

CURRICULUM VITAE

JERRY IRA SCHEINBEIM

Director: Polymer Electroprocessing Laboratory
Professor II and Member of the Graduate Faculty
Department of Chemical and Biochemical Engineering
School of Engineering
Rutgers-The State University
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Piscataway, New Jersey 08854-8058
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Academic Background: B.S. (Physics) 1968, Polytechnic Institute of Brooklyn
M.S. (Physics) 1969, University of Pittsburgh
Ph.D. (X-Ray Crystallography, Chemical Physics) 1975,
University of Pittsburgh

Professional Experience: Graduate Director of Materials Science and Engineering Program
1995-2001
Director, Polymer Electroprocessing Laboratory
1988-present
Professor II., Dept. of Chemical and Biochemical Engineering
School of Engineering, Rutgers University, Piscataway, New
Jersey
1993 - present
Professor, Department of Mechanics and Materials Science,
School of Engineering, Rutgers University, Piscataway, New
Jersey
1987 - 1993
Graduate Director of Materials Science and Engineering Program
1988 - 1991

Curriculum Vitae
Jerry I. Scheinbeim

Associate Professor, Department of Mechanics and Materials
Science, School of Engineering, Rutgers University, Piscataway,
New Jersey
1982 - 1987

Executive Officer, Department of Mechanics and Materials
Science
1980 - 1982

Assistant Professor, Department of Mechanics and Materials
Science, College of Engineering, Rutgers University, Piscataway,
New Jersey
1977 - 1982

Research Associate, Department of Macromolecular Science
Case Western Reserve University, Cleveland, Ohio
1975 - 1977

Major Research Interests:

Structure-electroprocessing-properties-relationships in polymeric materials; Electrical properties of polymers; Ferroelectric polymers; Piezoelectricity and pyroelectricity in polymers; Electric-Field Induced Solidification of Polar Polymers; Dielectric properties of polymers; Electrostriction in polymers.

Reviewing Activities:

Reviewer for Journal of Applied Science
Reviewer for Ferroelectrics
Reviewer for Macromolecules
Reviewer for Nature
Reviewer for Journal of Macromolecular Science
Reviewer for Journal of Polymer Science, Phys. Ed.
Reviewer for Applied Physics Letters
Reviewer for National Science Foundation Grant Proposals
Reviewer for National Research Council Grant Proposals
Reviewer for Office of Naval Research Grant Proposals
Reviewer for Petroleum Research Fund Grant Proposals
Reviewer for Army Research Office Grant Proposals

Curriculum Vitae
Jerry I. Scheinbeim

Funded Research Grants:

"Dielectric Response, D.C. Conductivity, and Thermally Stimulated Discharge Studies of Binary Polymer Blends at High Hydrostatic Pressures," National Science Foundation Grant DMR 79-15, 75, \$85,000 for 24 months beginning Sept. 1979.

"Piezoelectricity, Pyroelectricity, and Related Electrical Properties in Polyamide Electret Films," Office of Naval Research Grant N-0795, \$165,000 for 36 months, beginning July 1, 1980.

"Piezoelectricity, Structure, and Related Properties of Polymers at High Pressures," Office of Naval Research, 1979-82, \$170,000.

"Structure and Morphology, Electrical, Thermal, and Mechanical Properties of Polymeric Materials," Office of Naval Research Grant N00014-75-C-0540, \$338,720 for 24 months, beginning July 1, 1980.

"The Effect of the Variation of the Glass-Transition Temperature on Piezoelectricity and Pyroelectricity in Poled Polyamide Films," Office of Naval Research Grant, \$50,491 for 24 months beginning July 1, 1981.

"Polymer Blends at Atmospheric Pressure and High Hydrostatic Pressure," National Science Foundation Grant, \$130,000 for 30 months beginning September 1, 1981.

"Structure, Morphology, and Properties of Multicomponent Polymeric Materials," Johnson & Johnson Research, \$36,000 for 36 months beginning September, 1982.

"Piezoelectricity, Pyroelectricity and Related Electrical Properties in Polyamide and Other Electret Films," Office of Naval Research Grant C-0795, \$285,000 for 36 months, beginning June 1, 1983.

"Polymer Blends at Atmospheric and High Hydrostatic Pressures", National Science Foundation Grant, \$45,000 for 18 months beginning March 1, 1984.

"Differential Scanning Calorimetry Studies of Polymer Electret Films," ONR \$34,758, beginning September 1985.

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"Piezoelectric Properties of Novel Polymers", Celanese Research Company, \$10,000, beginning September 1985.

"ESCA Surface Studies of Semi-Conductor and other Materials", National Science Foundation, \$58,000, beginning September 1985.

"Piezoelectricity, Pyroelectricity, and Related Electrical Properties in Polyamide and Other Electret Films," Office of Naval Research Grant C-0795, \$445,000 for 35 months, beginning May 1, 1986.

"Piezotron for Studies of Polymer Electret Films," Office of Naval Research \$100,000, beginning September 1986.

"Piezoelectricity, Pyroelectricity, and Related Electrical Properties of Polymer Films, Office of Naval Research Grant, \$124,750 for 12 months beginning July, 1987.

"Piezoelectricity, Pyroelectricity and Related Electrical Properties of Polymer Films", Office of Naval Research Grant, \$492,000 for 30 months, beginning April 1, 1988.

"Directional Solidification of Polymer Surface Coatings and Thin Films under High Electric Fields," SNJ-CST, \$35,500 for 12 months beginning Jan. 1, 1988.

"Development of Piezoelectric Polymers as Sensors in Food Processing and Food Technology Applications," Center for Advanced Food Technology, Rutgers University, \$75,370 for 12 months beginning January 1, 1988.

"Electroactive Polymer Processing," DARPA, \$1,100,000 for 36 months beginning April 1, 1989.

"Development of Piezoelectric Polymers as Sensors in Food Processing and Food Technology Applications," CAFT, Rutgers University, \$89,166 for 12 months beginning Jan. 1, 1989.

"Piezoelectricity, Pyroelectricity, and Related Electrical Properties of Polymer Films", ONR, \$480,000, 1990 - 1993.

"High d_{33} Apparent Piezoelectric Polymers", Acceleration of ONR Grant (DARPA funded), \$95,000, 1990.

"High Temperature Stable Piezoelectric Nylons", DARPA, \$700,000, 1990 - 1991.

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"Development of Piezoelectric Polymers as Sensors in Food Processing and Food Technology Applications", Center for Advanced Food Technology, Rutgers University, \$80,000, for 12 months beginning January 1, 1990.

"Development of Piezoelectric Polymers as Sensors in Food Processing and Food Technology Applications," Center for Advanced Food Technology, Rutgers University, \$72,000, for 12 months beginning January 1, 1991.

"Development of Piezoelectric Polymers as Sensors in Food Processing and Food Technology Applications," Center for Advanced Food Technology, Rutgers University, \$65,000, 7/1/91-6/30/92.

"Acquisition of a Fourier Transform Infrared Spectrometer," National Science Foundation, \$48,000, 8/91-1/92.

"Double Interferometer Apparatus with Poisson's Ratio Measurement Capability," Office of Naval Research, \$60,000, 11/1/92-10/31/93.

"The Role of the Piezoelectric Phenomenon in the Development of the Sclera," Aborn Eye Clinic, \$35,000, beginning 10/92.

"Development of Piezoelectric Polymers as Sensors in Food Processing and Food Technology Applications," Center for Advanced Food Technology, Rutgers University, \$52,000, 7/1/92-6/30/93.

"Development of Piezoelectric Polymers as Sensors in Food Processing and Food Technology Applications," Center for Advanced Food Technology, Rutgers University, \$56,592, 7/1/93-6/30/94.

"Piezoelectricity, Pyroelectricity, and Related Electrical Properties of Polymer Films," Office of Naval Research, \$600,000, 10/1/93-09/30/96.

"The Role of the Piezoelectric Phenomenon in the Development of the Sclera," Aborn Eye Clinic, \$35,000, beginning 10/93.

"The Role of the Piezoelectric Phenomenon in the Development of the Sclera," Aborn Eye Clinic, \$35,000, beginning 10/94.

"Expansion of Piezoelectricity, Pyroelectricity and Related Electrical Properties of Polymer Films," Office of Naval Research, \$50,000, 2/1/94-1/31/95.

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"Development of Piezoelectric Polymers as Sensors in Food Processing and Food Technology Applications," Center for Advanced Food Technology, Rutgers University, \$49,179, 7/1/94-6/30/95.

"Expansion of Piezoelectricity, Pyroelectricity and Related Electrical Properties of Polymer Films," Office of Naval Research, \$50,000, 6/13/95.

"The Role of the Piezoelectric Phenomenon in the Development of the Sclera," Aborn Eye Clinic, \$35,000, beginning 10/95.

"Development of Piezoelectric Polymers as Sensors in Food Processing and Food Technology Applications," Center for Advanced Food Technology, Rutgers University, \$50,440, 7/1/95-6/30/96.

"Electrostrictive Polyurethanes", \$600,000, NUWC, 10/1/96 – 9/31/98.

"Piezoelectric Polymer Film," Rhone-Poulenc, \$100,000, 4/2/96-4/2/98.

"Dielectric Polymer Films", Terphane, \$50,000, Grant to PEL 6/1/98.

"Dynamic Mechanical Thermal Analyzer," Mobil Chemical Company, \$32,275, 1/18/96.

"Development of Piezoelectric Polymers as Sensors in Food Processing and Food Technology Applications," Center for Advanced Food Technology, Rutgers University, \$24,743, 7/1/96-6/30/97.

"The Role of the Piezoelectric Phenomenon in the Development of the Sclera," Aborn Eye Clinic, \$35,000, beginning 10/96.

"The Role of the Piezoelectric Phenomenon in the Development of the Sclera," Aborn Eye Clinic, \$35,000, beginning 10/97.

"Piezoelectricity, Pyroelectricity, and Related Electrical Properties of Polymer Films," Office of Naval Research, \$140,000, 10/1/96-12/31/97.

"The Role of the Piezoelectric Phenomenon in the Development of the Sclera," Aborn Eye Clinic, \$35,000, beginning 10/98.

"Rutgers SROA Grant", \$100,000, 9/1/98

"The Role of the Piezoelectric Phenomenon in the Development of the Sclera," Aborn Eye Clinic, \$35,000, beginning 10/99.

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“Electroactive Polymers for Electromechanical Applications”, NSF, \$300,000, 10/1/97 – 8/31/01.

“Rutgers SROA Grant”, \$12,000, 09/01/99

“Electrostrictive Polymers for Advanced Actuators”, DARPA, \$393,760, 02/01/99 –9/31/03

"The Role of the Piezoelectric Phenomenon in the Development of the Sclera," Aborn Eye Clinic, \$35,000, beginning 10/00-9/03

“Electroactive Polymers for Advanced Filtration”, Pall Corp., \$25,000, 11/01-10/03

Courses Taught:

655:221 Engineering Mechanics, Statics
655:222 Engineering Mechanics, Dynamics
440:407 Mechanical Properties of Materials
655:409 Materials Science (Electrical Properties of Materials)
655:509 Nature and Properties of Materials I
655:510 Nature and Properties of Materials II
655:515 Polymer Science and Engineering I
655:516 Polymer Science and Engineering II
635:602 Electrical Properties of Polymers
635:602 Special Problems: Electrical and Electroactive Polymer Properties

Curriculum Development:

655:221 As course coordinator, revised curriculum and improved quality of
655:222 these courses by centralizing the examination and grading procedures

As Graduate Director:

1. Organized the formation of a new graduate program in Materials Science and Engineering, 1989.
2. Organized structure of the graduate program curriculum with respect to required courses, qualifying exams and criteria for granting M.S. and Ph.D. degrees.
3. Rationalized sequence of graduate courses in Polymer Science and Engineering to include a four semester core curriculum for all Polymer Science students.

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University Activities:

Provost's New Brunswick-wide Liaison Committee, 1982 - 1984
University Senate, Elected 1985-1991
New Brunswick Faculty Council, Elected 1990
Chairman, Faculty Council Research Committee, 1990
Member, AAUP Science Advisory Committee
University Senate, Elected 1995-1998
University Senate, Committee on Research and Research Administration, 1996-1997
Member, AAUP (faculty union) Bargaining Committee, 1995 - 1998
Chair, AAUP Bargaining Committee, 1998 - 1999
Vice President, AAUP, 1999
President, AAUP, 2000 – 2002
Member, University Safety Committee, 2000 – 2002
Member, University Committee on Professional Relations, 2000 – 2002
Member, AAUP Budget and Personnel Committee, 1999 - Present

School Activities:

Courses of Study Committee, 1980-1982 (chairman 1982)
Affirmative Action Committee, 1980-1982
Library Committee, 1978-1980
University Patent Committee, 1992-1996
College Space Committee, 1983-1988
Applied Science Committee, 1988-1991
EOF Community Advisory Board, 1981-1988
Committee on Student Scholastic Standing, 1995
Committee on Student Scholastic Standing, Chair, 1995-1996
Rules of Procedure Committee, 1995-1997
Applied Sciences Committee, 1996-1997
Graduate Director – Program in Materials Science and Engineering, 1998 – 1991
1995 – 2001
Chair, P-II Committee, 2000 - 2003

Undergraduate Student Advising Activities:

Faculty Advisor to the Engineering Governing Council, 1981-1984

Department Activities:

Coordinator, Department Seminar Series (1978-1979)

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Executive Officer, Department of Mechanics and Materials Science (1980-1982)
Coordinator, Engineering Mechanics Courses (655:221 and 222) (1980-1982)
Director of Materials Science and Engineering Program (1988-1991)
Director of the Polymer Electroprocessing Laboratory.
Currently Ph.D. thesis advisor to one graduate student.
Currently directing one visiting scientist
Served on many Master's exam committees
Served on many Ph.D. qualifying exam committees
Served on many Ph.D. thesis defense committees

Ph.D. Students Graduated and Theses Directed:

C. Yoon (Thesis: "Piezoelectric Activity of Electric Field Modified Poly(vinylidene fluoride)" - 1980.)

K. Chung (Thesis: "Piezoelectricity and Pyroelectricity of Poled Poly(vinylidene fluoride) Films" - 1981.)

P. Chen (Thesis: "Piezoelectricity, Structures and Morphology of Nylon Films" - 1982).

J. Trent (Thesis: "Positive Staining of Polymers and their Blends for Electron Microscopy" - 1983).

D. Woan (Thesis: "Dielectric Relaxation and Mechanical Properties of Poly(vinylidene fluoride)/poly(methylmethacrylate) Blends" - 1984).

K. Kim (Thesis: "Piezoelectricity and Crystal Structures of Nylon 11 and Nylon 7" - 1985).

S. Mathur (Thesis: "Piezoelectric Properties of Nylon 7 and Nylon 11" - 1986).

A. Sen (Thesis: "Effects of Plasticizer on the Piezoelectric and Pyroelectric Properties of Poly(vinylidene Fluoride) Films" - 1986).

T. Nosker (Thesis: "Rate Dependence of the Glass Transition Pressure on Poly(vinylidene fluoride) and Poly(methyl methacrylate)" - 1987).

J.W. Lee (Thesis: "Ferroelectricity and Piezoelectricity of Nylon 11 and Nylon 7" - 1990).

B.Z. Mei (Thesis: "Piezoelectricity and Ferroelectricity of the Odd-Numbered Nylons" - 1994).

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J. Su (Thesis: "Ferroelectric and Piezoelectric Properties of Ferroelectric Polymer Composite Systems" - 1995).

D.L. Winsor (Thesis: "A Characterization of the Mechanical and Ferroelectric Properties of Plasticized Poly(Vinylidene Fluoride) Films and a Copolymer with Trifluoroethylene" - 1995).

S-L. Wu (Thesis: - "Ferroelectricity and Piezoelectricity of Nylon 11 Films with Different Draw Ratios" - 1996).

M. Christie (Thesis: "Investigations of Ferroelectric and Piezoelectric Behavior in Poly (Vinylidene Fluoride Trifluoroethylene) Random Copolymers" (1999)

Q. Gao (Thesis: "Ferroelectric Polymer Blends: Odd Numbered Nylons, Vinylidene Fluoride Homopolymer and Copolymer with Trifluoroethylene" (2000)

A. Schirokauer (Thesis: "Electrostrictive and Ferroelectric Properties of Two P(VDF-HFP) Copolymers and Blends with a P(VDF-TrFE) Copolymer" (2002)

Refereed Publications:

"NQR-NMR Spin-1 Zero-Splitting Ellipse," with E. Schempp, J. Mag. Res., 15, 40 (1974).

"The Crystal Structure of 2-Aminopyrimidine," with E. Schempp, Acta Cryst., B32, 607 (1976).

"High Pressure Crystallization of Poly(vinylidene Fluoride)", with C. Nakafuku, B.A. Newman and K.D. Pae, J. Appl. Phys., 50, 4399 (1979).

"Piezoelectric Activity and Field-Induced Crystal Structure Transitions in Poled Poly(vinylidene fluoride) Films," with B.A. Newman, C.H. Yoon, K.D. Pae, J. Appl. Phys., 50, 6095 (1979).

"The Dependence of the Piezoelectric Response of Poly(vinylidene fluoride) on Phase I Volume Fraction," with K.T. Chung, K.D. Pae and B.A. Newman, J. Appl. Phys., 5, 6101 (1979).

"The Pressure Dependence of the Pyroelectric Response of Poly(vinylidene) fluoride Films," with K.T. Chung, K.D. Pae and B.A. Newman, J. Appl. Phys., 51, 5106 (1980).

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Jerry I. Scheinbeim

"Ferroelectric Hysteresis Effects in Poled Poly(vinylidene fluoride) Films," with C.H. Yoon, K.D. Pae and B.A. Newman, *J. Appl. Phys.*, 51, 5156 (1980).

"Piezoelectricity in Nylon 11," with B.A. Newman, P. Chen and K.D. Pae, *J. Applied Phys.*, 51, 5161 (1980).

"Pressure Dependence of the Glass Transition and Related Properties of Solithane 113 Elastomer," with D.L. Questad, K.D. Pae and B.A. Newman, *J. Appl. Phys.*, 51, 5100 (1980).

"Poling-Time Dependence of the Field-Induced Phase Transition and Piezoelectric Response of Poly(vinylidene fluoride) Films," with C.H. Yoon, K.D. Pae and B.A. Newman, *J. of Polym. Sci.: Phys. Ed.*, Vol. 18, 2271 (1980).

"Electron Microscopy of PS/PMMA and Rubber-Modified Polymer Blends: Use of Ruthenium Tetroxide as a New Staining Agent," with J.S. Trent, and P.R. Couchman, *J. of Polymer Science: Polymer Letters Ed.* 19, 315 (1981).

"Piezoelectric and Pyroelectric Properties of Poly(vinylidene fluoride) Films at High Hydrostatic Pressure," with B.A. Newman, K.T. Chung and K.D. Pae, *Ferroelectrics*, 32, 135 (1981).

"The Poling Field and Draw Dependence of the Piezoelectric and Pyroelectric Response of Pressure Quenched Phase I Poly(vinylidene fluoride) Films," with K.T. Chung, *J. Appl. Phys.*, 52, 5983, (1981).

"Piezoelectricity in γ -Form Nylon 11," J.I. Scheinbeim, *J. Appl. Phys.*, 52, 5939, (1981).

"Viscoplastic Behavior of a Glass at High Pressures," with D.L. Questad, K.D. Pae, and B.A. Newman, *J. Appl. Phys.*, 52, 5977, (1981).

"Pressure-Volume-Temperature Studies of a Polyurethane Elastomer," with D.L. Questad, K.D. Pae, and B.A. Newman, *J. Appl. Phys.*, 53, 6578, (1982).

"The Pressure and Temperature Dependence of Piezoelectric Response of Poled Unoriented Phase I Poly(vinylidene fluoride)," with K.T. Chung, B.A. Newman and K.D. Pae, *J. Appl. Phys.*, 53, 10, 6557, (1982).

"Polarization Mechanisms in Phase II Poly(vinylidene-fluoride) Films," with B.A. Newman, *Macromolecules*, 16, 60, (1983).

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Jerry I. Scheinbeim

"Ruthenium Tetroxide Staining of Polymers for Electron Microscopy," with J.S. Trent and P.R. Couchman, *Macromolecules*, 16, 589, (1983).

"Mechanical and Physical Properties of Poly(vinylidene fluoride) at High Pressures and Temperatures," with K.D. Pae, K. Vikayan, R.W. Renfree, K.T. Chung and B.A. Newman, *Ferroelectrics*, 57, 249 (1984).

"The Effect of Plasticizer on the Piezoelectric and Pyroelectric Properties of Poly(vinylidene fluoride) Films," with B.A. Newman, *Ferroelectrics*, 57, 229, (1984).

"Piezoelectric Properties and Ferroelectric Hysteresis Effects in Uniaxially Stretched Nylon 11 Films," with S.C. Mathur and B.A. Newman, *J. Appl. Phys.* 56, 2419, (1984).

"The Effect of Plasticizer on the Polarization of Poly(vinylidene fluoride) Films," with A. Sen and B.A. Newman, *J. Appl. Phys.* 56, 2433, (1984).

"High Pressure Melting and Crystallization of Nylon 11" with P.K. Chen, B.A. Newman, and K.D. Pae, *J. Mat. Sci.*, 20, 1753, (1985).

"Temperature Dependence of the Crystal Structures of Nylon 11", with B.A. Newman and K. Kim, *J. Polym. Sci.: Polym. Phys. Ed.*, 23, 2477, (1985).

"Field-Induced Crystallization in Highly Plasticized Poly(vinylidene fluoride)", with A. Sen and B.A. Newman, *Macromolecules* 19, 1454, (1986).

"Field-Induced Dipole Reorientation and Piezoelectricity in Heavily Plasticized Nylon 11 Films," with S.C. Mathur and B.A. Newman, *J. Polym. Sci: Part B: Polym. Phys.Ed.*, 24, 1791, (1986)

"Effects of Plasticization on the Piezoelectric Properties of Nylon 11 Films", with S. Mathur, A. Sen and B.A. Newman, *J. Mat. Sci.*, 23, 977, (1988).

"Piezoelectricity in Uniaxially Stretched and Plasticized Nylon 11 Films", with S. Mathur and B.A. Newman, *J. Polym. Sci.: Part B: Polym. Phys. Ed.*, 26, 447, (1988).

"Annealing Effects of Phase I Poly(vinylidene fluoride)," with Y. Takase and B.A Newman, *J. Polym. Sci., Polym. Phys. Ed.*, 27, 2347, (1989).

"Effects of Annealing on Polarization Switching of Phase I Poly(vinylidene fluoride), with Y. Takase and B.A. Newman, *J. Polym. Sci., Polym. Phys. Ed.*, 28, 1599, (1990).

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Jerry I. Scheinbeim

"Effect of TCP Doping on the Remanent Polarization in Uniaxially Oriented Poly(vinylidene fluoride) Films," with Y. Takase and B.A. Newman, *Macromolecules*, 23, 642, (1990).

"Effect of Water Content on the Piezoelectric Properties of Nylon 11 and Nylon 7, with K. Kim and B.A. Newman, *J. of Materials Sci.* 25, 1779, (1990).

"Effect of Annealing on the Ferroelectric Behavior of Nylon 11 and Nylon 7," with J.W. Lee, Y. Takase and B.A. Newman, *J. Polym. Sci., Phys. Ed.*, 29, 279, (1991).

"Ferroelectric Polarization Switching in Nylon 11", with J.W. Lee, Y. Takase and B.A. Newman, *J. Polym. Sci.: Part B: Phys. Ed.* 29, 273, (1991).

"High Temperature Characteristics of Nylon 11 and Nylon 7 Piezoelectrics," with J.W. Lee, Y. Takase and B.A. Newman, *Macromolecules* 24, 6644, (1991).

"A New Class of Ferroelectric Polymers: the Odd-Numbered Nylons," with B.A. Newman, J.W. Lee and Y. Takase, *Ferroelectrics* 127, 229, (1992).

"Ferroelectric Polarization Mechanisms in Nylon 11," with J.W. Lee and B.A. Newman, *Macromolecules* 25, 3729, (1992)

"An Extension of a Kinetic Theory of Polymer Crystallization through the Exclusion of Negative Barriers", with L. Petrone and B.A. Newman, *Macromolecules* 26, 933, (1993)

"Electric Field-Induced Changes in Odd-Numbered Nylons," with B.A. Newman, *Trends in Polymers Science*, 1, 394, (1993).

"Ferroelectric Behavior of Odd-Numbered Nylons," with B. Mei and B.A. Newman, *Ferroelectrics* 144, 51-60 (1993)

"High Field Electrostrictive Response of Polymers," with Z.Y. Ma, J-W. Lee and B.A. Newman, *J. Polym. Sci., Phys. Ed.*, 32, 2721, (1994).

"Pyroelectricity in Nylon 11 and Nylon 7 Ferroelectric Polymers," with S. Esayan and B.A. Newman, *Appl. Phys. Lett.* 67 (5), 623, (1995).

"Ferroelectric and Piezoelectric Properties of Nylon 11/PVF₂ Bilaminate Films," with J. Su, Z. Ma and B.A. Newman, *J. Polym. Sci., Phys. Ed.* 33, 85, (1995).

"Ferroelectric Polarization Mechanisms of the Odd-Numbered Nylons," with B.Z. Mei and B.A. Newman, *Ferroelectrics* 171, 177, (1995).

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- 34, “Effects of Plasticizer on the Mechanical and Ferroelectric Properties of Uniaxially Oriented β -Phase PVF₂,” with D.L. Winsor and B.A. Newman, *J. Polym. Sci., Phys. Ed.*, 34, 2967, (1996).
- “Ferroelectric and Piezoelectric Properties of a Quenched Poly(vinylidene Fluoride-Trifluoroethylene) Copolymer,” with M.C. Christie and B.A. Newman, *J. Polym. Sci., Phys. Ed.* 35, 2671, (1997).
- “The Effect of Melt Processing Conditions on the Hydrogen-bonded Sheet Orientation and Polarization of Nylon Films,” with S-L. Wu and B.A. Newman, *J. Polym. Sci., Phys. Ed.*, 34, 3035, (1996).
- “The Piezoelectric Response of Scleral Collagen,” with S. Ghosh, B.Z. Mei, V. Lubkin, B.A. Newman, P. Kramer, G. Bennett and N. Feit, *J. Biomat. Res* 39, 453, (1998)
- “Thermal Behavior of Ferroelectric Polyamide 11 In Relation with Pyroelectric Properties”, L. Ibos, C. Maraval, A. Bernes, G. Teysedre, C. Lacabanne and J.I. Scheinbeim, *J. Polym. Sci., Phys. Ed.*, 37, 715, (1999)
- “Poly(vinylidene fluoroide)”, article in Polymer Data Handbook, Jerry Scheinbeim, Edited by James E. Mark, Oxford University Press, 949, (1999)
- “Structural Anisotropy in Unoriented and Uniaxially Oriented Poly (p-phenylene vinylene)”, with Hiren V. Shah, and Georgia A. Arbuckle, *J. Polym. Sci., Phys. Ed.*, 37, 605, (1999)
- “A Study of a Plasticized-Unoriented P (VF₂/VF₃) (73/27 mole %) Copolymer: II. The Effect of Poling on The Piezoelectric and Ferroelectric Properties of Slow-Cooled Films”, with David L. Winsor, and Brian A. Newman, *J. Polym. Sci., Phys. Ed.*, 37, 29, (1999)
- “A Study of a Plasticized-Unoriented P (VF₂/VF₃) (72/27 mole %) Copolymer: I. The Effect of Crystallization Conditions on Morphology, Physical and Thermal Properties”, with David L. Winsor and Brian A. Newman, *J. Polym. Sci., Phys. Ed.*, 37, 19, (1999)
- “Ferroelectricity and Piezoelectricity of NII Films with Different Draw Ratios”, with S.L. Wu, J.I. and B.A. Newman, *J. Polym. Sci., Phys. Ed.*, 37, 2737, (1999)
- “Ferroelectric Properties of Nylon II and Poly(vinylidene fluoride) Blends”, with Qiong Gao, and Brian A. Newman, *J. Polym. Sci. Polym. Phys. Ed.*, 37, 3217, (1999)

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Jerry I. Scheinbeim

“Giant Electrostrictive Response in Poly(vinylidene fluoride-hexafluoropropylene) Copolymers”, with X. Lu and A. Shirokauer, *IEEE Transactions*, 47, No. 6 (2000)

“Dipolar Intermolecular Interactions, Structural Development, and Electromechanical Properties in Ferroelectric Polymer Blends of Nylon-11 and Poly(vinylidene fluoride)”, with Qiong Gao, *Macromolecules*, 33, 7564, (2000)

“Ferroelectric Behavior in Solvent Cast Poly(vinylidene fluoride/hexafluoropropylene) Copolymer Films”, with Ambalangodage C. Jayasuriya, *Applied Surface Science*, 175, 386, (2001)

“Crystal-Structure Dependence of Electroactive Properties in Differently Prepared Poly(vinylidene fluoride/hexafluoropropylene) Copolymer Films,” with Ambalangodage C. Jayasuriya, *J. Polym. Sci., Polym. Phys. Ed.*, 39, 2793, (2001)

“Crystallization Studies of Ferroelectric Polymer Blends of Nylon II/Poly(vinylidene Fluoride)”, with Qiong Gao, *Polym. Journal*, 35, No.4, 345, (2003)

“Piezoelectric and Mechanical Properties in Bovine Cornea,” with A.C. Jayasuriya, V. Lubkin, G. Bennett and P. Kramer, *J. of Biomed. Mat. Res.*, 34, 453, (2003)

“A Study of Piezoelectric and Mechanical Anisotropies of the Human Cornea”, with A. Champa Jayasuriya, Snehashish Ghosh, Virginia Lubkin, Greg Bennett and Phillip Kramer, *Biosensors and Bioelectronics* , 18, 381, (2003)

“Studies on the Miscibility and Ferroelectric Behavior in Blends of Poly(vinylidene fluoride/trifluoroethylene) and Poly(vinyl acetate)”, with Yiwen Tang, *J. Polym. Sci., Polym. Phys. Ed.*, 41, 927, (2003)

“Structure Electrostructure Property Relationship Study in P(VDF-HFP) Copolymers”, with Adriana Schirokauer, Submitted, *J. Polym. Sci., Phys. Ed.* (2003)

“Electrostrictive P(VDF-HFP)/P(VDF-7rFE) Copolymer Blends”, with Adriana Schirokauer and Stephen Butkewitsch, To Be Submitted, *J. Polym. Sci., Polym. Phys. Ed.* (2004)

Patents:

"Fabrication Method for Unoriented Phase-I Poly(vinylidene fluoride)", U.S. Patent No. 4,349,502, Issued Sept. 14, 1982 with B.A. Newman and K.D. Pae.

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Jerry I. Scheinbeim

"Piezoelectric Transducer using Electrically Poled γ -Phase Nylon 11", U.S. Patent No. 4,486,683, Issued Dec. 4, 1984 with B.A. Newman and K.D. Pae.

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