

University of Nebraska - Lincoln
DigitalCommons@University of Nebraska - Lincoln

Stephen Ducharme Publications

Research Papers in Physics and Astronomy

9-27-2006

Stephen Ducharme Publications 1983-2006

Follow this and additional works at: <http://digitalcommons.unl.edu/physicsducharme>



Part of the [Physics Commons](#)

"Stephen Ducharme Publications 1983-2006" (2006). *Stephen Ducharme Publications*. Paper 1.
<http://digitalcommons.unl.edu/physicsducharme/1>

This Article is brought to you for free and open access by the Research Papers in Physics and Astronomy at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Stephen Ducharme Publications by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

Stephen Ducharme
sducharme1@unl.edu

Department of Physics and Astronomy
Center for Materials Research and Analysis
University of Nebraska, Lincoln, NE 68588-0111

<http://physics.unl.edu/directory/ducharme/ducharme.html>

(402) 472-8590
(402) 472-2879 FAX

PUBLICATIONS IN REFEREEED ARCHIVAL JOURNALS

68. "Comparison of the electronic structure of two polymers with strong dipole ordering," J. Xiao, L. G. Rosa, M. Poulsen, M. Poulsen, D.-Q. Feng, D. S. Reddy, J. M. Takacs, L. Cai, J. Zhang, S. Ducharme, P. A. Dowben, *J Physics: Condensed Matter* 18, L155-61 (2006).
<http://digitalcommons.unl.edu/physicsfacpub/3/>
67. "Ferroelectric Polymeric Langmuir-Blodgett Films for Non-Volatile Memory Applications," S. Ducharme, T. J. Reece, C. M. Othon, R. K. Rannow, *IEEE Transactions on Device and Material Reliability* 5, 720-735 (2005).
<http://digitalcommons.unl.edu/physicsfacpub/9/>
66. "Nanomesa and Nanowell Formation in Langmuir-Blodgett Polyvinylidene Fluoride Trifluoroethylene Copolymer Films," J. Li, Y. Luo, M. Bai, S. Ducharme, *Applied Physics Letters* 87, 213116 (2005). <http://digitalcommons.unl.edu/physicsfacpub/10/>
65. "Investigation of Ferroelectricity in Newly Synthesized Nitrile Polymer Systems," Matt Poulsen, S. Ducharme, A. V. Sorokin, S. Reddy, J. M. Takacs, Y. Wen, J. Kim, S. Adenwalla, *Ferroelectrics Letters* 32, 85-89 (2005).
64. "The Effect of Humidity on the Dielectric Response in Ferroelectric Polymer Films Made by Langmuir-Blodgett Deposition," K. L. Kraemer, A. V. Sorokin, C. M. Othon, S. Ducharme, V. M. Fridkin, *Ferroelectrics Letters* 32, 91-97 (2005).
63. "Comparison of Crystalline Thin Poly(vinylidene (70%) - trifluoroethylene (30%)) Copolymer Films with Short Chain Poly(vinylidene fluoride) film," J. Choi, E. Morikawa, S. Ducharme, P. A. Dowben, *Materials Letters* 58, 3599-3603 (2005).
<http://digitalcommons.unl.edu/physicsfacpub/8/>

62. "Manifestation of a Ferroelectric Phase Transition in Ultrathin Films of Polyvinylidene Fluoride," A. R. Geivandov, S. G. Yudin, V. M. Fridkin, S. Ducharme, *Physics of the Solid State* **47**, 1590-94 (2005).
61. "Pyroelectric study of polarization switching in Langmuir-Blodgett films of poly(vinylidene fluoride – trifluoroethylene)," A. V. Sorokin, S. Ducharme, V. M. Fridkin, G. M. Vizdrik, *J. Applied Physics* **98**, 044107.1-10 (2005).
60. "Switching in one Monolayer of the Ferroelectric Polymer," V. Fridkin, A. Ievlev, K. Verkhovskaya, G. Vizdrik, S. Yudin, S. Ducharme, *Ferroelectrics*, **214**, 37-40 (2005). ---
59. "Effects of Electron Irradiation on the Ferroelectric Properties of Langmuir-Blodgett Copolymer Films," C. Othon and S. Ducharme, *J. Applied Physics* **98**, 014106.1-6 (2005).-
58. "The Surface Structure of Ultra-Thin P(VDF-TrFE) Copolymer Films on Graphite," L. Cai, H. Qu, C. Lu, S. Ducharme, P. A. Dowben, J. Zhang, *Physical Review B* **70**, 155411.1-7 (2004). <http://digitalcommons.unl.edu/physicsfacpub/12/>
57. "Ferroelectric Nanomesa Formation from Polymer Langmuir-Blodgett Films," M. Bai & S. Ducharme, *Applied Physics Letters* **85**, 3528-30 (2004).
56. "Electron Irradiation Effects on the Switching Behavior of a Ferroelectric Polymer," Christina M. Othon & S. Ducharme, *Ferroelectrics* **304**, 9-12 (2004).
55. "Mapping Surface Polarization in Thin Films of the Ferroelectric Polymer P(VDF-TrFE)," B. Peterson, S. Ducharme, V. M. Fridkin, T. J. Reece, *Ferroelectrics* **304**, 51-54 (2004). ---
54. "Simulations of ferroelectric polymer film polarization: the role of dipole interactions," C.-G. Duan, W. N. Mei, W.-G. Yin, J. Liu, J. R. Hardy, S. Ducharme, P. A. Dowben, *Physical Review B* **69**, 235106.1-6 (2004). <http://digitalcommons.unl.edu/physicsfacpub/13/>
53. "Determination of the Optical Dispersion in Ferroelectric Vinylidene Fluoride (70%)/Trifluoroethylene (30%) Copolymer Langmuir-Blodgett Films," M. Bai, A. V. Sorokin, M. Poulsen, S. Ducharme, C. M. Herzinger, S. P. Palto, S. G. Yudin, V. M. Fridkin, *J. Applied Physics* **95**, 3372-76 (2004).
52. "Ferroelectricity at the Molecular Level," L. Blinov, A. Bune, P. Dowben, S. Ducharme, V. Fridkin, S. Palto, K. Verkhovskaya, G. Vizdrik, S. Yudin, *Phase Transitions* **77**, 161-173 (2004).
51. "Water absorption and dielectric changes in crystalline poly(vinylidene fluoride-trifluoroethylene) copolymer films," P. A. Jacobson, L. G. Rosa, C.M. Othon, K.L.

- Kraemer, A. V. Sorokin, S. Ducharme, P. A. Dowben, *Applied Physics Letters* **84**, 88-90 (2004). <http://digitalcommons.unl.edu/physicsdowben/9/>
50. "Kinetics of Intrinsic Ferroelectric Switching in Ultrathin Films," G. Vizdrik, S. Ducharme, V. M. Fridkin, S. G. Yudin, *Physical Review B* **68**, 094113.1-6 (2003). –
49. "Theoretical study on the optical properties of polyvinylidene fluoride crystal," C.-G. Duan, W. N. Mei, W.-G. Yin, J. Liu, J. R. Hardy, M. Bai, S. Ducharme, P. A. Dowben, *J. Physics: Condensed Matter* **15**, 3805-11 (2003).
48. "Infrared Spectroscopic Ellipsometry of Vinylidene Fluoride (70%) Trifluoroethylene (30%) Copolymer Langmuir-Blodgett Films," M. Bai, M. Poulsen, A. V. Sorokin, S. Ducharme, D. W. Thompson, C. M. Herzinger, V. M. Fridkin, *J. Applied Physics* **94**, 195-200 (2003).
47. "Nanoscale Polarization Manipulation and Conductance Switching in Ultra Thin Ferroelectric Copolymer Films: *P(VDF-TrFE)*," H. Qu, W. Yao, T. Garcia, J. Zhang, A.V. Sorokin, S. Ducharme, P. A. Dowben, V. M. Fridkin, *Applied Physics Letters* **82**, 4322-24 (2003). <http://digitalcommons.unl.edu/physicsdowben/11/>
46. "Non-Volatile Memory Element Based on a Ferroelectric Polymer Langmuir-Blodgett Film," T. J. Reece, S. Ducharme, A. V. Sorokin, M. Poulsen, *Applied Physics Letters* **82**, 142-44 (2003).
45. "Comparison of the Theoretical and Experimental Band Structure of Poly(vinylidene fluoride) Crystal," C.-G. Duan, W. N. Mei, J. Liu, J. R. Hardy, S. Ducharme, J. Choi, P. A. Dowben, *Europhysics Letters* **61**, 81-87 (2003).
44. "Heterojunction Diode Fabrication from Polyaniline and a Ferroelectric Polymer," B. Xu, Y. Ovchenkov, M. Bai, A.N. Caruso, A.V. Sorokin, S. Ducharme, B. Doudin, P.A. Dowben, *Applied Physics Letters* **81**, 4281-3 (2002).
<http://digitalcommons.unl.edu/physicsdowben/16/>
43. "Langmuir-Blodgett Films of Polyethylene," A. V. Sorokin, M. Bai, S. Ducharme, M. Poulsen, *J. Applied Physics* **92**, 5977-81 (2002).
42. "Dielectric Properties of a Ferroelectric Copolymer Langmuir-Blodgett Film," M. S. Jogad & S. Ducharme, *Current Science (India)* **83**, 472-476 (2002).
41. "Multilayered Ultrathin Ferroelectric Langmuir-Blodgett Films," T. M. Batirov, S. Ducharme, V. M. Fridkin, N. Kuznetsova, S. P. Palto, K. A. Verkhovskaya, *Integrated Ferroelectrics* **37**, 155-62 (2001).

40. "General Features of the Intrinsic Coercive Field," V. M. Fridkin and S. Ducharme, *Physics of the Solid State* **43**, 1320-1324 (2001). (Russian, *Fizika Tverdogo Tela* **43**, 1268-71.)
39. "Mesoscopic Structures in Two-Dimensional Ferroelectric Polymers," S. Ducharme, M. Bai, Matt Poulsen, S. Adenwalla, S. P. Palto, L. M. Blinov, V. M. Fridkin, *Ferroelectrics* **252**, 191-199 (2001).
38. "Aluminum Doping of Poly(vinylidene fluoride with Trifluoroethylene) Copolymer," B. Xu, C. N. Borca, S. Ducharme, A. V. Sorokin, P. A. Dowben, V. M. Fridkin, S. P. Palto, N. Petukhova, S. G. Yudin, *J. Chemical Physics* **114**, 1866-1869 (2001).
37. "Two-Dimensional Ferroelectrics," L. M. Blinov, V. M. Fridkin, S. P. Palto, A. V. Bune, P. A. Dowben, S. Ducharme, *Physics Uspekhi* **170**, 243-257 (2000). (Russian, *Uspekhi Fizicheskikh Nauk* **170**, 247-262.) Invited Review.
36. "Two-Dimensional Ferroelectrics," V. M. Fridkin, S. Ducharme, A. V. Bune, S. P. Palto, S. G. Yudin, L. M. Blinov, *Ferroelectrics* **236**, 1-10 (2000).
35. "Phase Transition in the Surface Structure in Copolymer Films of Vinylidene Fluoride (70%) with Trifluoroethylene (30)," J. Choi, C. N. Borca, P. A. Dowben, A. V. Bune, S. Pebley, S. Adenwalla, L. Robertson, S. Ducharme, V. M. Fridkin, S. P. Palto, N. Petukhova, S. G. Yudin, *Physical Review B* **61**, 5760-5770 (2000).
<http://digitalcommons.unl.edu/physicsdowben/33/>
34. "Intrinsic Ferroelectric Coercive Field," S. Ducharme, V. M. Fridkin, A. V. Bune, S. P. Palto, L. M. Blinov, N. N. Petukhova, S. G. Yudin, *Physical Review Letters* **84**, 175-8 (2000). 69 Citations
33. "Lattice-Stiffening Transition in Copolymer Films of Vinylidene Fluoride (70%) with Trifluoroethylene (30)," C.N. Borca, S. Adenwalla, J. Choi, P.T. Sprunger, S. Ducharme, L. Robertson, S. P. Palto, J. Liu, Matt Poulsen, V. M. Fridkin, H. You, P. A. Dowben, *Physical Review Letters* **83**, 4562-65 (1999). 19 Citations—
<http://digitalcommons.unl.edu/physicsdowben/40/>
32. "Piezoelectric and Pyroelectric Properties of Ferroelectric Langmuir-Blodgett Polymers," A. V. Bune, C. Zhu, S. Ducharme, L. M. Blinov, V. M. Fridkin, S. P. Palto, N. N. Petukhova, S. G. Yudin, *J. Applied Physics* **85**, 7869-7873 (1999).
31. "Effect of Dipolar Molecules on Carrier Mobilities in Photorefractive Polymers," A. Goonesekera S. Ducharme, *J. Applied Physics* **85**, 6506-14 (1999).

30. "Influence of Dynamical Scattering in Crystalline Poly(vinylidene fluoride-trifluoroethylene) Copolymers," C. N. Borca, J. Choi, S. Adenwalla, S. Ducharme, P. A. Dowben, L. Robertson, V. M. Fridkin, S. P. Palto, N. Petukhova, *Applied Physics Letters* **74**, 347-349 (1999).
29. "Evidence of Dynamic Jahn-Teller Distortions in Two-Dimensional Crystalline Molecular Films," J. Choi, P. A. Dowben, C. N. Borca, S. Adenwalla, A. V. Bune, S. Ducharme, V. M. Fridkin, S. P. Palto, N. Petukhova, *Physical Review B* **59**, 1819-1824 (1999). —
<http://digitalcommons.unl.edu/physicsdowben/36/>
28. "Lattice and Electronic Band Structure Changes Across the Surface Ferroelectric Transition," J. Choi, P. A. Dowben, S. Ducharme, V. M. Fridkin, S. P. Palto, N. Petukhova, S. G. Yudin, *Physics Letters A* **249**, 505-511 (1998).
27. "Measurement of the Photorefractive Grating Phase Shift in a Polymer Using an AC Phase Modulation Technique," M. Liphardt and S. Ducharme, *J. Optical Society of America B* **15**, 2154-60 (1998).
26. "Two-Dimensional Ferroelectric Films," A. Bune, V. M. Fridkin, S. Ducharme, L. M. Blinov, S. P. Palto, A. Sorokin, S. G. Yudin, A. Zlatkin, *Nature* **391**, 874-877 (1998). 190 citations.
25. "Changes in Metallicity and Electronic Structure Across the Surface Ferroelectric Transition of Ultra Thin Crystalline poly(vinylidene flouride-triflouoroethylene) Copolymers," J. Choi, P. A. Dowben, S. Pebbley, A.V. Bune, S. Ducharme, V. M. Fridkin, S. P. Palto, N. Petukhova, *Physical Review Letters* **80**, 1328-31 (1998).
<http://digitalcommons.unl.edu/physicsdowben/39/>
24. "Critical Point in Ferroelectric Langmuir-Blodgett Polymer Films," S. Ducharme, A. V. Bune, V. M. Fridkin, L. M. Blinov, S. P. Palto, A. V. Sorokin, S. Yudin, *Physical Review B* **57**, 25-28 (1998).
23. "Low-Field Hole Mobility in a Photorefractive Polymer," A. Goonesekera, S. Ducharme, J. M. Takacs, L. Zhang, *J. Chemical Physics* **107**, 8709-8712 (1997).
22. "Ultrathin Ferroelectric Polymer Films," S. Ducharme, A. Bune, V. M. Fridkin, L. M. Blinov, S. P. Palto, N. Petukhova, S. G. Yudin, *Ferroelectrics* **102**, 29-37 (1997). ---
21. "Effect of Absorption on Photorefractive Grating Decay Curves," M. Liphardt, S. Ducharme, A. Goonesekera, J. M. Takacs, L. Zhang, *J. of the Optical Society of America B* **13**, 2252-2260 (1996).

20. "Novel Switching Phenomena in Ferroelectric Langmuir-Blodgett Films," A. Bune, S. Ducharme, V. M. Fridkin, L. Blinov, S. Palto, N. Petukhova, S. Yudin, *Applied Physics Letters*, **67**, 3975-3977 (1995). 25 citations.
19. "Intensity-Dependent Asymmetric Transmission Through a Photorefractive Fabry-Perot Étalon," S. Ducharme, Bao Vu, *Ferroelectrics* **174**, 197-209 (1995).
18. "Photoconductivity and Grating Response Time of a Photorefractive Polymer," B. E. Jones, S. Ducharme, M. Liphardt, A. Goonesekera, J. M. Takacs, L. Zhang, R. V. Athalye, *J. of the Optical Society of America B* **11**, 1064-1072 (1994).
17. "High Performance Photorefractive Polymers," M. Liphardt, A. Goonesekera, B. E. Jones, S. Ducharme, J. M. Takacs, L. Zhang, *Science* **263**, 367-369 (1994). 90 citations.
16. "Electric-Field-Stabilization and Competition of Gratings in a Photorefractive Polymer," S. Ducharme, B. Jones, J. M. Takacs, L. Zhang, *Optics Letters* **18**, 152-154 (1993).
15. "Pyro-Electro-Optic Phase Gratings," S. Ducharme, *Optics Letters* **16**, 1791 (1991). "Erratum," *Optics Letters* **17**, 459-461 (1992).
14. "Observation of the Photorefractive Effect in a Polymer," S. Ducharme, R. W. Twieg, J. C. Scott, W. E. Moerner, *Physics Review Letters* **66**, 1846-1849 (1991). 366 citations. —
13. "Intracavity Frequency Doubling of a Nd:YAG Laser With an Organic Nonlinear Optical Crystal," S. Ducharme, W. P. Risk, W. E. Moerner, V. Y. Lee, R. W. Twieg, G. C. Bjorklund, *Applied Physics Letters* **57**, 537 (1990).
12. "Photodarkening Profiles and Kinetics in Chalcogenide Glasses," S. Ducharme, J. Hautala, P. C. Taylor, *Physical Review B* **41**, 12250 (1990).
11. "Nonlinear Optical Studies of Polysilanes," P. Shukla, P. M. Cotts, R. D. Miller, S. Ducharme, R. Astana, J. Zavislan, *Molecular Crystals and Liquid Crystals* **183**, 241 (1990).
10. "Absorption at Radio and Microwave Frequencies in Superconducting Perovskites," S. Ducharme, R. Durny, J. Hautala, D. J. Zheng, O. G. Symko, P. C. Taylor, S. Kulkarni, *J. Applied Physics* **66**, 1252 (1989).
9. "Microwave-Induced Voltages in Superconducting Y-Ba-Cu-O," R. Durny, S. Ducharme, J. Hautala, D. J. Zheng, O. G. Symko, P. C. Taylor, S. Kulkarni, *Physica C* **162**, 1065 (1989)

8. "Absorption of Microwaves in Superconducting $\text{Y}_1\text{Ba}_2\text{Cu}_3\text{O}_7$:A Field-Cooling Study," R. Durny, S. Ducharme, J. Hautala, D. J. Zheng, O. G. Symko, P. C. Taylor, S. Kulkarni, *J. of the Optical Society of America B* **6**, 465 (1989).
7. "Dissipative Flow of Josephson and Abrikosov Fluxons in High Tc Superconductors," O. G. Symko, D. J. Zheng, R. Durny, S. Ducharme, P. C. Taylor, *Physics Letters A* **134**, 72 (1988).
6. "Microwave Absorption in the Superconducting and Normal Phases of $\text{Y}_1\text{Ba}_2\text{Cu}_3\text{O}_7$," R. Durny, J. Hautala, S. Ducharme, B. Lee, O. G. Symko, P. C. Taylor, D. J. Zheng, J. A. Xu, *Physics Review B* **36**, 2361 (1987).
5. "Absorption in Amorphous Silicon Doping-Modulated Multilayers," R. Durny, S. Ducharme, J. M. Viner, P. C. Taylor, D. Haneman, *J. Non-Crystalline Solids* **97**, 927 (1987).
4. "Electro-optic and Piezoelectric Measurements in Photorefractive Barium Titanate and Strontium Barium Niobate," S. Ducharme, J. Feinberg, R. Neurgaonkar, *J. of Quantum Electronics* **23**, 2116 (1987).
3. "Altering the Photorefractive Properties of BaTiO_3 by Reduction and Oxidation at 650°C," S. Ducharme and Jack Feinberg, *J. of the Optical Society of America A* **3**, 283 (1986). 25 citations
2. "Speed of the Photorefractive Effect in a BaTiO_3 Single Crystal," S. Ducharme and J. Feinberg, *J. of Applied Physics* **56**, 839 (1984). 19 Citations
1. "Thermal Propagation and Stability in Superconducting Films," K. E. Gray, R. T. Kampwirth, J. F. Zasadzinski, S. Ducharme, *J. of Physics F: Metal Physics* **13**, 404 (1983).

BOOK CHAPTERS

1. "Ferroelectric Polymer Langmuir-Blodgett Films," S. Ducharme, S. P. Palto, V. M. Fridkin, L. M. Blinov, Ch. 11 in *Ferroelectric and Dielectric Thin Films*, Vol. 3 of *Handbook of Thin Films Materials*, Hari Singh Nalwa, ed. (Academic Press, San Diego, 2002).

CONFERENCE PROCEEDINGS EDITED

5. *Organic Photorefractives, Photoreceptors, Waveguides, and Fibers*, S. Ducharme, D. H. Dunlap, R. A. Norwood, eds., Denver, 18-23 July 1999, **Vol. 3799**, (SPIE, Bellingham, WA 1999), 342 pages.
4. *Organic Photorefractive Materials and Xerographic Photoreceptors IV*, S. Ducharme and J. M. Stasiak, eds., San Diego, 19-24 July 1998, **Vol. 3471**, (SPIE, Bellingham, WA 1998), 264 pages.
3. *Xerographic Photoreceptors and Organic Photorefractive Materials II*, S. Ducharme and J. M. Stasiak, eds., San Diego, 28-29 July 1997, **Vol. 3144**, (SPIE, Bellingham, WA 1997), 248 pages.
2. *Organic Photorefractive Materials and Xerographic Photoreceptors*, S. Ducharme and J. M. Stasiak, eds., Denver, 7-8 August 1996, **Vol. 2850**, (SPIE, Bellingham, WA 1996), 212 pages.
1. *Xerographic Photoreceptors and Photorefractive Polymers*, S. Ducharme and P. M. Borsenberger, eds., San Diego, 10-11 July 1995, **Vol. 2526**, (SPIE, Bellingham, WA 1995), 156 pages.

CONFERENCE PROCEEDINGS PAPERS

35. “Control of Ferroelectric Nanomesa Size,” M Bai, J. Li, S. Ducharme, *Proceedings of the NSF-DMI Design, Service and Manufacturing Grantees and Research Conference*, 3-7 January 2004, Dallas, TX.
34. “On Bistable States Retention in Ferroelectric Langmuir-Blodgett Films,” A. R. Geivandov, S. P. Palto, S. G. Yudin, S. Adenwalla, V. M. Fridkin, L. M. Blinov, S. Ducharme, *Proc. 3rd International Conference on Advanced Optical Materials and Devices*, Riga, Latvia, 19-25 August 2002, A. Krumins et al., ed., **Vol. 5122**, p. 216-223 (SPIE, Bellingham, WA 2003).
33. “Morphology, Annealing, and Melting of Ferroelectric Langmuir-Blodgett Films of Vinylidene Fluoride (70%) Trifluoroethylene (30%) Copolymer,” M. Bai, M. Poulsen, A. V. Sorokin, S. Ducharme, V. M. Fridkin, in *Electroactive Polymers and Their Applications as Actuators, Sensors, and Artificial Muscle*, Vol. **698**, Qiming Zhang, Eiichi Fukada, Yoseph Bar-Cohen, Siegfried Bauer, eds., Nov. 36-30, 2001, Boston (Materials Research Society, Seattle, 2002).

32. "Use of an External Electric Field to Convert the Paraelectric Phase to the Ferroelectric Phase in Ultra-Thin Copolymer films of P(VDF-TrFE)," M. Poulsen, S. Adenwalla, S. Ducharme, V. M. Fridkin, S. P. Palto, N. N. Petukhova, S. G. Yudin, in *Ferroelectric Thin Films IX*, Vol. **655**, P.C. McIntyre, S.R. Gilbert, Y. Miyasaka, R.W. Schwartz, D. Wouters, eds., Nov. 27 to Dec. 1, 2000, Boston (Materials Research Society, Seattle, 2001).
31. "Charge-Carrier Mobility Studies of Potential Photorefractive Dendrimers," A. P. Leonov, S. Ducharme, L. Lu, James M. Takacs, *ACS Polymer Preprints*, Proceedings of the ACS/OSA *Symposium on Organic Thin Films for Photonics Applications*, Washington, 20-25 August 2000 (OSA, Washington, DC, 2000).
30. "Physics of Two-Dimensional Ferroelectric Polymers," S. Ducharme, S. P. Palto, L. M. Blinov, V. M. Fridkin, in *Fundamental Physics of Ferroelectrics*, R. E. Cohen, ed., AIP Conference Proceedings **Vol. 535**, pp. 354-363 (American Institute of Physics, 2000).
29. "New Organic Photorefractive Material Composed of a Charge-Transporting Dendrimer and a Stilbene Chromophore," J. Bai, S. Ducharme, L. Lu, A. Leonov, J. M. Takacs, *Organic Photorefractive Materials and Xerographic Photoreceptors V*, July 19-23, S. Ducharme, D. H. Dunlap, R. A. Norwood, eds., **Vol. 3799** (SPIE, Bellingham, WA 1999).
28. "The Synthesis and Characterization of Dendrimers for Potential Photorefractive Applications," J. Bai, S. Ducharme, A. Goonesekera, A. P. Leonov, L. Lu, J. M. Takacs, *Proceedings of the Conference on Organic Thin Films for Photonics Applications*, Boston, 23-27 August 1998.
27. "Influence of Dipole Moment of the Transport Agents on the Carrier Mobility in A Photorefractive Polymer," A. Goonesekera, J. Bai, S. Ducharme, J. M. Takacs, L. Lu, *Organic Photorefractive Materials and Xerographic Photoreceptors IV*, July 21-24, S. Ducharme and J. M. Stasiak, eds., **Vol. 3471** (SPIE, Bellingham, WA 1998), pp. 4-15.
26. "Reduced Hole Mobility in Photorefractive Polymers Due to the Chromophore Dipole Moment," A. Goonesekera and S. Ducharme, *Organic Thin Films for Photonics Applications*, 15-17 October 1997, (Optical Society of America, Long Beach, CA 1997), pp. 248-51.
25. "The Effect of Polar Additives on Hole Mobilities in Photorefractive Polymers," A. Goonesekera, S. Ducharme, J. M. Takacs, L. Zhang, *Xerographic Photoreceptors and Organic Photorefractive Materials II*, 28-29 July 1997, S. Ducharme and J. M. Stasiak, eds., **Vol. 3144**, pp. 195-206 (SPIE, Bellingham, WA 1997).
24. "Hole Mobilities in a Photorefractive Polymer," A. Goonesekera, S. Ducharme, J. M. Takacs, L. Zhang, *Organic Photorefractive Materials and Xerographic Photoreceptors*, 7-

- 8 August 1996, S. Ducharme and J. M. Stasiak, eds., **Vol. 2850**, pp. 41-52 (SPIE, Bellingham, WA 1996).
23. "A Self-Calibrating Modulation Ellipsometer," S. Ducharme, H. Machlab, P. G. Snyder, J. A. Woollam, R. A. Synowicki, *Fiber Optic and Laser Sensors XIV*, 7-9 July 1996, Ramon P. DePaula and John W. Berthold III, eds., **Vol. 2839**, pp. 373-384 (SPIE, Bellingham, WA 1996).
 22. "Temperature Dependence Investigation of the Electron Paramagnetic Resonance of the Photorefractive Polymer BisA-NAS:DEH," A. Darwish, N. V. Kukhtarev, R. Copland, R. Sliz, P. Venkateswarlu, A. Williams, H. J. Caulfield, S. Ducharme, J. M. Takacs, L. Zhang, *Organic Photorefractive Materials and Xerographic Photoreceptors*, 7-8 August 1996, S. Ducharme and J. M. Stasiak, eds., **Vol. 2850**, pp. 33-40 (SPIE, Bellingham, WA 1996).
 21. "Real-Time Space Materials Degradation Monitor Using Ellipsometer," H. Machlab, R. A. Synowicki, S. Ducharme, P. G. Snyder, J. A. Woollam, *Space Programs and Technologies Conference*, 26-28 September 1995, (American Institute of Aeronautics and Astronautics, Washington 1995).
 20. "Applicability of the Band Transport (Kukhtarev) Model to Photorefractive Polymers," S. Ducharme, *Xerographic Photoreceptors and Photorefractive Polymers*, 10-11 July 1995, S. Ducharme and P. M. Borsenberger, eds., **Vol. 2526**, pp. 144-154 (SPIE, Bellingham 1995).
 19. "The Role of Photoconductivity in Molecularly Doped Photorefractive Polymers," A. Goonesekera, M. Liphardt, S. Ducharme, J. M. Takacs, L. Zhang, *Xerographic Photoreceptors and Photorefractive Polymers*, 10-11 July 1995, S. Ducharme P. M. Borsenberger, eds., **Vol. 2526**, pp. 109-119 (SPIE, Bellingham 1995).
 18. "Electron Paramagnetic Resonance and In-Situ Photosensitivity Investigation of Photorefractive Polymer BisA-NAS:DEH," A. Darwish, N. V. Kukhtarev, R. Copland, P. Venkateswarlu, H. J. Caulfield, S. Ducharme, J. M. Takacs, L. Zhang, *Xerographic Photoreceptors and Photorefractive Polymers*, 10-11 July 1995, S. Ducharme and P. M. Borsenberger, eds., **Vol. 2526**, pp. 102-108 (SPIE, Bellingham 1995).
 17. "Photomodulation Spectroscopy of Photorefractive Barium Titanate," C. Zhu and S. Ducharme, *Proceedings of the Photorefractive Materials, Effects, and Devices Conference*, June 11-14, 1995, D. Z. Anderson and J. Feinberg, eds. (University of Colorado, Boulder 1995), 48-51.
 16. "Effect of Absorption on Photorefractive Grating Erasure," M. Liphardt, A. Goonesekera, S. Ducharme, J. M. Takacs, L. Zhang, *Proceedings of the Photorefractive Materials*,

- Effects, and Devices Conference*, June 11-14, 1995, D. Z. Anderson and J. Feinberg, eds. (University of Colorado, Boulder 1995), 124-127.
15. "Temperature Dependent Photoconductivity in a Photorefractive Polymer," A. Goonesekera, S. Ducharme, J. M. Takacs, L. Zhang, *Proceedings of the Photorefractive Materials, Effects, and Devices Conference*, June 11-14, 1995, D. Z. Anderson and J. Feinberg, eds. (University of Colorado, Boulder 1995), 44-47.
 14. "High Coupling Gain in a Photorefractive Polymer," S. Ducharme, A. Goonesekera, B. Jones, J. M. Takacs, Lei Zhang, *Proceedings of the Topical Meeting on Organic Thin Films for Photonic Applications*, Toronto, October 6-8, 1993, 1993 Technical Digest Series V 17. (Optical Society of America, Washington 1993), pp. 232-234.
 13. "Photorefractive Properties of Bisphenol-A-4,4'-Nitroaminostilbene Mixed with Diethylamino-benzaldehyde-diphenyl Hydrazone," S. Ducharme, B. Jones, M. Liphardt, R. Ervin, J. M. Takacs, L. Zhang, R. Athalye, *Proceedings of the Topical Meeting on Photorefractive Materials, Effects, and Devices*, B. Ya. Zel'dovich, and E. Kräitzig, eds., Kiev, August 11-15, 1993 (Optical Society of America, Washington 1993), p. 1-4.
 12. "The Electric Field Dependence of the Laser Induced Holographic Grating Relaxation of a Photorefractive Polymer," C. H. Wang, R. J. Ma, X. Q. Zhang, S. Ducharme, J. M. Takacs, *Proceedings of the Nonlinear Optical Properties of Organic Materials V*, July 1992, (SPIE, Bellingham 1992), p. 262.
 11. "Observation and Study of the Photorefractive Effect in Doped Nonlinear Polymers," D. M. Burland, S. Ducharme, W. E. Moerner, J. C. Scott, C. A. Walsh, *Photorefractive Materials, Effects, and Devices Topical Meeting, Technical Digest Series V*. **14**, p. 2-4 (Optical Society of America, Washington 1991).
 10. "Photorefractivity in Doped Nonlinear Organic Polymers," W. E. Moerner, C. Walsh, J. C. Scott, S. Ducharme, D. M. Burland, G. C. Bjorklund, R. J. Twieg, *Nonlinear Optical Properties of Organic Materials IV*, V. **1560**, p. 278, (SPIE, Bellingham 1991).
 9. "Applications of Organic Second Order Nonlinear Materials," G. C. Bjorklund, S. Ducharme, W. Fleming, D. Jungbauer, W. E. Moerner, J. D. Swalen, R. Twieg, G. Willson, D. Yoon, *Symposium on New Materials for Nonlinear Optics:Chemical Perspectives*, Seth R. Marder, John E. Sohn, Galen D. Stucky, eds., ACS Proceedings V. **455**, p. 216 (American Chemical Society, Washington 1991).
 8. "The Photorefractive Effect in Nonlinear Polymers Doped with Charge Transport Agents," J. C. Scott, S. Ducharme, R. J. Twieg, W. E. Moerner, *A. C. S. Polymer Preprints* **32**, 107 (1991).

7. "First Observation of the Photorefractive Effect in an Organic Polymer," S. Ducharme, R. J. Twieg, J. C. Scott, W. E. Moerner, *IBM Optics and Lasers ITL Conference*, ed. G. T. Sincerbox (IBM Technical J., San Jose 1990).
6. "Organic Nonlinear Optical Materials and Their Device Applications for Frequency Doubling, Modulation, and Switching," J. D. Swalen, G. C. Bjorklund, S. Ducharme, W. Fleming, S. Herminghaus, D. Jungbauer, W. E. Moerner, B. A. Smith, R. Twieg, D. Yoon, G. Willson, *Nonlinear Optical Properties of Organic Materials III*, Proceedings of the SPIE, V. **1337**, pp. 2-11 (SPIE, Bellingham 1990).
5. "Organic Nonlinear Optical Materials and Their Device Applications for Frequency Doubling, Modulation, and Switching," G. C. Bjorklund, S. Ducharme, W. Fleming, S. Herminghaus, D. Jungbauer, W. E. Moerner, B. A. Smith, J. D. Swalen, R. Twieg, G. Willson, D. Yoon, *Symposium of Optics and Electronics for Organic Materials*, SEN-I Gakkai Symposia Proceedings, V. **1990A**, p. A-28 (Society of Fiber Science and Technology, Tokyo 1990).
4. "Frequency Dependence of the Absorption Component of the Magnetic Susceptibility in Superconducting $\text{Y}_1\text{Ba}_2\text{Cu}_3\text{O}_7$," S. Ducharme, R. Durny, J. Hautala, O. G. Symko, P. C. Taylor, S. Kulkarni, *Proceedings of the Materials Research Society* **99**, 845 (1988).
3. "Absorption Component of the Magnetic Susceptibility in Superconducting $\text{Y}_1\text{Ba}_2\text{Cu}_3\text{O}_7$," R. Durny, S. Ducharme, J. Hautala, O. G. Symko, P. C. Taylor, S. Kulkarni, *Proceedings of the Materials Research Society* **99**, 849 (1988).
2. "Photodarkening in Arsenic Trisulphide," J. Hautala, S. Ducharme, P. C. Taylor, in *Proceedings of the 19th International Conference on the Physics of Semiconductors*, August 15-19, 1988, W. Zawadzki, ed. (Institute of Physics, Polish Academy of Sciences, Warsaw, Poland 1988), p. 1677.
1. "Microwave Absorption and Rectification in Superconducting $\text{Y}_1\text{Ba}_2\text{Cu}_3\text{O}_7$," R. Durny, J. Hautala, S. Ducharme, D. J. Zheng, O. G. Symko, P. C. .Taylor, in *Proceedings of the First Latin-American Conference on High Temperature Superconductivity*, 4-6 May 1988, R. Nicolsky, R. A. Barrio, O. F. de Lima, R. Escudero, eds. (World Scientific, Singapore 1988), p. 343.