

Curriculum Vita of Charles T. Rogers,

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Academic and Research Positions

2003-present University of Colorado at Boulder, Professor of Physics
1998-2003 University of Colorado at Boulder, Associate Professor of Physics
1992-1998 University of Colorado at Boulder, Assistant Professor of Physics
1986-1992 Bellcore, Member of Technical Staff in Solid State Physics

Administrative Positions

2021- Director of Faculty Success and Engagement, Dept. of Physics.
2009-2013 Director of the Engineering Physics Program and Assoc. Chair.
2003-2006 Associate Chair, Department of Physics, University of Colorado.
1998-2004 Director, Engineering Physics Program, Department of Physics,
University of Colorado.

Education

Ph.D., Applied Physics Cornell University, January 1987.
"A study of single electron trapping centers and 1/f noise in metal-insulator-metal tunnel junctions", Research Advisor: Prof. Robert A. Buhrman.
M. S., Applied Physics Cornell University, August 1983.
M. Eng., Engineering Physics Cornell University, August 1981.
B. S., Engineering Physics Cornell University, May 1980.

Selected Activities and Awards

- Boulder Faculty Assembly Award for Excellence in Teaching and Pedagogy (2016).
- Founding member of the Center for Experiment on Quantum Matter (2016)
- College Scholar Award (2013-2014 sabbatical Austrian Academy of Sciences).
- Founding Fellow of the Materials Science and Engineering Program (2012).
- Founding Fellow of the Renewable and Sustainable Energy Institute (2011).
- Federal Relations Advisory Committee, Boulder campus member, (2008-present).
- Graduate School Executive Advisory Board member, (2007-2011).
- Nominated for Boulder Faculty Assembly Teaching Award (2007).
- Executive Board of the Interdisciplinary Center for Electronics, an endowed center for electronics and condensed matter research, University of Colorado, (1998-).
- Executive Board of the Colorado Center for Information Storage, a center for teaching and research on information storage technologies (1998-2002).
- University of Colorado, Faculty Fellowship (1998-1999; 2006-2007).
- University of Colorado, Emerging Leaders Program, (2004-2005).

Current research activities

Research in my laboratory is on the physics of very small or reduced dimensional solid state systems and associated electronic and optical devices. Current research is in the areas of nanotechnology and materials-by-design in molecular solids. One graduate student, Jack Houlton is presently pursuing his Ph.D. in levitation, trapping, cooling and the properties of gallium nitride nanowires in my lab: A second graduate student, Teddy Tortorici (on leave), is studying the dielectric properties of dipolar molecules in molecular solids. Recent Ph. D. graduates are Drs. Ke Zhao (dielectric spectroscopy of rotor solids), Jason Gray, and Joshua Montague (Gallium Nitride nanowires in electromechanical sensor applications). Dr. Long He completed his Ph. D. in 2014 with a thesis on using nonlinear optics and femtosecond pulsed lasers to study buried interfaces in silicon photovoltaic systems (in collaboration with NREL researchers Chaz Teplin and Howard Branz).

Recent group members

Recent Ph.D. graduates: John Houlton (“Studies of Individual and Large Ensembles of Gallium Nitride Nanowire Nano-mechanical Resonators in Selective Area Growth Arrays”) November, 2019, Long He (“Optical Second Harmonic Generation Measurements for Characterization of Amorphous Silicon Interfaces”, June 2014), Joshua Montague (“As-Grown Gallium Nitride Nanowire Electromechanical Resonators”, April 2013). Jason Gray (“Gallium Nitride Nanowire Electromechanical Resonators”, December 2011). Shawn Tanner, (“*Electron-beam fabrication and properties of nanomechanical beams*”, June, 2007), James Walker, (“*Surface Second Harmonic Studies of Prototype Surface-Mounted Rotor Molecules*”, April, 2007), Debra Krause, (“*Mixtures of Rotor Molecules and Liquid Crystals*”, Oct. 2006), Feng Pan (“*Electric field modulation of superconductivity in La-doped SrTiO₃ field effect transistors*”, Oct. 2004), Sattrerat Kampangkeau (“*Effect of crystal structure on strontium titanate thin films and their dielectric properties*”, Aug. 2004), Charles W. Teplin (“*Measurement of the effective surface second harmonic susceptibility tensor in sputtered air-exposed Al and Ni₈₀Fe₂₀ films*”, Aug. 2002), Mark J. Dalberth (“*Dielectric loss of strontium titanate thin films*”, Dec. 1999)

Current graduate students: Teddy Tortorici (Ph.D. expected 2024)

Current and recent undergraduate researchers: Max Chen (2015-2019), Dayaam Sial (2015-2018), Brayden Hass (2011-2012), Seb Tawa (2011), Alex Hupfer (2010).

Patents

- U. S. Patent #4,814,622, *High Speed Scanning Tunneling Microscope*, S. Gregory and C. T. Rogers, awarded March 21, 1989.
- U. S. Patent #5,087,605, *Layered Lattice-Matched Superconducting Device and Method of Making*, by M. S. Hegde, A. Inam, C. T. Rogers, and T. Venkatesan, awarded February 11, 1992.

Papers

1. *Reactive Ion Etching of Niobium*, T. T. Foxe, B. D. Hunt, C. T. Rogers, and R. A. Buhrman, *J. Vac. Sci. Tech.*, 19(4) 1394 (1981).
2. *Submicron Niobium Tunnel Junctions With Reactive Ion Beam Oxidation*, A. W. Kleinsasser, B. D. Hunt, A. C. Callegari, C. T. Rogers, R. Tiberio, and R. A. Buhrman, *IEEE Trans. on Magn.* 17, 307 (1981).
3. *Conductance Fluctuations and Low Frequency Noise in Josephson Junctions*, C. T. Rogers and R. A. Buhrman, *IEEE Trans. on Magn.* 19, 453 (1983).
4. *Composition of 1/f Noise in Metal-Insulator-Metal Tunnel Junctions*, C. T. Rogers and R. A. Buhrman, *Phys. Rev. Lett.* 53, 1272 (1984).
5. *Discrete Lorentzian Structure in Low Frequency Voltage Noise Spectra of Very Small Area Josephson Tunnel Junctions*, C. T. Rogers and R. A. Buhrman, *IEEE Trans. on Magn.* 21 126 (1985).
6. *Nature of Single-Localized-Electron States Derived from Tunneling Measurements*, C. T. Rogers and R. A. Buhrman, *Phys. Rev. Lett.* 55, 859, (1985).
7. *Electron Trap States and Low Frequency Noise in Tunnel Junctions*, C. T. Rogers, R. A. Buhrman, W. J. Gallagher, S. I. Raider, A. W. Kleinsasser, and R. L. Sandstrom, *IEEE Trans. on Magn.* 23, 1658 (1987).
8. *Localized State Interactions in Metal-Oxide-Semiconductor Tunnel Diodes*, K. R. Farmer, C. T. Rogers, and R. A. Buhrman, *Phys. Rev. Lett.* 58, 2255 (1987).
9. *High Speed Scanning Tunneling Microscopes*, S. Gregory and C. T. Rogers, *J. Vac. Sci. and Technol. A* 6(2), 390 (1988).
10. *Fabrication of Submicrometer Features in Y-Ba-Cu-O Superconducting Thin Films*, C. T. Rogers, T. L. Cheeks, P. England, Siu-Wai Chan, H. G. Craighead, and T. Venkatesan, *IEEE Trans. on Magn.* 25, 1309 (1989).
11. *Dissipation in High T_c Thin Films*, P. England, T. Venkatesan, T. L. Cheeks, H. G. Craighead, C. T. Rogers, Siu-Wai Chan, X. D. Wu, and A. Inam, *IEEE Trans. on Magn.* 25, 2237 (1989).
12. *Wet chemical etching of high temperature superconducting Y-Ba-Cu-O films in ethylene-diamine-tetraacetic acid*. F. K. Shokoohi, L. M. Schiavone, C. T. Rogers, A. Inam, X. D. Wu, L. Nazar, and T. Venkatesan, *Appl. Phys. Lett.* 55 2661, 1989.
13. *Reduction in magnetic field induced broadening of the resistive transition in laser-deposited $YBa_2Cu_3O_{7-x}$ thin films on MgO*, C. T. Rogers, S. Gregory, T. Venkatesan, B. J. Wilkens, X. D. Wu, A. Inam, B. Dutta, M. S. Hegde, *Appl. Phys. Lett.* 54, 2038 (1989).
14. *Mechanical Measurements of Flux-Line Induced Energy Dissipation in $YBa_2Cu_3O_{7-x}$ Thin Films: Evidence for a Vortex-Glass State*, S. Gregory, C. T. Rogers, T. Venkatesan, X. D. Wu, A. Inam, B. Dutta, *Phys. Rev. Lett.* 62, 1548 (1989).

15. *Transport in reversibly laser modified $YBa_2Cu_3O_{7-x}$ superconducting thin films.*
Robert R. Krchnavek, Siu-Wai Chan, C. T. Rogers, F. De Rosa, M. K. Kelly, P. F. Miceli, and S. J. Allen, J. Appl. Phys. 65, 1802 (1989).
16. *Fabrication of heteroepitaxial $YBa_2Cu_3O_{7-x}$ $PrBa_2Cu_3O_{7-y}$ $YBa_2Cu_3O_{7-x}$ Josephson devices grown by laser deposition.* C. T. Rogers, A. Inam, M. S. Hegde, B. Dutta, X. D. Wu, and T. Venkatesan, Appl. Phys. Lett. 55, 2032 (1989).
17. *Epitaxial $YBa_2Cu_3O_{7-x}$ - $Y_{1-x}Pr_xBa_2Cu_3O_{7-y}$ Heterostructures,* T. Venkatesan, A. Inam, B. Dutta, R. Ramesh, M. S. Hegde, X. D. Wu, L. Nazar, C. C. Chang, J. B. Barner, D. M. Hwang, and C. T. Rogers, Appl. Phys. Lett. 56, 391 (1990).
18. *Microwave properties of highly oriented $YBa_2Cu_3O_{7-x}$ thin films.* A. Inam, L. Nazar, M. S. Hegde, C. T. Rogers, T. Venkatesan, R. Simon, K. Daly, H. Padamesee, J. Kirchgessner, D. Moffat, D. Rubin, Q. Shu, D. Kalokitis, A. Fathy, V. Pendrick, R. Brown, B. Brycki, E. Belohoubek, L. Drabeck, G. Gruner, R. Hammond, F. Gamble, B. Lairson, J. Bravman, Appl. Phys. Lett. 56 1178 (1990).
19. *Microstructural Studies of a-Axis Oriented $YBa_2Cu_3O_{7-x}$ - $PrBa_2Cu_3O_{7-x}$ Heterostructures,* R. Ramesh, A. Inam, T. D. Sands, D. L. Hart, and C. T. Rogers, Physica C 170, 325, (1990).
20. *Growth of a-axis Oriented Epitaxial $YBa_2Cu_3O_{7-x}$ - $PrBa_2Cu_3O_{7-x}$ Heterostructures by Pulsed Laser Deposition.* A. Inam, C. T. Rogers, R. Ramesh, L. Farrow, K. Remschnig, D. Hart, and T. Venkatesan, Appl. Phys. Lett. 57, 2484 (1990).
21. *Properties of Epitaxially Grown a-axis Oriented $YBa_2Cu_3O_{7-x}$ - $PrBa_2Cu_3O_{7-x}$ Heterostructures,* A. Inam, R. Ramesh, C. T. Rogers, B. Wilkens, K. Remschnig, D. Hart, and J. B. Barner, IEEE Trans. on Magn. 27, 1603 (1991).
22. *$PrBa_2Cu_3-yNb_yO_{7-z}$ Insulating Films for $YBa_2Cu_3O_{7-x}$ Based High T_c Electronics.* C. T. Rogers, A. Inam, R. Ramesh, J-M. Tarascon, K. Remschnig, and B. J. Wilkens, IEEE Trans. on Magn. 27, 1600 (1991).
23. *All a-axis Oriented $YBa_2Cu_3O_{7-x}$ - $PrBa_2Cu_3O_{7-y}$ - $YBa_2Cu_3O_{7-x}$ Josephson Devices Operating at 80 K,* J. B. Barner, C. T. Rogers, A. Inam, R. Ramesh, and S. Bersey, Appl. Phys. Lett. 59, 742 (1991).
24. *Brownian Motion of Vortex-Antivortex Excitations in Very Thin Films of $Bi_2Sr_2CaCu_2O_8$,* C. T. Rogers, K. E. Myers, J. N. Eckstein and I. Bosovic, Phys. Rev. Lett. 69, 160 (1992).
25. *Telegraph noise in Silver-Permalloy giant magnetoresistance test structures,* L. S. Kirschenbaum, C. T. Rogers, S. E. Russek, and S. C. Sanders, IEEE Trans. on Magn. 31, 160 (1995).
26. *Observation of the transverse second-harmonic magneto-optic Kerr effect of $Ni_{81}Fe_{19}$ thin film structures,* T. M. Crawford, C. T. Rogers, T. J. Silva, and Y. K. Kim, Appl. Phys. Lett, 68,1574 (1996).

27. *Bias current dependent resistance peaks in NiFe/Ag giant magnetoresistance multilayers*, L. S. Kirschenbaum, C. T. Rogers, P.D.Beale, S. E. Russek, and S. C. Sanders, Appl. Phys. Lett. 68, 3099 (1996).
28. *Patterning of functional antibodies and other proteins by photolithography of silane monolayers*, J. F. Mooney, A. H. Hunt, J. R. McIntosh, C. A. Liberko, D. M. Walba, and C. T. Rogers, Proc. Natl. Acad. Sci. USA, 93 12287-12291, October 1996.
29. *High current density self-field effects and low frequency noise in NiFe/Ag GMR multilayers*, L. S. Kirschenbaum, C. T. Rogers, P. D. Beale, S. E. Russek, and S. C. Sanders, IEEE Trans. on Magn. 32, 4684 (1996).
30. *Transverse and longitudinal second-harmonic magneto-optic Kerr effect observed from Ni81Fe19 thin film structures*, T. M. Crawford, C. T. Rogers, T. J. Silva, and Y. K. Kim, IEEE Trans. on Magn. 32, (1996).
31. *Nonlinear optical investigations of magnetic heterostructures*, T. M. Crawford, C. T. Rogers, T. J. Silva, Y. K. Kim, J. Appl. Phys., 81, 4354 (1997).
32. *Low-frequency noise in NiFe/Cu spin-valves*, L. S. Kirschenbaum, C. T. Rogers, S. E. Russek, Young K. Kim, IEEE Trans. on Magn., 33, 3586 (1997).
33. *Second-harmonic magneto-optic Kerr effect from spin-valve test structures: Correlation with magnetoresistance response*, T. M. Crawford, C. T. Rogers, T. J. Silva, Y. K. Kim, IEEE Trans. on Magn., 33, 3598 (1997).
34. *Pulsed laser deposition of crystalline and amorphous cobalt oxide thin films*, M. L. Fu, C. T. Rogers, J. D. Perkins, J. M. McGraw, P. A. Parilla, J. G. Zhang, and J. A. Turner, D. S. Ginley, , J. of Materials Research (1997).
35. *Observation of a fluctuation enhanced magnetoresistance in Ni81Fe19/Ag multilayers at high current density*, L. S. Kirschenbaum, C. T. Rogers, P. D. Beale, S. E. Russek, and S. C. Sanders, Phys. Rev. B. Rapid Comm., 56 8503 (1997).
36. *Improved low frequency and microwave dielectric properties of thin film SrTiO3 grown by pulsed laser deposition*, Mark Dalberth, R. E. Stauber, John Price, David Galt, and Charles T. Rogers, Appl. Phys. Lett., 72 507 (1998).
37. *Pulsed laser deposition of superconducting Niobium-doped SrTiO3 thin films*, Arnold Leitner, Charles T. Rogers, John C. Price, David A. Rudman, and David R. Herman, Appl. Phys. Lett. 72 3065 (1998).
38. *Inductive measurement of ultrafast magnetization dynamics in thin-film Permalloy*, T. J. Silva, C. S. Lee, T. M. Crawford, and C. T. Rogers, Journal of Applied Physics, 85 7849 (1999).
39. *Subnanosecond magnetization dynamics measured by the second-harmonic magneto-optic Ker effect*, T. M. Crawford, T. J. Silva, C. W. Teplin, and C. T. Rogers, Applied Physics Letters, 74 3386 (1999).
40. *Upper critical field and fluctuation conductivity in Nb-doped strontium titanate thin films*, A. Leitner, D. Olaya, C. T. Rogers, and J. C. Price, Physical Review B (Condensed Matter) 62, 1408 (2000).

41. *Electrical properties of La-doped strontium titanate thin films*, D. Olaya, Feng Pan, C. T. Rogers, and J. C. Price, *Applied Physics Letters*, **80** 2928 (2002).
42. *Experimental example of isotropic surface second-harmonic generation: dc-sputtered air-exposed aluminum thin films*, C. W. Teplin and C. T. Rogers, *Physical Review B (Cond. Matter)* **65**, 245408/1 (2002).
43. *Thin-film field-effect transistors based on La-doped SrTiO₃ heterostructures*, Feng Pan (Dept. of Phys., Univ. of Colorado, Boulder, CO, USA); Olaya, D.; Price, J.C.; Rogers, C.T., *Applied Physics Letters*, v 84, n 9, 1 March 2004, p 1573-5.
44. *Superconductivity in La-doped strontium titanate thin films*, Olaya, D. (Dept. of Phys., Univ. of Colorado, Boulder, CO, USA); Feng Pan; Rogers, C.T.; Price, J.C. *Applied Physics Letters*, **84**, 2004, p 4020-2
45. *Complete measurement of the surface second-harmonic magneto-optical Kerr effect for permalloy films*, Teplin, C.W.; Krause, D.; Marcy, D.; Rogers, C.T., *Physical Review B (Condensed Matter and Materials Physics)*, v 69, n 7, 15 Feb. 2004, p 75415-1-6
46. *Optical surface second harmonic measurements of isotropic thin-film metals: gold, silver, copper, aluminum, and tantalum*, Krause, D.; Teplin, C.W.; Rogers, C.T., *Journal of Applied Physics*, v 96, n 7, 1 Oct. 2004, p 3626-34.
47. *Electric field modulation of 2-dimensional superconductivity in La-doped SrTiO₃ field effect transistors*. Feng Pan and Charles T. Rogers, *Physical Review B*, **72**, 094520 (2005)
48. *High-Q GaN nanowire resonators and oscillators*, S. M. Tanner, J. M. Gray, C. T. Rogers, K. A. Bertness, and N. A. Sanford, *Applied Physics Letters*, 91, 203117 (2007).
49. *Fabrication process for cantilevers with integrated tunnel junctions*, S. M. Tanner, and C. T. Rogers, *Journal of Vacuum Science and Technology B*, 26, 481 (2008).
50. *Micromachined resonators of high Q-factor based on atomic layer deposited alumina*, R. Chang, J. M. Gray, A. Cavanaugh, S. M. George, Charles T. Rogers, and Victor Bright, *Sensors and Actuators A-Physical* Volume: 154 Issue: 2 Pages: 229-237, Published: SEP 24 2009. DOI: [10.1016/j.sna.2008.11.015](https://doi.org/10.1016/j.sna.2008.11.015)
51. *Analysis of high-Q gallium nitride nanowire resonators in response to deposited thin films*. J.R. Montague, M. Dalberth, J.M. Gray, D. Seghete, K.A. Bertness, S.M. George, V.M. Bright, C.T. Rogers, N.A. Sanford, *SENSORS AND ACTUATORS A-PHYSICAL* Volume: 165: 59-65, Published: JAN 2011. DOI: [10.1016/j.sna.2010.03.014](https://doi.org/10.1016/j.sna.2010.03.014)
52. *Non-contact and all-electrical method for monitoring the motion of semiconducting nanowires*, Hoch, SW; Montague, J. R.; Bright, V. M.; Rogers, C. T.; Bertness, K. A.; Teufel, J. D.; Lehnert, K. W., *APPLIED PHYSICS LETTERS* Volume: 99 Issue: 5 Article Number: 053101, Published: AUG 1 2011. DOI: [10.1063/1.3614562](https://doi.org/10.1063/1.3614562)
53. *Gallium nitride nanowire electromechanical resonators with piezoresistive readout*, Jason M. Gray, Charles T. Rogers, Kris A. Bertness, N. A. Sanford, *JOURNAL OF*

VACUUM SCIENCE & TECHNOLOGY B Volume: 29 Issue: 5 Article Number: 052001, Published: SEP 2011. DOI: [10.1116/1.3622326](https://doi.org/10.1116/1.3622326)

54. *Inclusion Compound Based Approach to Arrays of Artificial Dipolar Molecular Rotors. A Surface Inclusion*, Kobr, L.; Zhao, K.; Shen, Y.; Comotti, A.; Bracco, S.; Shoemaker, R. K.; Sozzani, P.; Clark, N. A.; Price, J. C.; Rogers, C. T.; Michl, J., J. Am. Chem. Soc., June 1, 2012. DOI: [10.1021/ja302173y](https://doi.org/10.1021/ja302173y)
55. *Measurement of electric-field induced second harmonic generation in hydrogenated amorphous silicon*, Long He, James D. Walker, Howard M. Branz, Charles T. Rogers, and Charles W. Teplin, APPLIED PHYSICS LETTERS Volume: 101, Article Number:161604, Published Oct. 22 2012. DOI: [10.1063/1.4761477](https://doi.org/10.1063/1.4761477)
56. *Temperature-dependent mechanical-resonance frequencies and damping in ensembles of gallium nitride nanowires*, J.R. Montague, K.A. Bertness, N.A. Sanford, V.M. Bright, C.T. Rogers, APPLIED PHYSICS LETTERS Volume 101, Article Number: 173101, Published Oct 29 2012. DOI: [10.1063/1.4761946](https://doi.org/10.1063/1.4761946)
57. *Low-frequency noise in gallium nitride nanowire mechanical resonators*, by Jason M. Gray, Kris A. Bertness, Norman A. Sanford, and Charles T. Rogers, APPLIED PHYSICS LETTERS, Volume: 101 Issue: 23 Article Number: 233115, Published: DEC 3 2012. DOI: [10.1063/1.4769445](https://doi.org/10.1063/1.4769445)
58. *Inclusion Compound Based Approach to Arrays of Artificial Dipolar Molecular Rotors. A Search for Optimal Rotor Structures*, Lukáš Kobr, Ke Zhao, Yongqiang Shen, Richard K. Shoemaker, Charles T. Rogers, and Josef Michl, Advanced Materials, Volume: 25 Issue: 3 Special Issue: SI Pages: 443-448 Published: JAN 18 2013 DOI: [10.1002/adma.201203294](https://doi.org/10.1002/adma.201203294)
59. *Inclusion Compound Based Approach to Arrays of Artificial Dipolar Molecular Rotors. Bulk Inclusions*, Lukáš Kobr, Ke Zhao, Yongqiang Shen, Kateřina Polívková, Richard K. Shoemaker, Noel A. Clark, John C. Price, Charles T. Rogers, and Josef Michl, J. Org. Chem., Volume: 78 Issue: 5 Pages: 1768-1777 Published: MAR 1 2013 DOI: [10.1021/jo3009897](https://doi.org/10.1021/jo3009897)
60. *Tris-o-phenylenedioxycyclotriphosphazene (TPP) Inclusion Compounds Containing a Dipolar Molecular Rotor*, Lukáš Kobr, Ke Zhao, Yongqiang Shen, Richard K. Shoemaker, Charles T. Rogers, and Josef Michl, Crystal Growth and Design, published online, Jan. 24, 2014, DOI: [10.1117/2.1201106.003755](https://doi.org/10.1117/2.1201106.003755).
61. *Molecular Machines and Motors: Recent Advances and Perspectives*, Ke Zhao, Paul I. Dron, Jirka Kaleta, Charles T. Rogers, and Josef Michl, Chapter in "Topics in Current Chemistry", Volume Editors: Alberto Credi, Serena Silvi, and Margherita Venturi, Springer, Jan. 2014. DOI:[10.1007/128_2013_513](https://doi.org/10.1007/128_2013_513)
62. *Large arrays and properties of 3-terminal graphene nanoelectromechanical switches*, Liu X, Suk JW, Boddeti NG, Cantley L, Wang L, Gray JM, Hall HJ, Bright VM, Rogers CT, et al. ADVANCED MATERIALS 26(10):1571-1576 12 Mar 2014. DOI: [10.1002/adma.201304949](https://doi.org/10.1002/adma.201304949).
63. *Hemispherical micro-resonators from atomic layer deposition*, Gray, JM, Houlton, JP, Gertsch, JC, Brown, JJ, Rogers, CT, George, SM, Bright, VM, JOURNAL OF

MICROMECHANICS AND MICROENGINEERING Volume: 24 Issue: 12 Article Number: 125028. Published: DEC 2014. DOI: [10.1088/0960-1317/24/12/125028](https://doi.org/10.1088/0960-1317/24/12/125028)

64. *Time-Resolved Fluorescence Anisotropy of Bicyclo[1.1.1]pentane/Tolane-Based Molecular Rods Included in Tris(o-phenylenedioxy)cyclotriphosphazene (TPP)*, Cipolloni, Marco; Kaleta, Jiri; Masat, Milan; Dron, Paul I.; Shen, Yongqiang; Zhao, Ke; Rogers, Charles T.; Shoemaker, Richard K.; Michl, Josef; JOURNAL OF PHYSICAL CHEMISTRY C, Volume: 119, Issue: 16, Pages: 8805-8820, Published: April 23 2015. DOI: [10.1021/acs.jpcc.5b01960](https://doi.org/10.1021/acs.jpcc.5b01960)
65. *Dipolar Rotors Orderly Aligned in Mesoporous Fluorinated Organosilica Architectures*, By: Bracco, Silvia; Beretta, Mario; Cattaneo, Alice; Comotti, Angiolina; Falqui, Andrea; Zhao, Ke; Rogers, Charles; Sozzani, Piero, ANGEWANDTE CHEMIE-INTERNATIONAL EDITION, Volume: 54, Issue: 16, Pages: 4773-4777, Published: APR 13 2015. DOI: <http://dx.doi.org/10.1002/anie.201412412>
66. *Arrays of Molecular Rotors with Triptycene Stoppers: Surface Inclusion in Hexagonal Tris(o-phenylenedioxy)cyclotriphosphazene*, Kaleta, Jiri; Dron, Paul I.; Zhao, Ke; Shen, Yongqiang; Cisarova, Ivana; Rogers, Charles T.; Michl, Josef, JOURNAL OF ORGANIC CHEMISTRY, Volume: 80, Issue: 12, Pages: 6173-6192, Published: JUN 19 2015. DOI: [10.1021/acs.joc.5b00661](https://doi.org/10.1021/acs.joc.5b00661)
67. *Bulk Inclusions of Pyridazine-Based Molecular Rotors in Tris(o-phenylenedioxy)cyclotriphosphazene (TPP)*, Advanced Functional Materials, Volume 26, Issue 31, August 16, 2016, Pages: 5718–5732, Paul I. Dron, Ke Zhao, Jiří Kaleta, Yongqiang Shen, Jin Wen, Richard K. Shoemaker, Charles T. Rogers and Josef Michl. Version of Record online : 1 JUN 2016, DOI: <http://dx.doi.org/10.1002/adfm.201600437>
68. *Surface Inclusion of Unidirectional Molecular Motors in Hexagonal Tris(o-phenylene)cyclotriphosphazene*, Journal of the American Chemical Society, Volume 139, Issue 30, August, 2017, Pages: 10486-10498, Jiří Kaleta, Chen, Jiawen; Bastien, Guillaume; Dračínský, Martin; Mašát, Milan; Rogers, Charles T; Feringa, Ben L; Michl, Josef. DOI: <http://dx.doi.org/10.1021/jacs.7b05404>
69. *An optical Bragg scattering readout for nano-mechanical resonances of GaN nanowire arrays*, J. P. Houlton, M. D. Brubaker, D. O. Martin, K. A. Bertness, C. T. Rogers, Applied Physics Letters 113 (12), 123102, <https://doi.org/10.1063/1.5043211>
70. *Axisymmetric scalable magneto-gravitational trap for diamagnetic particle levitation*, J. P. Houlton, M. L. Chen, M. D. Brubaker, K. A. Bertness, and C. T. Rogers, Review of Scientific Instruments 89, 125107 (2018); <https://doi.org/10.1063/1.5051667>
71. *Bulk Inclusions of Double Pyridazine Molecular Rotors in Hexagonal Tris(o-phenylene)cyclotriphosphazene*, J. Org. Chem. Volume 84, 8449-8467, (2019), Jiří Kaleta, Guillaume Bastien, Jin Wen, Martin Dračínský, Edward Tortorici, Ivana Císařová, Paul D. Beale, Charles T. Rogers, and Josef Michl. DOI: 10.1021/asc.joc.9b00553

72. *Regular Two-Dimensional Arrays of Surface-Mounted Molecular Switches: Switching Monitored by UV-vis and NMR Spectroscopy*, Carina Santos Hurtado, Guillaume Bastien, Milan Mašát, Jakub Radek Štoček, Martin Dračínský, Igor Rončević, Ivana Císařová, Charles T. Rogers, and Jiří Kaleta, *J. Am. Chem. Soc.* 2020, 142, 20, 9337–9351. <https://doi.org/10.1021/jacs.0c01753>
73. *Porphene and porphite as porphyrin analogs of graphene and graphite*. Magnera, T. F., Dron, P. I., Bozzone, J. P., Jovanovic, M., Roncevic, I., Tortorici, E., Bu, W., Miller, E. M., Rogers, C. T., and Michl, J., *Nature Communications*, 2023. 14(1). DOI: [10.1038/s41467-023-41461-w](https://doi.org/10.1038/s41467-023-41461-w)

Reviewed conference papers

1. *Observation of Discrete Lorentzian Structure in Low Frequency Voltage Noise Spectra of Very Small Area Josephson Tunnel Junctions.* C. T. Rogers and R. A. Buhrman, Proc. of the 17th International Conference on Low Temperature Physics, Karlsruhe, Federal Republic of Germany, 1147-1148, (1984).
2. *Noise in Very Small Electronic Devices: Understanding the Origin of the 1/f Spectrum,* C. T. Rogers, K. R. Farmer, and R. A. Buhrman, Ninth International Conference on Noise in Physical Systems, pgs.293-302, World Scientific Publishing Co., Singapore, (1987).
3. *Reversible laser modification of high temperature superconducting Y-Ba-Cu-O films.* Robert R. Krchnavek, Siu-Wai Chan, C. T. Rogers, F. De Rosa, P. F. Miceli, and S. J. Allen, Proceedings of the Materials Research Society Fall Meeting (1988).
4. *Photoresponse of laser modified high T_C superconducting thin films.* Robert R. Krchnavek, S. J. Allen, Siu-Wai Chan, F. De Rosa, M. K. Kelly, S. Sampere, C. T. Rogers, and P. F. Miceli, SPIE Proceedings 1187 (1989).
5. *Wet Chemical Etching of High T_C Superconductors by EDTA.* F. K. Shokoohi, L. M. Schiavone, C. T. Rogers, A. Inam, X. D. Wu, L. Nazar, and T. Venkatesan, Proceedings of the Materials Research Society, (Nov. 1989).
6. *Heteroepitaxial $YBa_2Cu_3O_{7-x}$ - $PrBa_2Cu_3O_{7-x}$ - $YBa_2Cu_3O_{7-x}$ Weak-links grown by laser deposition.* Proc. of the 47th Annual Device Research Conference, MIT, Cambridge, Mass, (June 1989)
7. *Advances in high T_C superconducting electronics research at Bellcore/Rutgers.* T. Venkatesan, X. D. Wu, A. Inam, C. T. Rogers, L. Nazar, B. J. Wilkens, C. C. Chang, D. Hwang, P. England, M. S. Hegde, and H. Padamsee, International Superconducting Electronics Conference, Conference Proceedings, Tokyo, Japan, (June 1989).
8. *Scanning Tunneling Microscopy/ Electro-luminescence of III-V and II-VI Semiconductors.* C. T. Rogers, S. Gregory, and E. M. Clausen, Jr., Proceedings of the 47th Annual Meeting of the Electron Microscopy Society of America, San Francisco Press, Inc., San Francisco, CA (1989).
9. *Larger Area, Particle Free, Single Crystal-like YBCO Thin Films Deposited by Reactive Co-Evaporation.* S-W. Chan, S. M. Sampere, B. J. Wilkens, J. B. Barner, C. T. Rogers, L. A. Farrow, T. S. Ravi, D. M. Hwang, and R. Ramesh, Proc. of the International Conf. on Electronics Materials, Newark, NJ (Sept. 1990).
10. *Photoconductivity in Oxygen deficient Bridge Structures in YBCO Thin Films,* R. Krchnavek, G. L. Carr, S. J. Allen, F. DeRosa, C. T. Rogers, and X. D. Wu, Proc. of the International Conference on Electronic Newark, NJ (Sept. 1990).
11. *Fabrication of $Y_{1-x}Pr_x$ -Ba-Cu-O Thin Films and Superlattices of Y-Ba-Cu-O/ $Y_{1-x}Pr_x$ -Ba-Cu-O.* X. D. Wu, M. S. Hegde, X. X. Xi, Q. Li, A. Inam, S. A. Schwarz, G.

- A. Martinez, B. J. Wilkens, J. B. Barner, C. C. Chang, L. Nazar, C. T. Rogers, and T. Venkatesan, Proc. of the Materials Research Soc. Spring MRS Meeting, (1990).
12. *Epitaxial Heterostructures for High Temperature Superconducting Electronics*. A. Inam, C. T. Rogers, and T. Venkatesan, Proc. of the Electronics Materials Conference, (June 1990).
 13. *YBa₂Cu₃O_{7-x} - Y_{1-x}Pr_xBa₂Cu₃O_{7-x} Heterostructures for High Temperature Superconductive Electronics*. C. T. Rogers, A. Inam, J. B. Barner, R. Ramesh, and T. Venkatesan, Proc. of the International Cryogenic Materials Conference on High Temperature Superconductors (ICMC'90). Deutsche Gesellschaft fur Material-kunde (1991).
 14. *Growth Mechanisms and Crystal Structures of Rough and Smooth Y-Ba-Cu-O Superconducting Films Made by Laser Deposition*. C. C. Chang, X. D. Wu, R. Ramesh, A. Inam, X. X. Xi, T. S. Ravi, C. T. Rogers, D. M. Hwang, and T. Venkatesan, Proceedings of the 11th Symposium on New Superconducting Materials Forum, Tokyo, Japan, (1991).
 15. *Artificially Layered Heterostructures: Growth Properties and Device Applications*, A. Inam, C. T. Rogers, R. Ramesh, K. E. Myers, and J. B. Barner, Superconductive Materials, Physics, and Applications, Edited by B. Ravo, K. Wasa, and R. Suryanarayanan, IITT International, (1992).
 16. *Flux Pinning and Diffusion in Ultrathin Films*, K. E. Myers, C. T. Rogers, C. B. Eom, T. H. Geballe and Julia M. Phillips, Proc. of the Materials Research Soc., (1992).
 17. *Pulsed laser deposition of SrTiO₃ on patterned YBa₂Cu₃O_{7-x} using a shadow mask*, James B. Thompson, Randolph E. Treece, Carl H. Mueller, Tanya Rivkin, Gerhard Koepf, Robert M. Yandrofski, David Galt, Mark Dalberth, John C. Price, Allen M. Hermann, and C. T. Rogers, to be published in the Proc. of the Materials Research Society for the Fall Meeting (1995).
 18. *Ferroelectric thin films for frequency tunable microwave devices*, Carl H. Mueller, Randolph E. Treece, Tanya Rivkin, X. He, James B. Thompson, Gerhard Koepf, Robert M. Yandrofski, Mark Dalberth, C. T. Rogers, F. A. Miranda, L. A. Knauss, and J. S. Horwitz, to be published in the Proc. of the Materials Research Society for the Fall Meeting (1995).
 19. *YBa₂Cu₃O_{7-x} - SrTiO₃ structures for tunable microwave devices*, C. H. Mueller, R. E. Treece, T. Rivkin, Z. Zhang, J. B. Thompson, G. A. Koepf, D. Galt, J. C. Price, A. M. Hermann, M. Dalberth, and C. T. Rogers, F. A. Miranda. Presented at the 8th Annual International symposium on integrated ferroelectrics, Tempe, AZ March 17-20, 1996.
 20. *Dielectric response of epitaxial strontium titanate films*, David Galt, John C. Price, Charles T. Rogers, James B. Thompson. Presented at the March General Meeting of the American Physical Society, St. Louis, MO. March 18-22, 1996.
 21. *Dielectric properties of SrTiO₃/ YBa₂Cu₃O_{7-x} -bilayer thin films deposited in situ onto LaAlO₃*, R. E. Treece, C. H. Mueller, J. B. Thompson, F. A. Miranda,

- H. Moutinho, M. Dalberth and C. T. Rogers. Presented at the March General Meeting of the American Physical Society, St. Louis, MO. March 18-22, 1996.
22. *Infrared spectroscopic, x-ray, and nanoscale characterization of strontium titanate thin films*, J. D. Webb, H. R. Moutinho, L. L. Kazmerski, C. H. Mueller, T. V. Rivkin, R. E. Treece, M. Dalberth, and C. T. Rogers. NREL/ TP-413-20926, April 1996.
 23. *a-axis $YBa_2Cu_3O_{7-x}/Au$ interface conductance-voltage characteristics*, Yizi Xu, J. W. Ekin, S. E. Russek, R. Fiske, C. C. Clickner, I. Takeuchi, Z. Trajanovic, T. Venkatesan, and C. T. Rogers, IEEE Transactions on Applied Superconductivity 7 2836 (1997).
 24. *Tunable $SrTiO_3$ varactors using parallel plate and interdigital structures*, C. H. Mueller, R. E. Treece, T. V. Rivkin, F. A. Miranda, H. R. Moutinho, A. Swartzlander-Franz, M. J. Dalberth, C. T. Rogers, IEEE Transactions on Applied Superconductivity, 7 3512 (1997).
 25. *Improved dielectric properties of thin film $SrTiO_3$ grown by pulsed laser deposition*, Mark Dalberth, John Price, David Galt, and Charles T. Rogers, Epitaxial Oxide Thin Films III, Symposium of the. Mat. Res. Soc. 43 (1997).
 26. *Epitaxial lift-off of strontium titanate thin films and the temperature dependence of the low frequency dielectric properties of the films*, M. J. Dalberth, J. C. Price, C. T. Rogers, Ferroelectric Thin films VI. Symposium Proc. Mat. Res. Soc., 371 (1998).
 27. *$LiCoO_2$ thin films grown by pulsed laser deposition on low cost substrates*, D. S. Ginley, J. D. Perkins, J. M McGraw, P. A. Parilla, M. L. Fu, and C. T. Rogers, Materials for Electrochemical Energy Storage and Conversion II- Batteries, Capacitors, and Fuel Cells. Symposium of the Materials Research Society, 293 (1998).
 28. *Raman scattering in $LiCoO_2$ single crystals and thin films (Li-ion secondary cell cathodes)*, J. D. Perkins, M. L. Fu, D. M. Trickett, J. M. McGraw, T. F. Ciszek, P. A. Parilla, C. T. Rogers, and D. S. Ginley, Materials for Electrochemical Energy Storage and Conversion II- Batteries, Capacitors, and Fuel Cells. Symposium of the Materials Research Society, 329 (1998).
 29. *Thermal asperity trends*, Steven E. Stupp, Michael A. Baldwinson, Peter McEwen, Thomas M. Crawford, and Charles T. Rogers, IEEE Trans. On Magn. 35, 752 (1999).
 30. *Dielectric response of free standing strontium titanate thin films from 10 kHz to 1 GHz as a function of temperature and applied voltage*, M. J. Dalberth, J. C. Price, and C. T. Rogers, Multicomponent Oxide Films for Electronics. Symposium of the Materials Research Society, 299 (1999).
 31. *Microwave dielectric tuning and losses in epitaxial lift-off thin films of strontium titanate*, C. T. Rogers, M. J. Dalberth, and J. C. Price, Materials Issues for Tunable RF and Microwave Devices. Symposium of the Materials Research Society 265 (2000).
 32. *Simultaneous measurement of the surface and bulk magnetization in thin magnetic films*, C. W. Teplin and C. T. Rogers, Journal of Applied Physics, 89, 7168 (2001).

33. *Off axis growth of strontium titanate films with high dielectric constant tuning and low loss*, Kampangkeaw, S.; Rogers, C.T., Materials Issues for Tunable RF and Microwave Devices III. Symposium (Materials Research Society Symposium Proceedings Vol.720), 2002, p 35-40.
34. *Electric field tuning of superconductivity in lanthanum-doped strontium titanate field effect transistors*. Feng Pan and Charles T. Rogers, Thin Solid Films, v.486, 67-70 (2005).
35. *High-Q, Gallium Nitride Nanowire Resonators For Thin-Film Deposition Sensor Applications*, J.R. Montague, J.M. Gray, D. Seghete, K.A. Bertness, N.A. Sanford, S.M. George, V.M. Bright, C.T. Rogers, Technical Digest of The 15th IEEE International Conference on Solid-State Sensors, Actuators and Microsystems (Transducers 2009; June 21 - 25, 2009; Denver, Colorado USA

Selected invited talks

1. *Individual Electron Traps and 1/f Noise in Josephson Tunnel Junctions*. presented at the American Physical Society March Meeting, Las Vegas, NV. (1987).
2. *Noise in Very Small Electronic Devices: Understanding the Origin of the 1/f Spectrum*, 9th Intl. Conference on Noise in Physical Systems, University of Montreal, Montreal, Can. May (1987).
3. *Heteroepitaxial $YBa_2Cu_3O_{7-x}$ - $PrBa_2Cu_3O_{7-x}$ - $YBa_2Cu_3O_{7-x}$ Weak-links grown by laser deposition*. presented at the 47th annual Device Research Conference, June~19-21, MIT, Cambridge, Mass. (1989).
4. *Scanning Tunneling Microscopy/Electro-Luminescence of III-V and II-VI Semiconductors*. presented at the 47th annual meeting of the Electron Microscopy Society of America, August~7-11, 1989. San~Antonio, TX.
5. *$YBa_2Cu_3O_{7-x}$ - $Y_{1-x}Pr_xBa_2Cu_3O_{7-x}$ Heterostructures for High Temperature Superconductive Electronics*. presented at the International Cryogenic Materials Conference 1990, topical conference of High Temperature Superconductors Materials Aspects, May 9-11, 1990, Garmisch-Partenkirchen, Germany.
May 14, 1990, KFZ, Karlsruhe, Germany.
May 16, 1990, Univ. of Geneva, Geneva, Switzerland.
May 17, 1990, KFA/ISI, Julich GmbH, Germany.
6. *Growth and Properties of Very Thin $YBa_2Cu_3O_{7-x}$ Films and $YBa_2Cu_3O_{7-x}$ / $PrBa_2Cu_3O_{7-x}$ Heterostructures*. presented at the American Physical Society March Meeting, Cincinnati, Ohio (1991).
7. *Vortex Diffusion in Thin Films of $Bi_2Sr_2CaCu_2O_8$ and $YBa_2Cu_3O_7$* . presented at the American Physical Society March Meeting, Pittsburgh, Penn. (1994).
8. *Potential rewards and real challenges for integrating high T_c superconducting thin films into microwave applications*, R. E. Treece, C. H. Mueller, J. B. Thompson, M. Heiney, G. A. Koepf, R. M. Yandrofski, D. Galt, J. C. Price, and C. T. Rogers, Presented at the 1996 Spring Materials Research Society Meeting, San Francisco, CA.
9. *Nonlinear second harmonic magneto-optic Kerr effect for studies of magnetic heterostructures*, Invited talk at the Magnetism and Magnetic Materials Conference, Atlanta, GA Nov, 1996, presented by Thomas Crawford.
10. *Electronic transport and spin dynamics in magnetic multilayer systems*, Review of our recent work on the time dependent magnetic properties of multilayer systems. September 3, 1997, University of Colorado, Boulder.
October 6, 1997, Colorado State University.
October 10, 1997, University of Colorado, Colorado Springs.
11. *Electric field tunable dielectric thin films for microwave electronics*, Mark J. Dalberth, Renaud E. Stauber, J. C. Price, and C. T. Rogers, and D. Galt, Fall Materials Research Society Meeting, Boston, MA (1997)

12. *Measurement of ultra-fast magnetic rotation in FeXN films intended for high speed recording heads.* T. J. Silva, T. M. Crawford, and C. T. Rogers, Joint Symposium, Magnetism and Magnetic Materials / Intermag '98, Jan. 1998, Seattle, WA.
13. *Second harmonic magneto-optic Kerr measurements of magnetodynamics in thin films and thin film devices.* C. T. Rogers, T. M. Crawford, and T. J. Silva, Spring Materials Research Society Meeting, San Francisco, CA (1998).
14. *Second harmonic magneto-optic Kerr effect and its applications,* SPIE Annual Meeting, July 21, 1999, Denver, CO.
15. *Microwave dielectric tuning and losses in epitaxial lift off films of strontium titanate,* M. J. Dalberth and C. T. Rogers, Fall 1999 Meeting of the Materials Research Society, Dec. 3, 1999, Boston, MA.
16. *Cryogenic applications of tunable dielectric materials,* talk presented by Mark Dalberth, ISTE (International Conference of Superconductivity), July, 13, 1999, Kawaai, HI.
17. *Simultaneous linear and second harmonic magneto-optic Kerr effects",* National Storage Industry Consortium Yearly Meeting, June 23, 2000. Monterey, CA.
18. *Fundamental studies of SHMOKE,* IEEE Sectional Meeting, March 9, 2002, Denver, CO.
19. *Nonlinear surface optical studies of molecular rotor systems,* presented at the August meeting of the American Chemical Society, Washington D.C. (August 25, 2005).
20. *Nanotechnology: Electron beam lithography for making small structures,* Workshop on Molecular Electronics, NSF-INT funded workshop, Rez, Czech Republic, June 29-July 4 (2006).
21. *Maxwell's Equations: A tutorial for those who study meta-materials,* Workshop on Chemical and Physical Approaches to Meta-Materials, Estes Park, CO, Sept. 4-9, 2008.
22. *Progress towards high resolutions mass sensors from gallium nitride nanowires,* DARPA Science and Technology Center Yearly Review, May 23, 2011. Monterey, CA.
23. *Gallium Nitride Nanomechanical Resonators,* seminar presented at the Institute for Quantum Optics and Quantum Information of the Austrian Academy of Sciences, and the Department of Experimental Physics, University of Innsbruck, Innsbruck, Austria, October 9, 2013.
24. *Crystalline systems of rotating dipoles: Potential new ferroelectric materials,* seminar presented at the Institute of Organic Chemistry and Biochemistry, Academy of Sciences of the Czech Republic, Prague, November 4, 2013.
25. *Progress towards making ferroelectrics from systems of rotating electric dipoles,* presented at the Institute of Organic Chemistry and Biochemistry, Academy of Sciences of the Czech Republic, Prague, March 31, 2017.

26. *Progress towards making ferroelectrics from systems of rotating electric dipoles.* Presented at the Physical Chemistry and Chemical Physics Colloquium, University of Colorado Boulder, Boulder, CO November 9, 2018.
27. *Dielectric spectroscopy of dipole rotor inclusions in TPP thin films.* Presented at the Institute of Organic Chemistry and Biochemistry, Academy of Sciences of the Czech Republic, Prague, November 21, 2019.