, 301, **1987**.
84. A.K. Sunol, L.H. García-Rubio and C.A. Smith, "Model Structure and Optimization Algorithm Selection for Pulp and Paper Processes. in *Applications of Chemical Engineering Principles in Forestry Products and Related Industries*. Ed. B. Krieger and F. Kayihan, **1986**.
85. L.H. García-Rubio and J. Mehta, "Initiation Reactions and the Modelling of Polymerization Kinetics". *Advances in Chemistry Series No 313*, 202, **1986**.
86. L.H. García-Rubio, M.G.M. Lord, J.F. MacGregor and A.E. Hamielec, "Bulk Copolymerization of Styrene Acrylonitrile, Experimental Kinetics and Mathematical Modelling. *Polymer*, 26 (13), 2001, **1985**.
87. L.H. García-Rubio and N. Ro, "Detailed Copolymer Characterization Using Ultraviolet Spectroscopy. *Can. J. Chem.* 63, 253, **1985**.
88. L.H. García-Rubio, N. Ro and R.D. Patel, "UV Analysis of Benzoyl Peroxide Initiated Polymerizations and Copolymerizations. *Macromolecules*, 17, 1998, **1984**.
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91. S.T. Balke, L.H. García-Rubio, R.D. Patel, "Conversion Prediction in High Conversion Free Radical Polymerizations. *Polymer Engineering and Science*, Vol. 22 (12), 777-787, **1982**.
92. L.H. García-Rubio, J.F. MacGregor and A.E. Hamielec, "Modelling and Control of Copolymerization Reactors. *197 ACS Symposium Series Chapter 6*, 87-116, **1982**.
93. L.H. García-Rubio, A.E. Hamielec and J.F. MacGregor, "U.V. Spectrophotometer as Size Exclusion Chromatography Detectors. *197 ACS Symposium Series, Chapter 9*, 151-183, **1982**.
94. L.H. García-Rubio, "Sequence Length Tacticity and Conformation Effects on the UV Absorption Spectra of Styrene Copolymers. *J. of App. Polym. Sci.*, 27, 2043-2052, **1982**.
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96. L.H. García-Rubio and A.E. Hamielec, "Bulk Polymerization of Acrylonitrile I - An Experimental Investigation of the Kinetics of the Bulk Polymerization of Acrylonitrile. *J. Appl. Polym. Sci.*, 23, 1397-1411, **1979**.

Submitted/Under Revision:

1. D. E. Huffman, W. Moreno, L. H. García-Rubio, and G. Leparc, *Malaria Diagnosis using Biophotonics*, under revision, **Journal of Clinical Chemistry**, **2009** (under revision)
2. Nonoyama A., L.H. García-Rubio, G. Leparc, R. Potter, *Hypochromicity in Red Blood Cells: An Experimental and Theoretical Investigation*. Submitted to Photochemistry and Photobiology, Manuscript No: 2005-08-23-RA-285, **2009** (under revision).

CONFERENCE PROCEEDINGS:

1. Luis H. Garcia-Rubio, *From Emulsion Polymerization to Disease Detection: A Path of Innovation*, Invited Lecture, X Congreso Internacional de Ingenieria Quimica, Monterrey, Nuevo Leon, Mexico, **February 19-21, 2009**.
2. Maria-Teresa Celis, Luís H. García-Rubio, Rubio, *Characterization of dispersed systems using multiwavelength transmission measurements*, Invited lecture- Particles 2008-**Orlando Florida-May 2008**
3. Zurek, E.E.; Moreno, W.A.; Garcia-Rubio, L.H., *A Numerical Approach to Simplify the Diffraction Grating Model*. Instrumentation and Measurement Technology Conference Proceedings, **2008**. IMTC 2008. IEEE, 12-15 May 2008 Page(s):2108 – 2113.
4. Maria-Teresa Celis, Luís H. García-Rubio, *Multiwavelength transmission measurements for emulsion characterization*, Formula V Conference- **Postdam- Berlin, November 19-22, 2007**
5. Maria-Teresa Celis, Ana Forgiairini, Maria Isabel Briceño and Luis H. Garcia-Rubio, *Spectroscopy measurements for determination of polymer particle size distribution*, Formula V Conference- **Postdam-Berlin, November 19-22, 2007**
6. Luis H. Garcia-Rubio, *Systemas de Espectroscopia para Biodeteccion*, Invited Lecture, Biotecnlogia: Ganacia para el ambiente Colombiano, Universidad del Norte, Barranquilla, Colombia **October 11-12, 2007**
7. Maria-Teresa Celis and Luis H. Garcia-Rubio "Spectral interpretation of liquid – liquid dispersiones using spectroscopy Uv-vis", Proceeding , VI Conference Scientific-technical of the College of Engineering-paper JI-IQ-004 –University of the Andes-Mérida Venezuela, **11-14 October 2007**
8. Luis H. Garcia-Rubio, *Spectroscopy Systems for Biodeteccion*, Invited Lecture, The Future of Biodeteccion Systems, Santa Fe, NM, **September 26-27, 2006**
9. Luis H. Garcia-Rubio, *From Emulsion Polymerization to Disease Detection: A Path of Innovation*, Invited Lecture, Polymer Reaction Engineering VI, Halifax, Nova Scotia, Canada, **May 21-26, 2006**
10. Maria-Teresa Celis and L. H. Garcia-Rubio, *Droplet size distribution of liquid-liquid systems from UV-vis spectra interpretation*, accepted for Oral Presentation – **Particles 2006- Orlando Florida –May, 2006**
11. Luis H. Garcia-Rubio, A. Malcolmson, M. Eyring, and G. Crawley, *Biophotonics Technology for Infectious Disease Screening and Diagnosis*, Invited Lecture, Cowen & Co. 26th Annual Health Care Conference, Boston, MA, **March 6-9, 2006**

12. D. E. Huffman and L. H. García-Rubio, Biophotonics Detection of Agents of Bioterrorism in Water Case Studies: *Y. pestis* and *B. anthracis*, Presented at the **American Water Works Association/Water Quality Technology Conference**, Quebec City, Canada, **November 6-10, 2005**
13. Maria-Teresa Celis and L. H. Garcia-Rubio, *Emulsifier Distribution on liquid-liquid systems*, Oral Presentation – International Symposium on the role of adsorbed film and particulate systems in nano and biotechnologies, Gainesville, Florida-USA, **24-26 August 2005**.
14. D. E. Huffman, T. Berg, G. Klungness, A. Garcia-Lopez, and L. H. García-Rubio, *Spectrophotometric Measurements for the Identification and Characterization of Microorganisms During Growth*. **World Congress of Chemical Engineering, Glasgow, Scotland, July 11-15, 2005**.
15. L. H. García-Rubio, G. Klugness, G. Leparc, and D. Huffman, *Malaria Diagnosis using Biophotonics*, Invited Presentation, **Oak Ridge Conference: Pushing the Technology Envelope II**, Baltimore, Maryland, **April 15, 2005**
16. L.H. García-Rubio, V. Shastry. *Characterization of the Initial Conditions in Emulsion Polymerization: Loci for Particle Nucleation*. Presented at the **AIChE Annual Meeting**, Austin, Texas, **November 9-11, 2004**.
17. L.H. García-Rubio, C. E. Alupoaei, D. Huffman, G. Klugness, G. Leparc, and N. Hidalgo. *A Malarial Diagnosis using Spectral Acquisition Process Detection (SAPD) Technology*, presented at the **44th ICAAC Annual Meeting**, Washington D.C., **October 30-November 2nd, 2004**.
18. L.H. García-Rubio, C. E. Alupoaei, J. Olivares, P. Stark, A. Garcia-Lopez, C. Stephans, T. Berg, G. Klugness, A. Gennacaro, and D. Huffman. *A New Spectroscopy Method for In-Situ Rapid Detection and Classification of Microorganisms*, Invited Paper, presented at the **OPTICS EAST 2004**, Philadelphia, Pennsylvania, Maryland, **October 25-28, 2004**.
19. Maria Celis de Arce and L.H. García-Rubio, *Systematic Spectroscopy Study of Liquid-Liquid Emulsions*, presented at the **15th International Symposium on Surfactants in Solution**, Fortaleza, Brazil, **June 6-11, 2004**.
20. L.H. García-Rubio, C. E. Alupoaei, J. Olivares, P. Stark, A. Garcia-Lopez, T. Berg, and D. Huffman. *A New Spectroscopy Method for In-Situ Rapid Detection and Classification of Microorganisms*, presented at the **2004 ASM/Biodefense Research Meeting**, Baltimore, Maryland, **March 7-10, 2004**, Paper 114 – Oral Presentation-Conference Particles 2004, Orlando, USA , 6-9 March **2004**
21. Maria Celis de Arce and L.H. García-Rubio, *Quantitative Spectroscopy Characterization of Liquid-Liquid Emulsions*, presented at the International Conference **Particles 2004**, Paper 114, Orlando, Florida, **March 6-9, 2004**.
22. Maria-Teresa Celis.; and Garcia- Rubio, L.H., "Issues in Emulsifier Characterization: Theoretical and Experimental Studies", International Conference **Particles 2004**, Orlando, USA, 6-9 March **2004**.
23. Catalina E. Alupoaei and L.H. García-Rubio, *A New Method for In-situ Continuous Detection and Identification of Microorganisms*, presented at the **ASLO/TOS 2004** Ocean Research Conference, Honolulu, Hawaii, **February 15-20, 2004**.
24. Catalina E. Alupoaei and L.H. García-Rubio, *A Novel Spectroscopy Method for the Quantitative Analysis of Microorganisms*, presented at the IFPAC-2004, 18th International Forum Process Analytical Technology, Arlington, VA, **January 12-15, 2004**.

25. Catalina E. Alupoaei and L.H. García-Rubio, *Quantitative Spectroscopy Analysis of Microorganisms*, presented at the International Conference *Particulate System Analysis*, Harrogate, UK, **September 10-12, 2003**.
26. L.H. García-Rubio, *Emulsifier Distribution in Liquid-Liquid Systems*, presented at the International Conference *Particulate System Analysis*, Harrogate, UK, **September 10-12, 2003**
27. L.H. García-Rubio, *Characterization of Complex Particles*, presented at the International Conference *Particulate System Analysis*, Harrogate, UK, **September 10-12, 2003**.
28. Gita Iranipour and L.H. García-Rubio, *Modeling and simulation of aggregation processes in colloidal systems*, presented at the International Conference *Particles 2003*, Toronto, Canada, **August 23-26, 2003**.
29. Catalina E. Alupoaei, L. H. García-Rubio, L. Heler, C. Davis, A. Cannons, P. Amuso, and J. Cattani, *Novel Method for the Discrimination of Microorganisms using Spectroscopy*, **Paper No 1998**, American Society for Microbiology, Washington, DC, **May 2003**
30. Maria-Teresa Celis, and Garcia- Rubio, L.H., *A Rapid Spectroscopy Method for the Characterization of Emulsions*, presented at Third World Congress on Emulsions, Lyon, France, **September, 2002**
31. Maria-Teresa Celis, and Garcia- Rubio, L.H., *Effects of Emulsifier on Transmission Spectra of Emulsions*. Presented at the 14th Symposium of Surfactants in Solution, Barcelona Spain, **June, 2002**
32. Catalina E. Alupoaei and L.H. García-Rubio, *Characterization of Bioparticles*, presented at the International Conference *Particles 2002*, Orlando, Florida, **April 20-23, 2002**.
33. Andres Cardenas-Valencia, V. Shastry, N. Claggett and L.H. García-Rubio, "Transmission and Reflectance Spectroscopy for Continuous Process Monitoring of Particle Size, Concentration and Composition", presented at the United Engineering Foundation Conference on Reaction Engineering, Barga, Italy, June 24-29, **2001**.
34. M. L. Janowiak, S. Chang and L.H. García-Rubio, "Reaction Engineering Model for the Interpretation of pH Optodes", presented at the United Engineering Foundation Conference on Reaction Engineering, Barga, Italy, June 24-29, **2001**.
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36. L.H. Garcia-Rubio, "A Strategy for the Implementation of the Regularized Solution for Particle Size Estimation from Transmission Spectroscopy", *Particles 2001*, Orlando, Florida, February 25-27, **2001**.
37. L.H. Garcia-Rubio, "Characterization of the Joint Particle Property Distribution of Micron and Submicron Particulate Systems II: Applications to Biological and Synthetic Particles", *Particles 2001*, Orlando, Florida, February 25-27, **2001**.
38. Y. Mattley and L.H. Garcia-Rubio, "Multiwavelength Spectroscopy to Detect, Identify and Quantify Cells", SPIE National Meeting East Boston, Massachusetts, 5-8 November **2000**.
39. Xiaojuan Fu and L. H. Garcia-Rubio, "Feasibility of Identification and Classification of Microorganisms using a Combined FFFF-Spectroscopy System", SPIE National Meeting East, Boston, Massachusetts, 5-8 November **2000**.
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Micron and Submicron Particulate Systems: Biological and Synthetic Particles”, 14th International Congress of Chemical and Process Engineering, Praha, Czech Republic, 27-31 August **2000**.

41. L. H. García-Rubio and Andres M. Cardenas Valencia, “Reflectance Spectroscopy Probes for Continuous Process Monitoring of Particle Size, Concentration and Chemical Composition”, 14th International Congress of Chemical and Process Engineering, Praha, Czech Republic, 27-31 August **2000**.
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43. M. Lisa Bruder, Alicia Garcia-Lopez and L. H. Garcia-Rubio, “Systematic Study of the Sensitivity of Multiwavelength Spectroscopy for Particle Characterization”, 14th International Congress of Chemical and Process Engineering, Praha, Czech Republic, 27-31 August **2000**.
44. Alicia Garcia-Lopez, Andres M. Cardenas-Valencia and L H. Garcia-Rubio, “Liquid Core Waveguide for the Study of Colloidal Systems”, 14th International Congress of Chemical and Process Engineering, Praha, Czech Republic, 27-31 August **2000**.
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47. L. H. García-Rubio. "Detection of Small Concentration of Aggregates", 13th International Symposium on Surfactants in Solution, Gainesville FL, June 11-16, **2000**.
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51. S. Carson, M. Orazem, O. D. Crisalle and L.H. García-Rubio, "Influence of Instrumentation on the Error Structure of Impedance Measurements", 50th Annual Meeting of the International Society of Electrochemistry, Pavia, Italy, September 5-10, **1999**.
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53. E. Steimle, L. H. García-Rubio, J. L. F. Porteiro "Study of the Waves in the Belusov-Zhabotinski reaction using Uv-vis spectroscopy”. ACS National Meeting, New Orleans, August 22-26, **1999**.
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- Particle Characterization". Invited Lecture, IFRP, Rutgers N. Y., June 7-10, **1999**.
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PATENTS AND PATENT APPLICATIONS:

Claro Scientific LLC:

1. Leparc G., Garcia-Rubio LH, Smith JM, Serebrennikova YM, Huffman D. **"Detecting microorganisms in blood utilizing physical and chemical changes in blood"** **International Publication Number WO 2009/061377 A2**, May 14, **2009**
2. Serebrennikova YM, Huffman D. , Smith JM., Garcia-Rubio LH., Leparc G., **"Detecting microorganisms in blood utilizing physical and chemical changes in blood"** **United States Patent No 2009/0115996 A1**, May 17, **2009**
3. **United States Patent Application F&L2064302**, Leparc G., Garcia-Rubio LH, Smith JM, Serebrennikova YM, Huffman D. **"Detecting microorganisms in blood utilizing physical and chemical changes in blood"** , October, **2007**

Los Alamos National Laboratory:

1. **LANL Patent Application S-109,091**, Portable Sample Preparation and Analysis System for Micron and Sub-Micron Particle Characterization Using Light Scattering and Absorption Spectroscopy, October, **2007**

University of South Florida:

1. **United States Patent No 7,027,134 B1:** Spectrophometric System and Method for the Identification and Characterization of a Particle in a Bodily Fluid II. Issued on April 11, **2006**.
2. **United States Patent No 6,984,526 B2:** Spectrophometric Method for Determining the Viability of a Sample Containing Platelets. Issued on January 10, **2006**.
3. **United States Patent No 20050233439:** Optical method and system to determine distribution of lipid particles in a sample, October 20, **2005**
4. **United States Patent No 6,788,394:** Spectrophometric System and Method for the Identification and Characterization of a Particle in a Bodily Fluid. Issued on September 7, **2004**.
5. **United States Patent No 6,330,058 B1:** Spectrophotometric Method and Apparatus for Blood Typing, Patent issued on December 11, **2001**.
6. **United States Patent No 60/217,742:** Method for the Identification and Diagnosis of Blood and Infectious Diseases, September 9, 2000.
7. **United States Patent No 5,907,108:** Continuous Sampling and Dilution System and Method, Patent issued on May 25th, **1999**.
8. **United States Patent No 5,808,738:** Multiangle-Multiwavelength Particle Characterization System and Method, Patent issued on September 15th, **1998**.
9. **United States Patent No 5,616,457:** Method and Apparatus for the Detection and Classification of Microorganisms in Water, Patent issued on April 1st, **1997**.
10. **United States Patent No 5,589,932:** Spectrophotometric Method and Apparatus for the Characterization of Blood and Blood Types, Patent issued on December 31st, **1996**.

INVENTION DISCLOSURES:

1. **Claro Scientific Disclosure No: CI-001:** Optical Method and System to Determine Distribution of Lipid Particles in a Sample. With Catalina E. Alupoaei (USF), Jointly with J. Linton and D. Everhart (Kimberly-Clark), June **2004**.
2. **Los Alamos National Laboratory S-109,091, Disclosure,** Portable Sample Preparation and Analysis System for Micron and Sub-Micron Particle Characterization Using Light Scattering and Absorption Spectroscopy, May **2007**.
3. **USF Disclosure USF-04B086:** Spectrophotometric Method for the Identification of Microbial Contamination in Platelets. With Catalina E. Alupoaei, August **2004**.
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5. **USF/Kimberly Clark Disclosure No: USF-04B084/K-C 19564:** Optical Method and System to Determine Distribution of Lipid Particles in a Sample. With Catalina E. Alupoaei (USF), Jointly with J. Linton and D. Everhart (Kimberly-Clark), June **2004**.
6. **USF Disclosure No 03A017:** Probabilistic Model for Identification of Particles in a Suspension. With Catalina

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 10. **USF Disclosure No 97A20**: Rotational Electrophoretic Spectroscopy: A sensing Technology for Measurement of the Distribution of Particle Charge Heterogeneity and Shape. Jointly with Prof. Mark Orazem, University of Florida, June **1997**.
 11. **USF Disclosure No USF-94B40CP**: Spectrophotometric Technique for the Characterization of Blood Types and Blood Components (Continuation in Parts), December **1996**.
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 16. **Xerox Research Centre of Canada IP 820689** L.H. García-Rubio and R.D. Patel, August, **1982**.
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SEMINARS AND INVITED LECTURES:

1. Luis H. Garcia-Rubio, *Product Development Strategies: Claro Scientific LLC*, Invited Lecture, Center for Entrepreneurship (Kaufman Foundation), University of South Florida, Tampa Florida, **April 7, 2008**
2. Luis H. Garcia-Rubio, *Spectroscopy Systems for Biodetection*, Invited Lecture, Colloquium Series, Physics Department of Physics, University of South Florida, Tampa Florida, **April 4, 2008**
3. Luis H. Garcia-Rubio, *Advances in Microbial Detection and Identification in Blood Culture Systems*, Invited Lecture, bio-Merieux, Durham, North Carolina, **June 24-25, 2007**
4. Luis H. Garcia-Rubio, Matt Eyring, and Jose Olivares, *Claro Scientific Business Presentation*, Invited Lecture, Magellan Biosciences, Chelmsford, MA, **January 31, 2007**
5. Luis H. Garcia-Rubio, *New Approach for Microbial Detection in Blood Cultures*, Invited Lecture, Becton-Dickinson, Baltimore Maryland, **January 25, 2007**

6. Luis H. Garcia-Rubio, Matt Eyring, and Jose Olivares, *Claro Scientific Business Presentation*, Invited Lecture, Becton-Dickinson, Franklin Lakes, New Jersey, **January 4, 2007**
7. Luis H. Garcia-Rubio, *Spectroscopy Systems for Biodetection*, Invited Lecture, University of St. Etienne, St. Etienne, France, **December 13, 2006**
8. Luis H. Garcia-Rubio, Matt Eyring, and Jose Olivares, *Claro Scientific Business Presentation*, Invited Lecture, bio-Merieux, Marcy l'etoile, France, **December 12, 2006**
9. Luis H. Garcia-Rubio, *Biophotonics for Disease Detection: Claro Sci. LLC.*, Invited Lecture, Patel Center, University of South Florida, Tampa, FL, **August 10, 2006**
10. Luis H. Garcia-Rubio, *From Emulsion Polymerization to Disease Detection: A Path of Innovation*, Invited Lecture, Ecole de Mines, Saint Etienne, France, **July 24, 2006**
11. Luis H. Garcia-Rubio, *Biophotonics Technology for Infectious Disease Diagnosis and Environmental Applications*, Invited Lecture, Bio-Merieux, Marcy l'etoile, France, **July 21, 2006**
12. Luis H. Garcia-Rubio, *Multi-wavelength, Multi-parameter Optical Identification of Pathogens in a Bodily Fluid*, Invited Lecture, University of Massachusetts Medical School, UMass Memorial, Boston, Massachusetts, **June 15, 2006**
13. Luis H. Garcia-Rubio, *Biophotonics Technology for Infectious Disease Diagnosis and Environmental Applications*, Invited Lecture, Bio-Merieux, Durham, North Carolina, **April 17, 2006**
14. Luis H. Garcia-Rubio, *Biophotonics Technology for Infectious Disease Diagnosis and Environmental Applications*, Invited Lecture, Stanford Research Institute International, Menlo Park, CA, **February 9-10, 2006**
15. Luis H. Garcia-Rubio, G. Leparc, and D. Huffman, *Biophotonics Technology for Infectious Disease Screening and Diagnosis*, Invited Lecture, College of Public Health, University of South Florida, Tampa, FL, **August 3, 2005**
16. Luis H. Garcia-Rubio, G. Leparc, and D. Huffman, *Biophotonics Technology for Infectious Disease Screening and Diagnosis*, Invited Lecture, College of Public Health, University of South Florida, Tampa, FL, **August 3, 2005**
17. Luis H. Garcia-Rubio, T. Berg, and G. Leparc, *Biophotonics Technology for Infectious Disease Screening and Diagnosis: Bacterial Contamination of Platelets*, Business Presentation, **Baxter Corporation**, Round Lake, Illinois, **July 14, 2005**
18. L.H. García-Rubio, C. E. Alupoaei, *Biophotonics Technology for Identification of Disease Markers and Diagnosis*, Invited Lecture, **BC Biomedical**, Vancouver, Canada, **May 27, 2005**.
19. Luis H Garcia-Rubio, *The use of Multiwavelength Spectroscopy for Medical Diagnosis and Real-time, in-situ Monitoring*, Invited Presentation, Portland State University, Portland, Oregon, **May 26, 2005**
20. Luis H Garcia-Rubio, *Malaria Diagnosis using Biophotonics*, Invited Lecture, College of Public Health, University of South Florida, Tampa, FL, **April 23, 2005**

21. L.H. García-Rubio, C. E. Alupoaei, J. Olivares, P. Stark, *Spectroscopy for In-situ Rapid Detection and Classification of Microorganism: an overview*. Invited Lecture, Los Alamos National Laboratory, Los Alamos, NM, **January 7, 2005**
22. L.H. García-Rubio, C. E. Alupoaei, J. Olivares, P. Stark, A. Garcia-Lopez, C. Stephans, T. Berg, G. Klugness, A. Gennacaro, and D. Huffman. *A New Spectroscopy Method for In-Situ Rapid Detection and Classification of Microorganisms*, Invited paper **OPTICS EAST 2004**, Philadelphia, Pennsylvania, Maryland, **October 25-28, 2004**.
23. Luis H Garcia-Rubio, *Multiwavelength Spectroscopy for Medical Diagnosis: Real-time, in-situ Monitoring*, Invited Lecture, College of Public Health, University of South Florida, Tampa, FL, **July 23, 2004**
24. Luis H Garcia-Rubio, *The use of Multiwavelength Spectroscopy for Medical Diagnosis and Real-time, in-situ Monitoring*, Invited Presentation, Florida Technology Transfer Conference, St. Petersburg, Florida, **May 17-18, 2004**
25. Luis H Garcia-Rubio, *The use of Multiwavelength Spectroscopy for Medical Diagnosis and Real-time, in-situ Monitoring*, Invited Lecture, USF College of Medicine Excellence in Research Seminar Series, Tampa, Florida, **April 7, 2004**
26. Luis H Garcia-Rubio, *Detailed Characterization of Micron-Size Particles: Implications for the Development of Sensors for Environmental Monitoring and Biomedical Applications*, Invited Lecture, Los Alamos National Laboratory, Los Alamos, NM, **December 17-18, 2003**
27. Luis H Garcia-Rubio, *Complex particle characterization techniques for medical diagnosis, microbial detection, and real-time, in-situ monitoring*, Invited Presentation, Innovation on Particle Characterization, Harrogate , UK, **September 10, 2003**
28. Luis H Garcia-Rubio, *The use of multiwavelength spectroscopy for medical diagnosis and real-time, in-situ monitoring*, Invited Lecture, Smith and Nephew, York, UK, **September 9, 2003**
29. Luis H Garcia-Rubio, *Advances in the Characterization of Micron and Sub-Micron Particles: New Sensors for Diagnosis, Environmental Monitoring and Biomedical Applications*, Invited Lecture, University of New Castle, York, UK, **September 8, 2003**
30. Luis H Garcia-Rubio and C. Alupoaei, *New Sensor Technologies for Screening and Diagnosis*, Business Presentation, Baxter Corporation, Round Lake, Illinois, **July 22 2003**
31. Luis H Garcia-Rubio, C. Alupoaei and A. Garcia-Lopez, *Spectroscopy Characterization of Infectious Diseases*, **Business Presentation**, Kimberly Clark Corporation, Neenah, Wisconsin, **April 2003**
32. Luis H Garcia-Rubio and C. Alupoaei, *Characterization of Bio-Particles: Microbial Identification*, Kimberly Clark Corporation, **Technical Presentation**, Neenah, Wisconsin, **April 2003**.
33. Luis H Garcia-Rubio and C. Alupoaei, *Characterization of Bio-Particles: Microbial Identification*, University of Florida, NSF-ERC, **February 2003**
34. Luis H Garcia-Rubio, C. Alupoaei, *Characterization of Bio-Particles: Advances and Challenges*, University of Florida, NSF-ERC, **February 2003**.

35. Luis H Garcia-Rubio, C. Alupoaei and A. Garcia-Lopez, *Spectroscopy Characterization of Infectious Diseases*, Annual Report, Kimberly Clark Corporation, Neenah, Wisconsin, **January 2003** “Advances in the Characterization of Bio-Particles: Advances and Challenges”, Invited Lecture, Physics Colloquium, University of South Florida, September 20, **2002**.
36. “Advances in the Characterization of Bio-Particles: Advances and Challenges”, Invited Lecture, Marine Science Department, University of South Florida, September 13, **2002**.
37. “Advances in the Characterization of Micron and Sub-Micron Particles: New Sensors for Diagnosis, Environmental Monitoring and Biomedical Applications”, Invited Lecture, University of Notre Dame, Indiana, April 15-16, **2002**.
38. “Advances in the Characterization of Micron and Sub-Micron Particles: New Sensors for Diagnosis, Environmental Monitoring and Biomedical Applications”, Invited Lecture, University of Texas, Austin, October 1-2, **2001**.
39. “Advances in the Characterization of Micron and Sub-Micron Particles”, Invited Lecture, ACS Meeting, University of South Florida, St. Petersburg, Florida, September 28, **2001**.
40. “Biophotonics Technology for Medical Diagnosis”, Invited Lecture Physical Sciences Inc., Andover, Massachusetts, May 8-9, **2001**.
41. “Advances in the Characterization of Micron and Sub-Micron Particles: New Sensors for Diagnosis, Environmental Monitoring and Biomedical Applications”, Invited Lecture, McMaster University, Hamilton, Ontario, May 7-8, **2001**.
42. “Novel Instrumentation for On-Line Continuous Monitoring of Emulsion Polymerization Reactors”, Invited Lecture Air Products, Allentown Pennsylvania, March 11-12, **2001**.
43. “The use of Multiwavelength Spectroscopy for Medical Diagnosis”, Invited Lecture, Smith&Nephew, Andover Massachusetts, February 27-28, **2001**.
44. “Advances in the Characterization of Micron and Sub-Micron Particles: New Sensors for Diagnosis, Environmental Monitoring and Biomedical Applications”, Kimberly-Clark Horizon Lecture Series, Atlanta, GA, July 27-28, **2000**.
45. "New Sensors for Medical Diagnosis". Invited Lecture, Biomedical Engineering Institute Lecture Series, University of South Florida, Tampa FL., June 6, **2000**.
46. "Spectroscopy Characterization of Blood: A Tool for Diagnosis". Invited Lecture, American Red Cross, Holland Labs. Maryland, May 17-18, **2000**.
47. "A New Platform for Remote Medical and Physiological Data Collection". Invited Lecture, INSALUD, Valencia, Venezuela, May10-13, **2000**.
48. "On-Line Continuous Characterization of Slurries in CMP Processes". Invited Lecture and Progress Report, Lucent Technologies, Orlando Fl., May 4h, **2000**.
49. "On-Line Continuous Monitoring of Emulsion Polymerization Reactors". Invited Lecture, Center for Measurement and Control, University of Tennessee Knoxville,TN., April 3-4, **2000**.
50. "A Strategy for Continuous Developments in Instrumentation for Sub-Micron Particle Characterization".

Invited Lecture, Beckman-Coulter Corporation, Miami FL., April 20-21, **2000**.

51. "Continuous Monitoring of Critical reaction Parameters in Emulsion Polymerization Reactors". Invited Lecture, Universidad de Guadalajara, Guadalajara, Mexico, March 10-14, **2000**.
52. "Noninvasive Real-time Monitoring of Medical and Physiological Parameters". Invited Lecture, Health Care Symposium 2000, University of South Florida, Tampa FL., March 9, **2000**.
53. "A New Platform for Remote Medical and Physiological Data Collection". Invited Lecture, Criticon Inc., Tampa FL., February 11, **2000**.
54. "Research & Development; University-Industry Cooperation a Faculty Perspective". Invited Lecture, XXXI Foro Nacional de la Industria Quimica, Mexico City, Mexico, October 20-22, **1999**.
55. "A New Approach for the Characterization of the Joint Particle Property Distribution of Micron and Sub-micron Particulate Systems: Biological and Synthetic Particles ", Invited Lecture, Florida State University, Tallahassee FL, October 8-9, **1999**.
56. "A Strategy for Continuous Developments in Instrumentation for Particle Characterization". Invited Lecture, IFRP, Rutgers N. Y., June 7-10, **1999**.
57. "Progress in Particle Characterization using Multiwavelength Spectroscopy". Invited Lecture, Eastman Kodak Corporation Rochester N. Y. June 2-4, **1999**.
58. "Developments in the Characterization of the Joint Property Distribution of Micron and Sub-Micron Particles". Invited Lecture, Los Alamos National Laboratories, Los Alamos, New Mexico, April 13-14, **1999**.
59. "Progress in the Spectroscopy Characterization of Micron and Sub-Micron Particles for Environmental Monitoring and Biomedical Applications". Invited Lecture, CICY, Yucatan, Mexico April 22-23 **1999**.
60. "Theoretical and Experimental Investigation of Aggregation in Colloidal Systems". Invited Lecture, Xerox Research Centre of Canada, Mississuga Ontario, September 30-October 2nd, **1998**.
61. "Developments in the Characterization of the Joint Property Distribution of Micron and Sub-Micron Particles". Invited Lecture, Eastman Kodak Corporation Rochester N. Y. September 16-17, **1998**.
62. "Sampling and Characterization of Concentrated Dispersions: Annual Report SRF # 9709", ICI-Runcorn, UK, July 2nd, **1998**.
63. "Free Radical Initiation", Invited Lecture, ICI-Runcorn, UK, July 2nd, **1998**.
64. "Sampling and Characterization of Concentrated Dispersions: A Progress Report", ICI-Glidden, May 5th, **1998**.
65. "Multiangle-Multiwavelength Technology for in-situ Characterization of Micron and Sub-micron Particles: Applications to Marine Environments". Invited Lecture, Marine science Department, University of South Florida, St Petersburg, FL, April 3rd, **1998**.
66. "Rapid Methods for the Detection and Identification of Enteric Protozoa in Drinking Water: Cryptosporidium and Giardia", Environmental Science and Policy Colloquium Series, University of South Florida, February 6th, **1998**.
67. "Developments in the Characterization of the Joint Property Distribution of Micron and Sub-Micron Particles".

Invited Lecture, International Specialty Products, Wayne, New Jersey December 8-9, **1997**.

68. "The Effect of Corpuscular Size and Shape on the Uv-vis Spectra of Blood", Invited Lecture, Johnson&Johnson, Raritan, New Jersey, November, **1997**.
69. "Photon Diffusion Models for Whole Blood Analysis", Invited Lecture, AVECOR, Minneapolis, MN, October 7-8, **1997**.
70. "Sampling and Characterization of Emulsion Polymerization Reactors". Invited Lecture, Industrias Negromex, Tampico, Mexico, September 18-19, **1997**.
71. "Novel Techniques for the Characterization of the Joint Property Distribution of Micron and Sub-micron Particles". Invited Lecture, Instituto Tecnologico de Ciudad Madero, Tampico, Mexico, September 19, **1997**.
72. "Progress in On-Line Particle Characterization: On-Line Monitoring of Emulsion Polymerization Reactors". Invited Lecture, ICI Paints, Strongsville, OH., February 26-27, **1997**.
73. "Spectroscopy Characterization of the Joint Property Distribution of Micron and Sub-Micron Particles". Invited Lecture, ScJohnson Polymer, Racine, Wisconsin, June 26-28, **1997**.
74. "Progress in On-Line Particle Characterization: Estimation of the Joint Size-Shape Chemical Composition Particle Property Distribution". Invited Lecture, The City College of New York., NY, February 23-24, **1997**.
75. "Multiangle-Multiwavelegth Detection System for Particle Characterization". Invited Lecture, Coulter Corporation, Hialeah, Florida, November 7-8, **1996**.
76. "Spectroscopy Techniques for the Characterization for the Joint Property Distribution of Particulate Suspensions". Invited Lecture, Lucent Technologies, Murray Hill. N. J, October 24-25, **1996**.
77. "Progress in On-Line Monitoring of Emulsion Polymerization". Invited Lecture, Xerox Research Centre of Canada, Mississauga, Ontario, September 5-6, **1996**.
78. "Progress in On-Line Monitoring of Emulsion Polymerization Reactors". Invited lecture, Xerox Research Centre of Canada. September 5-6, **1996**.
79. "Studies in Free Radical Initiation". Invited Lecture, 2nd International Symposium on Free Radical Polymerization: Kinetics and Mechanisms, Santa Margherita Ligure, Genoa, Italy, May 26th-31st, **1996**.
80. "Spectroscopy Techniques for the Characterization for the Joint Property Distribution of Particulate Suspensions". Invited Lecture Kodak Research Center, Rochester N. Y., April 29, **1996**.
81. "Spectroscopy Techniques for the Characterization for the Joint Property Distribution of Particulate Suspensions". Invited Lecture, DuPont de Nemours Experimental Station, Willmington Delaware, April 30, **1996**.
82. "Multiangle-Multiwavelegth Detection System for Particle Characterization". Progress Report Presented at the ERC for Particle Science and Technology, University of Florida, Gainesville, May 3, **1996**.
83. "Automatic Dilution System for On-Line Particle Size Analysis". Progress Report Presented at the ERC for Particle Science and Technology, University of Florida, Gainesville, May 3, **1996**.
84. "Multiangle-Multiwavelegth Detection System for Particle Characterization". Progress Report 2 Presented at the

- ERC for Particle Science and Technology, University of Florida, Gainesville, March, **1996**.
85. "Advances in Particle Characterization". Invited Lecture, Lasentec, Seattle, June 15-16th, **1995**.
 86. "Multiangle-Multiwavelength Detection System for Particle Characterization". Progress Report No 1 Presented at the ERC for Particle Science and Technology, University of Florida, Gainesville, February, **1995**.
 87. "Quantitative Spectroscopy of Polymers, Proteins and Colloidal Particles". Invited Lecture, Chemical Engineering Department, University of los Andes, Merida, Venezuela, July 5th, **1994**.
 88. "Spectroscopy and Intefacial Phenomena". Invited Presentation and Research Meeting, Colloquium on Surfactants and Applications, Merida Venezuela, July 4-6, **1994**.
 89. "Sensor Development for Environmental Monitoring". Invited Lecture and Research Meeting, BTG Inc., Decatur, Georgia, June 23-24th, **1994**.
 90. "Quantitative Spectroscopy of Polymers, Proteins and Colloidal Particles". Invited Lecture and Research Meeting, Coulter Corporation, Hialeah, Florida, January 7th, **1994**.
 91. "Synthesis and Characterization of Polmer Membranes for pH Sensing. Invited Lecture and Research Meeting, Optical Sensors, Minneapolis, MN., January 2-4th, **1994**.
 92. "Analysis of the Information Content of Spectroscopy Data: Quantitative uv-vis Spectroscopy of Polymers, Proteins and Colloidal Particles. Invited Lecture, University of Waterloo, Waterloo, Ontario, Canada, October 28th, **1993**.
 - 93**. "Recent Advances in the Spectroscopy Analysis of Cells and Microorganisms. Invited Lecture, Colegio de Postgraduados, Chapingo, Mexico, October 23rd, **1993**.
 94. "Analysis of the Information Content of Spectroscopy Data: Quantitative uv-vis Spectroscopy of Polymers, Proteins and Colloidal Particles. Invited Lecture, Cornell University, New York, September 14th, **1993**.
 95. "New Information from Old Measurements: Invited Lecture, University of Massachusetts. April 16th, **1993**.
 96. "New Developments for On-Line Particle Size Distribution Measurements. Invited Seminar, Universidad de los Andes, Merida, Venezuela, September 25th, **1992**.
 97. "Development of a High Resolution Sensor. Invited Seminar, Bosforo's University, Istanbul, Turkey, June 8th, **1992**.
 98. "New Information from Old Measurements: Spectroscopy Analysis of Polymer Proteins and Colloidal Particles", Invited Seminar, Abbott Laboratories, North Chicago, Ill, March 13th, **1992**.
 99. "Particle Size Distribution from Turbidimetry Using Inversion Techniques, Theory and Validation", Invited Lecture, Technion - Israel Institute of Technology, Haifa, Israel, June 19th, **1991**.
 100. "Análisis del Contenido de Información de Espectroscopia Ultravioleta", Invited Lecture, Instituto de Ciencia y Tecnología de Polímeros, CSIC, Madrid, España, March 27, **1991**.
 101. "Quantitative UV-VIS Spectroscopy of Polymers and Proteins", Invited Lecture, Università degli Studi di Torino, March 25, **1991**.

102. "Copolymerization Techniques Modelling and Control", Invited Lecture, ICI Paints, Slough, England, March 20, **1991**.
103. "Use of Spectroscopy Techniques for Characterization of Macromolecules and Particles", Invited Lecture, ICI Paints, Slough, England, March 19, **1991**.
104. "Inherently Calibrated Fiber Optic Sensors for Measuring Seawater pH", Invited Seminar, Radiometer Medical A/S, Copenhagen NV, Denmark, March 13-14, **1991**.
105. "New Information from Old Measurements", Invited Seminar, Department of Chemical Engineering, Rensselaer Institute of Technology, Troy, NY, February 25th, **1991**.
106. "Latex Particle Size Distribution from Turbidimetry Using Inversion Techniques, Theory and Validation", Invited Lecture, Xerox Research Centre of Canada, February 22nd, **1991**.
107. "Uv-vis Spectroscopy of Polymers and Copolymers", Invited Lecture, AMoCo Research Center, Naperville, Ill, February 14th, **1991**.
108. "Advances in Uv-vis Spectroscopy of Macromolecules", Invited Seminar, Department of Chemical Engineering, Illinois Institute of Technology, Chicago, Ill, February 15th, **1991**.
109. "New Information from Old Measurements", Invited Seminar, Department of Chemical Engineering, University of Florida, Gainesville, September, **1990**.
110. "Characterization of Latex Particles", Invited Lecture, Industrias Resistol, Mexico, July, **1990**.
111. "Tecnicas de Espectroscopia para la Caracterizacion de Macromoleculas", Invited Seminar, Facultad de Quimica, Universidad Nacional de Mexico, July, **1990**.
112. "Determinacion de Tamaños de Particula en Reactores de Polimerizacion", Invited Seminar, Department of Chemical Engineering, Metroplitan University, Mexico City, July, **1990**.
113. "Control of Latex Reactors I, On-Line Particle Size Distribution Measurements. Invited Seminar, BFGoodrich Company, Avon Lake, Ohio, February **1990**.
114. "New Developments in the Determination of Latex Particle Size Distributions. Invited Seminar, Brookhaven Instruments Corporation, February 2, **1990**.
115. "Quantitative Polymer Characterization. Series of Invited Lectures, Chemistry Department, University of Puerto Rico, Mayaguez, January 18-20, **1990**.
116. "Characterization of Collagen. Invited Seminar, Bausch & Lomb Pharmaceuticals Inc., Clear Water, Florida, January 12, **1990**.
117. "New Information from Old Measurements. Invited Lecture, Chemistry Department Colloquium Series, University of South Florida, October 26, **1989**.
118. "Latex Particle Size Distribution from Turbidimetry, Theory and Experimental Validation". Invited Seminar Georgia Tech., Atlanta, Georgia, October 23, **1989**.
119. "Refractive Index Effects on the Absorption Spectra of Macromolecules". Department of Chemical Engineering Seminar Series, September 29, **1989**.

120. "Overview of Modern Techniques in Polymer Characterization". Invited Lecture, PLAPIQUI, Universidad Nacional del Sur, Bahia Blanca, Argentina, May 2, **1989**.
121. "Refractive Index Effects in Polymer Spectroscopy". Invited Lecture, INTEC, Santa Fe, Argentina, May 4, **1989**.
122. "Polymer Characterization". Invited Lecture, Universidad Nacional de Cordoba, Cordoba, Argentina, May 8, **1989**.
123. "Selection of the Regularization Parameter in Inversion Problems". Invited Lecture, Physics Colloquium Series, University of South Florida, March 31, **1989**.
124. "Use of Model Molecules for the Quantitative Characterization of Proteins". Invited Lecture, USF Biomedical Engineering Research Group, University of South Florida, January 25, **1989**.
125. "Physico-Chemical Characterization of Complex Polymers". Invited Lecture, Workshop on Polymer Characterization, Santa Fe, Argentina, November 7th-9th, **1988**.
126. "Quantitative Characterization of Somatotropin". Invited Seminar, Fundacion Campomar, Buenos Aires Argentina, November 4, **1988**.
127. "Introduction to Detailed Polymer Characterization Polymerization". Invited Lecture, McMaster Institute of Polymer Production Technology Course in Polymer Reaction Engineering, Thessaloniki, Greece, June **1988**.
128. "Quantitative Characterization of Proteins". Invited Seminar, Fundacion Campomar, Buenos Aires Argentina, September 29, **1987**.
129. "Detailed Characterization of Macromolecules". Invited Seminar, INTEMA, Universidad de Mar del Plata, Argentina, September 28th, **1987**.
130. "Effect of the Molecular Size on The Absorption Spectra of Macromolecules". Invited Seminar, INTEC, Universidad del Litoral, Santa Fe, Argentina, September 25, **1987**.
131. "Characterization of Proteins in the Presence of Protein Aggregates". Invited Seminar, Tulane University, New Orleans, February 13, **1987**.
132. "Spectroscopic Characterization of Synthetic Polymers and Biopolymers". Invited Seminar, Universidad de La Plata, La Plata, Argentina, October 13, **1986**.
- 133.** "Recent Advances in Ultraviolet Spectroscopy of Polymers and Copolymers". Special Seminar, Perkin-Elmer Corporation Norwalk, CT September 8, **1986**.
134. "Diode Array Spectrophotometers as Size Exclusion Chromatography Detectors". Special Seminar, Millipore Corporation, Milford MA, August 14, **1986**.
135. "Detailed Copolymer Characterization using Ultraviolet Spectroscopy, Short-Term and Long-Term Expectations". Presented at the NSF Research Initiation Meeting, Washington. D. C. March 13-14, **1986**.
136. "Detailed Polymer Characterization Using Ultraviolet Spectroscopy". University of South Florida, Physics Colloquium Series, **1986**.

137. "Physico-Chemical Characterization of Growth Hormones". Invited Seminar and Research Meeting at the International and Minerals Corporation Research Center, Terre Haute, Indiana, December **1985**.
138. "Copolymer Reaction Engineering". Invited Short Course and Research Meeting sponsored by INTEC (Instituto de Desarrollo Tecnológico para la Industria Química). Santa Fe, Argentina, November 11-15, **1985**.
139. "Ultraviolet Spectroscopy to the Characterization of Proteins". Invited Seminar at the International and Minerals Corporation Research Center, Terre Haute, Indiana, July **1985**.
140. "Size Exclusion Chromatography/UV Characterization of Copolymers". Special Seminar, Glidden Research Center, July, **1985**.
141. "Characterization of Copolymers by UV-Spectroscopy". Invited Lecture, Institute of Polymer Science, Akron, Ohio, July, **1985**.
142. "Recent Developments on the Characterization of Complex Polymer Systems". Invited Seminar, McMaster Institute of Polymer Production Technology, Mc Master University, Hamilton, Ontario, Canada. June, **1985**.
143. "Detailed Copolymer Characterization Using Ultraviolet Spectroscopy". Department of Chemistry Seminar Series, University of South Florida, Tampa, Florida, September **1984**.
144. "Statistical Analysis of UV Spectroscopy Models". Statistics in Chemical Engineering Conference, University of Waterloo, Waterloo Ontario, May, **1983**.
145. "Estimation of the reactivity ratios for Styrene Acrylonitrile Copolymerizations". Statistics in Chemical Engineering, McMaster University, July, **1982**.
146. "Copolymerization Kinetics: Synthesis and Characterization of Copolymers. presented at the Department of Chemical Engineering, University of Alberta, September 17, **1981**.
147. Short Course in Polymer Production and Polymer Processing Engineering, Mexico City, sponsored by the Metropolitan University of Mexico, April **1981**.
148. "Propagation of Errors in Polymer Measurement Equations, Intrinsic Viscosity and Spectroscopy Measurements". Statistics in Chemical Engineering Conference, Queen's University, Kingston, Ontario, June **1981**.
149. "Polymer Analysis by SEC - Assessment of SEC Detectors for Copolymers". Xerox Research Centre, Webster, N.Y., October 27, **1981**.
150. "Property Prediction in Copolymerization by Linking Properties to Conversion". Xerox Research Centre, Webster, N.Y., October 28, **1981**.
151. "Overview of the Polymer Reactor Design and Control Problem". Xerox Research Centre, Webster, N.Y., October 28, **1981**.
152. "Error Propagation in Polymer Measurements". Statistics in Chemical Engineering Conference, Ottawa, Canada.
153. "Solutions to Integral Equations Applied to Chromatography", presented at Xerox Research Centre of Canada.
154. "Problems in Copolymer Characterization". Xerox Research Centre of Canada, April 19, **1979**.

155. "An Experimental Investigation on the Free-Radical Synthesis and Characterization of Styrene Acrylonitrile Copolymers". Departmental Seminar, McMaster University.
156. "Problems in the Implementation of Control Strategies to Copolymerization Reactors". Control Group Seminar, McMaster University.
157. "Parameter Estimation by the Weighted Moments Method". Control Group Seminar, McMaster University.
158. "Control and Free Radical Copolymerization". Departmental Seminar, McMaster University.
159. Short Course in Polymer Reaction Engineering, Mexico City, sponsored by the Metropolitan University of Mexico and Industrias Resistol, Monsanto, S. A.

TEACHING EXPERIENCE:

Professor at the College of Engineering, University of South Florida since **1984**, and a Professor at the College of Marine Science since 2002. My responsibilities have included the organization of an interdisciplinary polymer research program, teaching the undergraduate Reactor Design course and the following graduate courses: Polymer Reaction Engineering, Advanced Reacting Systems, Time Series Analysis and Control and Introduction to Colloids and Interface Science. In addition I have prepared and delivered short courses for the Instrument Society of America (Process Instrumentation) and for the American Institute of Chemical Engineers (Polymer Reaction Engineering).

Part-time lecturer at McMaster University (**1981**) teaching Transport Phenomena, for 4th year Chem. Eng. students and APEO (Association of Professional Engineers of Ontario) applicants.

Mc Master University. Teaching Assistant (**1974 -1980**).

Thesis and Dissertations:

Ph. D. Dissertations:

1. D. Imeokparia, "Modeling of Branching Reactions in Polyvinyl Acetate", Ph.D. Dissertation, July **1990**
2. Somnath S. Shetty, "Suspension Polymerization of Methyl Methacrylate Initiated by Benzoyl Peroxide", Ph.D. Dissertation, April **1993**.
3. Esteban Marquez, "Mathematical Modelling and Simulation of Agglomeration Phenomena in Mass and Suspension PVC" Ph.D. Dissertation, April **1994**.
4. J. Throckmorton, "Development of a General Model for Protein Nucleation with Structural Considerations", Ph.D. Dissertation, February **1995**.
5. Silvia Hsiao-Yun. Chang, "Modelling and Analysis of Fiber Optic Sensors" Ph.D. Dissertation, May **1996**.
6. H. Huang, "Design, Synthesis and Characterization of a Polymer Matrix for Fiber Optics Sensor Applications". Ph.D. Dissertation, June **1997**.
7. Eric Steimle, "Quantitative Characterization and Modeling of a Beluzov-Zhabotinski Reaction", Ph.D. Dissertation, June **1999**.
8. C. Bacon, "Development of a Multiangle-Multiwavelegth Detection System for the Estimation of the Joint Property Distribution of Colloidal Systems", Ph.D. Dissertation, July **1999**.
9. S. Narayanan, "UV-Visible Spectrophotometric Approach to Blood Typing and Protein Characterization". Ph.D. Dissertation, July **1999**.
10. Maria Celis, "Studies on the Initial Conditions in Emulsion Polymerization Reactions". Ph. D. Dissertation, August **2000**.
11. Yvette Mattley, "An Investigation of the Spectroscopic Properties of Platelets during Activation and Storage: Implementation of a New Interpretation Model". Ph. D. Dissertation, October **2000**.

12. Suresh N. Thennadil, "Investigation of Structure of Colloidal Dispersions and their Effect on Light Scattering using Monte Carlo Simulations". Ph. D. Dissertation, May **2001**.
13. Andres Cardenas-Valencia, "A Study of Spectroscopy Techniques for the Characterization of Concentrated Dispersions: Multiple Scattering". Ph. D. Dissertation, August **2001**.
14. Michelle Janowiak, "Development of Fiber Optic Sensors for pH measurement and Control". Ph. D. Dissertation, May **2003**.
15. Vineet Shastri, "Particle Nucleation and Growth in Emulsion Polymerization Reactors". Ph.D. Dissertation, October **2003**.
16. Judith Fu, "Development of a Multi-Detector Flow Field Flow Fractionation Particle Characterization System for Pathogen Detection". Ph.D. Dissertation, November **2003**.
17. Gita Iranipoor "Modeling and Simulation of Aggregation in Colloidal Systems". Ph.D. Dissertation, January, **2004**.
18. Akhisa Nonoyama, "Hypochromicity and Protein Characterization: Hemoglobin". Ph.D. Dissertation, December **2004**.
19. Yong-Rae Kim, "Integrated Uv-Vis Multiwavelength Spectrometer for the Characterization of Micron and Submicron Size Particles", Ph.D. Dissertation in Applied Physics May **2005**.
20. Eduardo Zurek, "System Optimization for Micron and Sub-Micron Particle Identification using Spectroscopy-Based Techniques ". Ph.D. Dissertation in Electrical Engineering, August, **2006**.

Masters Thesis:

1. S. D. Marathe, "Study of Branching in Polyvinyl Acetate". Master of Science in Chemical Engineering, **1987**.
2. S. Shetty, "Dynamic Behavior of Free Radical Polymerizations". Master of Science in Chemical Engineering, **1988**.
3. D. Dollberg, "Prediction and Control of the Multivariate Distribution of Copolymer Properties". Master of Science in Chemical Engineering, **1988**.
4. J. Vivek, "A New Approach to the Description of the Dilute Solution Properties of Polymers". Master of Science in Chemical Engineering, **1989**.
5. Manivannan Kandasamy, "Kinetic Modeling and Simulation of the Operation of a Batch Reactor for the Suspension Polymerization of Vinyl Chloride". Master of Science in Chemical Engineering, **1989**.
6. J. Burris, "Correlation of the Electrical Properties of Polymeric Materials". Master of Engineering Project, **1990**.
7. Pao Yi-Keng, "Evaluation of the Performance of Polystyrene and Polyethylene Blends with Starch. Master of Engineering Project, **1990**.
8. Suresh Narayanan, " Synthesis of Styrene-Methyl Methacrylate Copolymers", Master of Engineering Project, December **1993**.
9. Chetan R. Vora, "Plastics Recycling in Hillsborough County- Economic Evaluation", M. Eng Project, January **1994**.
10. P. Vinnik, "Initiation in Emulsion Polymerization". M. Sci. Thesis, May, **1997**.
11. Scott Fisher, "A Mathematical Model for Aggregation in Colloidal Systems". M. Sci. Thesis, August **1998**.
12. Paul Sacoto, "Automatic Sampling and Dilution System". M. Sci. Thesis, May **1999**.
13. Mohammed Abutayeh, "Neutralization Reactions Modelling and Control". M. Sci. Chemical Engineering, August **1999**.
14. Mark Paraiso, "Spectroscopy Characterization of White Blood Cells", M. Sci. Thesis. November **2000**.
15. Jaime Vara, "Development of Instrumentation for On-Line Monitoring of Emulsion Polymerization Reactions". M. Sci. in Chemical Engineering Thesis, August **2000**.
16. Stephanie Robertson, "A Mathematical Model of Platelet Aggregation". M. Sci. in Chemical Engineering Thesis, August **2001**.
17. Alicia Garcia-Lopez, "Investigation into the Transition between Single and Multiple Scattering of Colloidal Dispersions". M. Sci. in Chemical Engineering Thesis, August **2001**.
18. Catalina Elena Alupoaei, "Modeling of the Transmission Spectra of Microorganisms". M. Sci. in Chemical

- Engineering Thesis, October **2001**.
19. Colleen O'Brien, "An Integrated Mathematical Model for Aggregation in Colloidal Systems". M. Sci. Thesis, November **2003**.
 20. Adrian Smith, "Separation and Identification of Microorganisms using Flow Field Flow Fractionation and Spectroscopy", Master of Science Thesis, April **2004**.
 21. Adam Spear, "Spectral Properties of *Karenia Brevis*". Master's Thesis, March **2009**.

Honors Thesis:

1. C. Bacon, "Optimizing Scattering Measurements for a Multiangle Spectrometer". Honors Thesis: Fall, **1994**.
2. Aleasha Farnsworth, "Classification and Identification of Biological Particles using Field-Flow Fractionation and Uv-vis Spectroscopy". Honors Thesis, July **1999**.
3. Lisa Marie Bruder, "Systematic Study of the Sensitivity of Multiwavelength Spectroscopy for Particle Characterization", Honors Thesis, August **2000**.

Thesis and Dissertations in Progress:

1. Greta Klungness, "Real Time Monitoring of Diseases for Surveillance", Ph.D Dissertation in progress, College of Public Health, Expected date for graduation, Fall **2007**.
2. Clifford Merz, "Membrane and Ionic Environmental Affects on the Generated Potential in a Bipolar Electro-Membrane Based Seawater Concentration Cell". Ph.D. Dissertation in Progress, College of Marine Science. Expected date for graduation: Spring **2007**
3. Susana Mullikan, "Marine Particles: Virus and Bacteria". Ph.D. Dissertation in Progress, College of Marine Science. Expected date for graduation: Spring **2009**.

PROFESSIONAL AFFILIATIONS:

American Society of Microbiology
American Chemical Society
American Institute of Chemical Engineers
American Statistical Association
Mc Master Institute for Polymer Production Technology
Sigma Xi, Research Society
Phi Kappa Phi Honor Society

MOST RECENT SPECIALIZATION AND TECHNICAL EXPERIENCE:

Due to the nature of my research programs, I have developed expertise in the following areas:

Sensor development; polymer based membrane chemical sensors, the characterization of the joint property distribution of micron and submicron colloidal particles, light scattering and spectral deconvolution techniques.

Synthesis and kinetic analysis of free radical polymers and copolymers - this includes design and building of the experimental setup, design of the experiments, modeling of the kinetics and parameter estimation.

Polymer and copolymer characterization techniques which include proton and C¹³ NMR spectroscopy, infrared, near infrared, and ultraviolet spectroscopy, refractometry, gel permeation chromatography, gas chromatography, calorimetry (DSC), intrinsic viscosity and osmometry, their calibration and interpretation, as well as the associated error propagation.

Mathematical modeling, optimization and simulation of polymerization reactors, which includes stability analysis, mixing effects, design of optimum temperature and initiator addition programs, and simulation of reactor trains.

The Ph.D. program at McMaster included research and course work. The course program and frequent seminars offered by the Department gave me working knowledge in areas related to polymer research and chemical engineering such as time series analysis, stochastic control, modern control theory, and multivariate statistics.

The research experience at Xerox Research Centre of Canada broadened my expertise in the aforementioned areas, and provided invaluable experience in the organization, development and implementation of high technology industrial research from the definition of the problem to the development of the appropriate scale-up technology.

Teaching and conducting research at the University of South Florida have acquainted me with the Academic environment as well as provided fertile ground for the testing of both, my research ideas as well as my ideas regarding the establishment of an interdisciplinary research program in polymers, proteins and sensor development.

CONSULTING AND INDUSTRIAL RESEARCH:

Consulting and conducting Industrial Research has enable me to keep current in the technical areas above mentioned and it has provided the opportunity to address fundamental problems of interest to Industry. The following companies have used our consulting services, and/or provided support and funding for the activities of my research group: Smith&Nephew, Kimberly Clark, Xerox Canada; Coulter-Beckman, Eastman Kodak; Cargill Inc.; Industrias Negromex (Mexico); ScJohnson Polymers; Ortho Diagnostics Inc., ICI Corporation; AVECOR Cardiovascular Inc.; Optical Sensors Inc.; Instrumentation Metrics Inc.; BTG Inc.; Ocean Optics Inc.; Morrison International Inc.; HF Scientific; Perkin Elmer Corp; Waters Scientific; Bausch&Lomb Pharmaceuticals; The BF Goodrich Co.; Abbott Labs.; Lasentec; Indesca, Venezuela; Industrias Resistol, Mexico; Radiometer Medical A/S Denmark; The Munters Corporation; Surinor Consultants Inc.; Glentech; Wyatt Technologies; Nicomp; Dow Benelux, Holland; ICI Corporation, Loughborough England, Glidden Paints; IMC Corporation; Jones, Day, Reavis & Pogue.

FUNDING TO DATE:

University of South Florida Linkage Grant (Jointly with Dr. S. Grossman from the Chemistry Department)	\$ 10,000
IMC Corporation. Grant to study the physical properties of growth hormones (Jointly with Dr. S Grossman from the Chemistry Department)	\$ 15,000
NSF Initiation Grant RII-850796	\$ 119,703
University of South Florida Equipment Grant for RII-850796	\$ 8,000
IMC Corporation. Grant to study the physical properties of porcine somatotropin (jointly with Dr. S Grossman from the Chemistry Department)	\$ 39,000
NSF Cooperative Grant INT-8602578 with INTEC Argentina	\$ 17,460
Perkin Elmer Equipment Grants	\$ 20,957
CONICET Argentina. Cooperative Research Grant with the U. S	\$ 30,000
University of South Florida Travel Grant (1987)	\$ 1,000
CONICET Argentina. Post-Graduate Support (2 for 2 years)	\$ 43,200
NSF Initiation Grant RII-850796 (Creativity Award)	\$ 220,000
CONICET Argentina. Post-Graduate Support (1 for 2 years)	\$ 23,000
NSF Cooperative Grant INT-8815225 with INTEC Argentina	\$ 15,735
NSF Research Experience for Undergraduates in Materials DMR-89007778 (jointly with the Chemistry Department. PI. Dr. J. Fernandez)	\$ 32,000
University of South Florida Travel Grant (1989)	\$ 1,000
USF College of Engineering Travel Grant (1989)	\$ 1,000
The Munters Corporation "Flame Retardants for PVC" (1989)	\$ 6,500
Ocean Optics Inc., "Self Calibrated PH Probes"(jointly with Dr. R. Byrne Marine Science Dept.)	\$ 7,500
Department of Energy. Small Business Innovation Grant for the Development of Fiber Optic Sensors for Measuring Sea Water PH (Jointly with. M. Morris, STAC and Dr. R. Byrne, Marine Sciences)	\$ 50,500
Baush & Lomb Pharmaceuticals. "The Characterization of Collagen"	\$ 5,000

1990 NFS Research Experience for Undergraduates in Materials (jointly with the Chemistry Department. PI. Dr. J. Fernandez)	\$ 40,000
Department of Energy. Small Business Innovation Grant for the Development of Fiber Optic Sensors for Measuring Sea Water PH (jointly with M. Morris, STAC and Dr. R. Byrne, Marine Sciences)	\$ 499,416
Ocean Optics. S.A. "Self Calibrated PH Probes: Phase II"	\$ 19,845
1990 NSF Research Experience for Undergraduates in Chemical Engineering (jointly with the Chem. Eng. Department. PI. Dr. S. W. Campbell)	\$ 19,986
Indesca (Venezuela), Feasibility Study. Jointly with Dr. J. C. Busot	\$ 7,500
Indesca Membership (Sept 1989-1991)	\$ 20,000
The BFGoodrich Co., "Mie Algorithm for the Interpretation of Disc Centrifugation Data"	\$ 8,820
University of South Florida Travel Grant (1991)	\$ 1,000
Radiometer Medical A/S. "Characterization of pH Sensitive Membranes: Phase I. June 1st, 1991-	\$ 8,000
Indesca (Venezuela), "Simulation of a Multi-Zone Autoclave Reactor for the Synthesis of Low Density Polyethylene" Jointly with Dr. J. C. Busot (1991-1992)	\$ 120,000
Indesca Membership (1992)	\$ 10,000
Ocean Optics Inc. Equipment Grant (1992)	\$ 10,000
University of South Florida Equipment Matching Grant (1992)	\$ 5,000
Ocean Optics Inc. Student Support Grant (1992)	\$ 4,400
NSF Materials Research Instrumentation Grant for the Purchase of a Superconducting NMR System. PI. Dr. G. R. Newkome Grant No. DMR-9208925	\$ 113,000
Ocean Optics Inc. Student Support Grant I (1993)	\$ 4,400
Ocean Optics Inc. Student Support Grant II (1993)	\$ 4,400
Morrison International Development of a Scratch Resistant Polymer for Lenses (1993)	\$ 13,500
Ocean Optics Inc./ HFscientific Student Support Grant III (1993)	\$ 4,400
Indesca Membership (1993)	\$ 10,000

Indesca (Venezuela), "Simulation of a Multi-Zone Autoclave Reactor for the Synthesis of Low Density Polyethylene" Jointly with Dr. J. C. Busot (1992-1993)	\$ 30,000
National Oceanic and Atmospheric Administration (USDOC/NOAA)	\$ 14,562
Florida Center for Solid and Hazardous Waste Management Jointly with Dr. R. I Stessel (2 years).	\$ 95,477
University of South Florida Marine Engineering Institute	\$ 38,625
Indesca Membership (1994)	\$ 10,000
Indesca (Venezuela), "Simulation of a Multi-Zone Autoclave Reactor for the Synthesis of Low Density Polyethylene" Jointly with Dr. J. C. Busot (1993-1994)	\$ 40,000
University of South Florida Marine Engineering Institute (ONR)	\$ 67,766
American Water Works Research Foundation, "Uv-vis Spectroscopy for the Rapid On-Line Detection of Protozoa in Water for the Assessment of Public Health Risks" Jointly with Dr. J. Rose, 1995-1997.	\$ 363,514
Optical Sensors Inc. Blood pH, Blood Gas Analysis Sensors (1994-1996)	\$ 45,000
BTG Inc. Characterization of BTG's Turbidity Sensors (1994-1995)	\$ 5,992
BTG Inc. Characterization of BTG's Turbidity Sensors (1995-1996)	\$ 18,000
NSF Academic Research Infrastructure Program for the Acquisition of a Matrix-Assisted Laser Desorption Time of Flight (MALD-TOF) Mass Spectrometer, Research Team Member, PI. Dr. G. R. Newkome	\$ 164,444
United States Environmental Protection Agency, "Waste Liner Compatibility Studies" Jointly with Dr. R. I Stessel (1995-1997) Acc: 2104-240-LO	\$ 254,266
University of South Florida Marine Engineering Institute (ONR) (1996-1998)	\$ 81,527
AVECOR Cardiovascular Inc., "Measurement of Hematocrit Concentration: Simulation Studies", (1996-1998)	\$ 123,600
Johnson & Johnson, "Use of a Novel Uv-vis Spectroscopy Method for the Characterization of Blood and Blood Components" (1996-1998)	\$ 200,000
Cargill Inc., "Applications of USF's Particle Characterization Technology To Cargill Processes". With I-4 Matching (1998-1999)	\$ 105,000

Eastman Kodak “Support for the Development of the Multiangle-Multiwavelength Spectrometer” (1998-1999)	\$ 23,200
Constellation Technologies. Feasibility of the Characterization of Pathogens Using a Combined FFFF/Uv-vis Optical Waveguide Detection System (1998-1999).	\$ 26,000
Coulter-Beckman, “Sampling and Characterization of Sub-micron Particle Dispersions With I-4 Matching (1998-2000)	\$ 87,499
ICI Strategic Research Fund, “Sampling and Characterization of Concentrated Particle Dispersions SRF # 9709 (1997-2000)	\$ 180,499
Xerox Research Centre of Canada “Studies in Aggregation” (1998-2000)	\$ 25,000
Maverick Technologies. Characterization of Biomask: a Collagen Ablatable Mask (1999-2000)	\$ 22,759
NSF ERC for Particle Science and Engineering. U. of Florida 12 years (1994-2005)	\$ 494,723
Lucent Technologies. <i>Analysis and Modeling of the Effect of the Slurry Loop Variables on the Performance of the CMP Process</i> (1999-2001).	\$ 416,000
Los Alamos National Labs. <i>Feasibility Study on the Spectroscopy of Microorganisms</i> . (2000-2002), yearly budget \$ 118,000.	\$ 118,000
Private Corporation*. <i>Study on the use of Spectroscopy for Disease Identification</i> (2001-2004). * Per Agency request the name is not to be disclosed until completion of the project	\$ 300,000
Los Alamos National Labs. <i>Spectroscopy Characterization of the Growth Behavior of Microorganisms</i> . (2003-2004).	\$ 241,336
USF University of South Florida Center for Biological Defense 154,113 <i>Novel Spectroscopy Method for Identification and Discrimination of Microorganisms</i>	\$
Los Alamos National Labs. <i>Spectroscopy Characterization of the Growth Behavior of Microorganisms</i> .Phase II (2005).	\$ 241,336
Baxter Biomedical Feasibility of Detection of Platelet Contamination using <i>Spectrophotometric Methods</i> I (2005).	\$ 50,000

PENDING-SUPPORT:

National Institutes of Health; <i>Bio-Photonics based Technology for the detection of Bacteria in Blood</i> , Claro Scientific LLC. SBIR Phase I (Grant 00174436).	\$ 299,805
Bio-Merieux; <i>Bio-Photonics based Technology for the detection of Bacteria in Urine</i>	\$ 900,000

Claro Scientific LLC, September 1, 2006.

National Science Foundation ; CMG Collaborative Research (USF-Woods Hole): \$ 340,572
A Multidimensional, Multiscale Approach for Remote Classification of Aquatic Organisms Combining Optical and Acoustic Scattering Theory.

Los Alamos National Labs. *Spectroscopy Characterization of the Growth Behavior of Microorganisms*.Phase III (2006). \$ 241,336

Baxter Biomedical Feasibility of Detection of Platelet Contamination using *Spectrophotometric Methods*I (2006-License under negotiation). \$ 250,000