BRANDON L. WEEKS
Professor, Department of Chemical Engineering
Texas Tech University, Lubbock, TX 79409

FORMAL EDUCATION

Postdoctoral Chemistry and Chemical Engineering Division.
October 2000 to October 2002
Lawrence Livermore National Laboratory, Livermore, CA

Ph.D. Department of Chemistry.
October 2000
Cambridge University, Cambridge, UK

B.S. Chemistry
June 1993
University of California-Riverside

PROFESSIONAL EXPERIENCE

- Professor, Texas Tech University, Department of Chemical Engineering, 2013–present
- Editor-in-Chief *Journal of Energetic Materials*, 2019–present
- Associate Dean for Research, Texas Tech University, 2016–2022
- Director MD&Engineering program, 2019–2022
- Interim Chair, Civil Construction and Environmental Engineering, 2016
- Associate Department Chair, Texas Tech University, Department of Chemical Engineering, 2013–2016
- Editor-in-Chief *Scanning*, a Wiley Journal, 2010–2017
- Associate Professor, Texas Tech University, Department of Chemical Engineering, 2008–2013
- Assistant Professor, Texas Tech University, Department of Chemical Engineering, 2004–2008
- Staff Member, Lawrence Livermore National Laboratory, 2002–2004
- Postdoctoral Staff Member, Lawrence Livermore National Laboratory, 2000–2002

HONORS AND SYNERGISTIC ACTIVITIES

- Texas Tech Parents Association Spencer Wells Award for Teaching – 2015
- Chancellors Research Award, Texas Tech – 2011
- NSF-CAREER Award – 2007
- Whitacre Engineering Research Award – 2007

- Co-organizer of the Texas and Southwest Thermal Analysis and Rheology Forum (NATEX), Dallas TX – 2007
- Editorial Advisory Board, *Scanning* – 2003–2010
- Lawrence Livermore SPOT Award – 2003
- Girton College, Graduate of the Royal Society Award – 1999

ADMINISTRATIVE ASSIGNMENTS

Associate Dean for Research, Whitacre College of Engineering

Texas Tech is a comprehensive university with over 40,000 students. The Whitacre College of Engineering is one of 10 colleges housing 7 departments and 10 ABET accredited programs educating over 4,500 undergraduate and 1000 graduate students. The college has approximately 200 faculty and research expenditures in excess of $36M in 2021. The Associate Dean for Research reports directly to the Dean of Engineering and responsibilities include:

- Recruitment and retention of graduate students:
    - Application for graduate school have increased by 10% for domestic students and 5% overall. Sponsored the California Diversity Forum to improve applications from underrepresented groups.
    - 2021 academic year graduate enrollment increased 10% with the largest class ever despite COVID-19.
- Increasing competitive research awards
    - Federally competitive awards have increased 10% each year.
    - Ten CAREER awards during my tenure in engineering.
- Institutional Development
    - Working with the college development team secured graduate fellowship endowments, laboratory enhancements from Valero and Chevron and a $2M pilot plant donation from Morrow Resources to the college.
- Faculty and student resolutions
    - Responsible for addressing responsible conduct for research issues within the college along with graduate student and faculty misconduct.
- Graduate programs
    - Enhancing graduate programs visibility through marketing and scholarly activity to improve various rankings. Direct oversight of the Master of Engineering program and the Master of Science in Bioengineering at Texas Tech.
    - Distance programs are nationally ranked.
    - Increased enrollment through developing more distance programs at the college. Doubled the enrollment of bioengineering.

Director of MD/Engineering Program

Engineering director of the Medical Doctor & Engineering joint degree with the Texas Tech Health Science Center. Created the engineering curriculum in concert with the medical curriculum. The program came online in 2021 with over 250 applications in the inaugural year. Performed interviews for medical school admissions and supervised all students in engineering.

Interim Chair – Mechanical and Civil, Construction and Environmental Engineering

Served as Interim Chair for both Mechanical and Civil, Construction and Environmental Engineering during 2016 and 2018. There are four ABET accredited programs in the departments and the ABET site visit was 2016. All four programs were given an additional 6 years.

Responsible for a budget (beyond faculty salaries) of $3M, teaching assignments and promotion and tenure in the department during that time. Research awards increased 75% and enrollment increased by 7% during the period of my leadership.

Associate Chair – Chemical Engineering

Served as Associate Chair for the Department of Chemical Engineering for three years. Responsibilities included faculty recruitment and retention (increased from 12 to 17 faculty during my tenure), space assignments, departmental ABET, undergraduate recruitment and teaching assignments. During the summer months, the Chair resided in France and all activities of the department were under my supervision.

Editor in Chief – Wiley journal 'Scanning'

Scanning provides an international and interdisciplinary medium for the rapid exchange of information among all scientists interested in scanning electron, scanning probe, and scanning optical microscopies. Areas of specific interest include all aspects of the instrumentation associated with scanning microscopies, correlative microscopy techniques, stereometry, stereology, analytic techniques, and novel applications of the microscopies.

- Increased the number of submissions from 60/year to 250/year.
- Impact Factor increased from 0.3 to 1.9

PUBLICATIONS:

1. W.M. Hikal, S.K. Bhattacharia, M.W. Vaughn and B.L. Weeks 'Sublimation and diffusion kinetics of 2,4,6-trinitrotoluene single crystals by atomic force microscopy' *Molecules,* **27** 5482 (2022)

2. K.A. Ardon-Dryer, J. Warzywoda, R. Tekin, J. Biros, S. Almodovar, B.L. Weeks and L.J. Hope-Weeks 'Mask material filtration efficiency and mask fitting at the crossroads: implications during pandemic times' *Aero. and Air Qual. Res.* **21** 200571 (2021)

3. Z.T. Fondren, N.S. Fondren, G.B. McKenna and B.L. Weeks 'Crystallization kinetics of pentaerythritol tetranitrate thin films on various materials' *Appl. Surf. Sci.* **522** 146350 (2020)

4. Y.J. Lee, O. Pahom and B.L. Weeks 'Kinetic study for comprehensive understanding of solid-state polymorphic transitions of nicotinamide/pimelic acid cocrystals' *Cryst. Growth Des.* **19** 932 (2019)

5. Y.J. Lee, N. Sultana and B.L. Weeks 'Determining the kinetics of desolvation of a TNT/Aniline solvate' C*ryst. Eng. Comm.* **21** 4104 (2019)

6. S.K. Bhattacharia, B.L. Weeks an C.C. Chen 'Melting behavior and heat of fusion of compounds that undergo simultaneous melting and decomposition: an investigation with HMX' *J. Chem. Eng. Data* (2017) DOI: 10.1021/acs.jced.6b00769

7. X. Zhang, K.S. Zeimer, K. Zhang, D. Ramirez, L. Li, S.R. Wang, L.J. Hope-Weeks and B.L. Weeks 'Large-Area Preparation of High-Quality and Uniform Three-Dimensional Graphene Networks Through Thermal Degradation of Graphene Oxide-Nitrocellulose Composites' *ACS Applied Materials & Interfaces,* **7** 1057 (2015)

8. X. Zhang and B.L. Weeks 'Tip Induced Crystallization Lithography' *Journal of the American Chemical Society,* **136** 1253 (2014)

9. X. Zhang and B.L. Weeks 'Preparation of sub-micron nitrocellulose particles for improved combustion behavior' *Journal of Hazardous Materials,* **238** 224 (2014)

10. B. Qiu, H.B. Gu, X.R. Yan, J. Guo, Y.R. Wang, D.Z. Sun, Q. Wang, M. Khan, X. Zhang, B.L. Weeks, D.P. Young, Z.H. Guo and S.Y. Wei 'Cellulose derived magnetic mesoporous carbon nanocomposites with excellent hexavalent chromium removal' *Journal of Materials Chemistry A,* **2** 17454 (2014)

11. X. Zhang and B.L. Weeks 'Effects on the surface structure of organic energetic materials using spin coating' *Thin Solid Films,* **550** 135 (2014)

12. C.A. Crane, M.L. Pantoya, B.L. Weeks and M. Saed 'The effects of particle size on microwave heating of metal and metal oxide powders' *Powder Technology,* **256** 595 (2014)

13. S.K. Bhattacharia, A. Maiti, R.H. Gee, J. Nunley and B.L. Weeks 'Effect of homolog doping on surface morphology and mass-loss rates from PETN crystals' *Propellants Explosives, Pyrotechnics* **39** 24 (2014)

14. W.M. Hikal and B.L. Weeks 'Sublimation kinetics and diffusion coefficients of TNT, PETN, and RDX in air by thermogravimetry' *Talanta,* **125** 24 (2014)

15. W.M. Hikal, A.K. Burnham and B.L. Weeks 'Simultaneous determination of diffusion and sublimation kinetics at the nanoscale' *Appl. Phys. Lett,* **102** 163104 (2013)

16. J.H. Wei, J.J. Qiu, L.Q. Ren, K. Zhang, S.R. Wang and B. Weeks 'Size sorted fluorescence graphene oxide quantum dots obtained by differential velocity centrifugation' *Science of Advanced Materials,* **6** 1052 (2014)

17. J. Guo, X. Zhang, H.B. Gu, Y.R. Wang, X.R. Yan, D.W. Ding, J. Hong, S. Tadakamalla, Q. Wang, M.A. Khan, J.J. Liu, X. Zhang, B.L. Weeks, L.Y. Sun, D.P. Young, S.Y. Wei, Z.H. Guo 'Reinforced magnetic epoxy nanocomposites with conductive polypyrrole nanocoating on nanomagnetite as a coupling agent' *RSC Advances,* **4** 36560 (2014)

18. C.A. Crane, M.L. Pantoya, and B.L. Weeks 'Investigating the trade-offs of microwave susceptors in energetic composites' *J. Appl. Phys,* **115** 104106 (2014)

19. X.W. Zhang, Z. Zhao, X. Xhang, A. Marathe, D.B. Cordes, B. Weeks and J. Chaudhuri 'Tunable photoluminescence and energy transfer of $YBO_3:Tb^{3+}$, Eu^{3+} for white light emitting diodes' *J. Mat. Chem. C*, **1** 7202-7207 (2013)

20. X. Zhang, W.M. Hikal, Y. Zhang, S.K. Bhattacharia, L. Li, S. Panditrao, S. Wang and B.L. Weeks 'Direct laser initiation and improved thermal stability of nitrocellulose/graphene oxide nanocomposites' *Appl. Phys. Lett,* **102** 141905 (2013)

21. X. Zhang, P.W. Qiao, X. Ji, J.B. Han, L.L. Liu, B.L. Weeks, Q.W. Yao and Z. Zhang 'Sustainable recycling of benzoic acid production waste' *ACS Sustainable Chemistry & Engineering*, **1** 974-981 (2013)

22. L. Li, X. Zhang, J. Qiu, B.L. Weeks and S. Wang 'Reduced graphene oxide-linked stacker polymer forests for high-energy supercapacitor' *Nano Energy* **2** 628-635 (2013)

23. X. Zhang, X. Ji, R.F. Su, B.L. Weeks, Z. Zhang and S.L. Deng 'Aerobic oxidation of 9H-Fluorenes to 9-Fluorenones using graphene supported alkaline catalyst' *ChemPlusChem* **78** 703-711 (2013)

24. C.A. Crane, M.L. Pantoya and B.L. Weeks 'Spatial observation and quantification of microwave heating in materials' *Rev. Sci. Instrum.* **84** 084705 (2013)

25. G.R. Peterson, W.P. Bassett, B.L. Weeks and L.J. Hope-Weeks 'Phase pure triacetone triperoxide: the influence of ionic strength, oxidant source and acid catalyst' *Cryst. Growth & Design* **13** 2307-2311 (2013)

26. W.M. Hikal and B.L. Weeks 'In-situ direct measurement of vapor pressure and thermodynamic parameters of volatile organic materials in the vapor phase' *ChemPhysChem,* **14** 11920-1925 (2013)

27. W.M. Hikal, J.T. Paden S.K. Bhattacharia and B.L. Weeks, 'Thermodynamic parameters of rhodamine B in powder and nanofilm form' *Journal of Thermal Analysis and Calorimetry* **113** 519-523 (2013)

28. W.M. Hikal and B.L. Weeks 'Spectroscopic determination of enthalpies of sublimation of organic materials in the vapor phase' *Chemical Physics* **415** 228-231 (2013)

29. Y.C. Liao, W. Hargrove and B.L.Weeks 'Effect of humidity and hydrophobicity of tribological properties of self-assembled monolayers' *Scientific World Journal* **748295** (2013)

30. O.S. Bushuyev, G.R. Peterson, P. Brown, A. Maiti, R.H. Gee, B.L. Weeks and L.J. Hope-Weeks 'Metal-Organic Frameworks (MOFs) as Safer, Structurally Reinforced Energetics' *Chemistry-A European Journal*, **19** 1706-1711 (2013)

31. W.M. Hikal, S.K. Bhattacharia, and B.L. Weeks, 'Effect of porphyrin doping on the thermodynamic parameters of pentaerythritol tetranitrate (PETN) single crystals' *Propellants Explosives, Pyrotechnics* **37** 718-723 (2012)

32. X. Zhang, G. Zhang, T.C. Liao, B.L. Weeks and Z- Zhang, 'Embossing of organic thin films using a surfactant assisted lift-off technique' *Journal of Colloid and Interface Science* **387** 175-179 (2012)

33. S.K. Bhattacharia, A. Maiti, R.H. Gee and B.L. Weeks 'Sublimation properties of pentaerythritol tetranitrate single crystals doped with its homologs' *Propellants Explosives, Pyrotechnics* **37** 563-568 (2012)

34. W.M. Hikal, and B.L. Weeks, 'Determination of sublimation rate of 2,4,6-trinitrotoluene (TNT) nano thin films using UV-absorbance spectroscopy' *Journal of Thermal Analysis and Calorimetry* **110** 955-960 (2012)

35. W.M. Hikal, J.T. Paden and B.L. Weeks, 'Rapid estimation of thermodynamic parameters and vapor pressures of volatile materials at the nanoscale' *ChemPhysChem* **13** 2729-2733 (2012)

36. G. Zhang, B.L.Weeks and X. Zhang, 'Crystal growth of organic energetic materials: pentaerythritol tetranitrate' *Central European Journal of Engineering* **2** 336-346 (2012)

37. W.M. Hikal, S.K. Bhattacharia, G.R. Peterson and B.L. Weeks, 'Controlling the coarsening stability of PETN single crystals by the use of water' *Thermochemica Acta* **536** 63-67 (2012)

38. Y.C. Liao, H. Sun and B.L. Weeks, 'Measuring the activation energy of thiol desorption using lateral force microscopy' *Scanning* **34** 200-205 (2012)

39. O.S. Bushuyev, P. Brown, Maiti A, Gee R.H., Peterson G.R., B.L. Weeks and L.J. Hope-Weeks 'Ionic polymers as a new structural motif for high-energy-density materials' *Journal of the American Chemical Society*, **134** 1422-1425 (2012)

40. W.M. Hikal, J.T. Paden and B.L. Weeks, 'Thermo-optical determination of vapor pressures of TNT and RDX nanofilms' *Talanta* **87** 290-294 (2011)

41. W.M. Hikal, J.T. Paden and B.L. Weeks, 'Simple Method for Determining the Vapor Pressure of Materials Using UV-Absorbance Spectroscopy' *Journal of Physical Chemistry B,* **115** 13287-13291 (2011)

42. O.S. Bushuyev, F.A. Arguelles, P. Brown, B.L. Weeks and L.J. Hope-Weeks 'New energetic complexes of copper(II) and the acetone carbohydrazide schiff base as potential flame colorants for pyrotechnic mixtures' *European Journal of Inorganic Chemistry*, **29** 4622-4625 (2011)

43. X. Zhang, J. Xuan, J. Shanshan, B.L. Weeks and Z. Zhang, 'Highly efficient synthesis of 9-fluorenones from 9H-fluorenes by air oxidation' *Green Chemistry,* **13** 1891-1896 (2011)

44. C.A. Crane, E.S. Collins, M.L. Pantoya and B.L. Weeks, 'Nanoscale investigation of surfaces exposed to a thermite spray' *Applied Thermal Engineering*, **31** 1286-1292 (2011)

45. G.X. Zhang, B.L. Weeks and M Holtz, 'Application of dynamic scaling to the surface properties of organic thin films: Energetic materials' *Surface Science*, **605** 463-467 (2011)

46. G.X. Zhang and B.L. Weeks, 'A device for testing thermal impact sensitivity of high explosives' *Propellants Explosives Pyrotechnics*, **35** 440-445 (2010)

47. G.X. Zhang, S.K. Bhattacharia and B.L. Weeks 'Effect of zinc doping on pentaerythritol tetranitrate single crystals' *Crystal Research and Technology*, **45** 732-736 (2010)

48. G.X. Zhang and B.L. Weeks, 'Surface morphology of organic thin films at various vapour flux' *Applied Surface Science*, **256** 2363-2366 (2010)

49. G. Zhang, R.H. Gee, A. Maiti and B.L. Weeks, 'Fractal growth in organic thin films: Experiments and modelling' *Applied Physics Letters,* **95** 204101 (2009)

50. A.K. Burnham, S.R. Qiu, R. Pitchimani and B.L. Weeks, 'Comparison of kinetic and thermodynamic parameters of single crystal pentaerythritol tetranitrate using atomic force microscopy and thermogravimetric analysis: Implications on coarsening mechanisms' *Journal of Applied Physics,* **105** 104312 (2009)

51. G. Zhang, H. Sun, J. Abbott and B.L. Weeks 'Engineering the microstructure of organic energetic materials' *ACS Applied Surfaces and Interfaces*, **1** 1086-1089 (2009)

52. S. Mridha and B.L. Weeks 'Effect of Zn doping on the sublimation rate of pentaerythritol tetranitrate using atomic force microscopy' *Scanning,* **31** 181-187 (2009)

53. O.A. Nafday, B.L. Weeks, W.P. King and J.C. Lee, 'Inducing nanoscale morphology changes of pentaerythritol tetranitrate using a heated atomic force microscope cantilever' *Journal of Energetic Materials*, **27** 1-16 (2009)

54. G.X. Zhang, R. Pitchimani and B.L. Weeks, 'A simple and flexible thin film evaporating device for energetic materials' *Review of Scientific Instruments* **79** 096102 (2008)

55. D. Snow, B.L. Weeks, D.J. Kim and L.J. Hope-Weeks, 'Non-destructive experimental determination of bi-materials rectangular cantilever spring constants in water' *Review of Scientific Instruments* **79** 083706 (2008)

56. G. Zhang and B.L. Weeks, 'Inducing dendrite formation using an atomic force microscope tip' *Scanning*, **30** 228-231 (2008)

57. K.W. McBride, D.E. Snow, S. Walters, Z. Jernigan, B.L. Weeks and T. Dallas 'Decoupling functionalization from sensor array assembly using detachable cantilevers' *Scanning*, **30** 203-207 (2008)

58. J.A. Hammons, W. Wang, J. Ilavsky, M.L. Pantoya, B.L. Weeks and M.W. Vaughn 'Small angle x-ray scattering analysis of the effect of cold compaction of Al/MoO3 thermite composites' *Physical Chemistry Chemical Physics*, **10** 193-199 (2008)

59. D. Snow, B.L. Weeks, D.J. Kim, A. Loui, B.R. Hart and L.J. Hope-Weeks, 'Static deflection measurements of cantilever arrays reveal polymer film expansion and contraction' *Journal of Colloid and Interface Science*, **316** 687-693 (2007)

60. P.H. Lin, R. Khare, B.L. Weeks and R.H. Gee 'Molecular modelling of diffusion on a crystalline pentaerythritol tetranitrate surface' *Applied Physics Letters*, **91** 104107 (2007)

61. R. Pitchimani, L.J. Hope-Weeks, G. Zhang and B.L. Weeks, 'Effect of impurity doping on the morphology of pentaerythritol tetranitrate crystals' *Journal of Energetic Materials*, **25** 203-212 (2007)

62. D.J. Kim, B.L. Weeks and L.J. Hope-Weeks, 'Effect of surface conjugation chemistry on the sensitivity of microcantilever sensors' *Scanning* **29** 245-248 (2007)

63. R. Pitchimani, A.K. Burnham and B.L. Weeks, 'Quantitative Thermodynamic Analysis of Sublimation Rates Using and Atomic Force Microscope' *Journal of Physical Chemistry B*, **111** 9182-9185 (2007)

64. R. Pitchimani, W. Zheng, S.L. Simon, L.J. Hope-Weeks, A.K. Burnham and B.L. Weeks 'Thermodynamic analysis of pure and impurity doped pentaerythritol tetranitrate crystals grown at room temperature' *Journal of Thermal Analysis and Calorimetry* **89** 475-478 (2007)

65. G. Zhang, B.L. Weeks and J. Wei 'Vapor-Liquid Equilibria Data for Methanol + 2-Propanol + 2-Methyl-2-butanol and Constituent Binary Systems at 101.3 kPa' *J. Chem. Eng. Data* **52** 878-883 (2007)

66. O.A. Nafday and B.L. Weeks 'Feature size dependence on hysteresis due to relative humidity ramping and patterning order in dip-pen nanolithography' *Journal of Experimental Nanoscience* **2** 229-237 (2007)

67. B.L. Weeks and G. Zhang 'High-pressure Scanning Tunneling Microscopy: Tip Reactions' *Scanning* **29** 5-10 (2007)

68. S. Kahale, S. Molina, B.L. Weeks, R. Khare and L.J. Hope-Weeks 'Monitoring the formation of self-assembled monolayers of alkanedithiols using a micromechanical cantilever sensor' *Langmuir* **23** 1258-1263 (2007)

69. T. M. Willey, J. Handly, B. L. Weeks, T. van Buuren, J. Ilavsky, J. R. I. Lee, G. E. Overturf, and J.H. Kinney 'Changes in pore size distribution upon thermal cycling of TATB-based explosives measured by ultra-small angle x-ray scattering' *Propellants, Explosives and Pyrotechnics* **31** 466-471 (2006)

70. O.A. Nafday and B.L. Weeks 'Relative Humidity Effects in Dip-Pen Nanolithography of Alkanethiol Mixtures' *Langmuir* **22** 10912-10914 (2006)

71. O.A. Nafday, M.W. Vaughn and B.L. Weeks 'Evidence of meniscus interface transport in dip-pen nanolithography: an annular diffusion model' *Journal of Chemical Physics*, **125** 144703 (2006)

72. O.A. Nafday, R. Pitchimani, J. Haaheim, and B.L. Weeks 'Patterning explosives at the nanoscale' *Propellants, Explosives and Pyrotechnics*, **31** 376-381 (2006)

73. W.P. King, S. Saxena, B.A. Nelson, B.L. Weeks, and R. Pitchimani 'Nanoscale thermal analysis of an energetic material' *Nano Letters*, **9** 2145-2149 (2006)

74. L.A. Zepeda-Ruiz, A. Maiti, R. Gee, G.H. Gilmer, and B.L. Weeks 'Size and habit evolution of PETN crystals – a lattice Monte Carlo study' *Journal of Crystal Growth,* **291** 461-467 (2006)

75. B.L. Weeks and J.J. DeYoreo 'Dynamic meniscus growth at a scanning probe tip in contact with a gold substrate' *J. Phys. Chem. B*, **110** 10231-10233 (2006)

76. B.L. Weeks, M.W. Vaughn and J.J. DeYoreo 'Direct Imaging of Meniscus Formation in Atomic Force Microscopy Using Environmental Scanning Electron Microscopy' *Langmuir*, **21**, 8096-8098 (2005)

77. B.L. Weeks and T. Rayment 'Artefacts caused while imaging catalysts using scanning tunneling microscopy under catalytic conditions' *Int. J. Appl. Chem*, **1**, 39-48 (2005)

78. A.K. Burnham, R.K. Weese and B.L. Weeks, 'A Distributed Activation Energy Model of Thermodynamically Inhibited Nucleation and Growth Reactions and Its Application to the Phase Transition of HMX' *J. Phys. Chem. B*, **108** 19432-19441 (2004)

79. E.J. Peterson, B.L. Weeks, J.J. De Yoreo and P.V. Schwartz, 'Effect of Environmental Conditions on Dip Pen Nanolithography of Mercaptohexadecanoic Acid' *J. Phys. Chem. B,* **108**, 15206-15210 (2004)

80. B.L. Weeks, J. Camarero, A. Noy, A.E. Miller, L. Stanker and J.J. De Yoreo, 'A Microcantilever-Based Pathogen Detector' *Scanning* **25**, 297-299 (2003)

81. B.L. Weeks, A. Noy, A.E. Miller, J.E. Klare, B.W. Woods, and J.J. De Yoreo, 'Dip-Pen Nanolithography using MHA and Optical Inks', *Dekker Encyclopaedia of Nanoscience and Nanotechnology*, Marcel Dekker, 923-931 (2003)

82. C.T. Gibson, B.L. Weeks, C. Abell, T. Rayment and S. Myhra 'Calibration of AFM cantilever spring constants', *Ultramicroscopy*, **97**, 113-118 (2003)

83. R. McKendry, W.T.S. Huck, B. Weeks, M. Fiorini, C. Abell and T. Rayment, 'Creating nanoscale patterns of dendrimers on silicon surfaces with dip-pen nanolithography', *Nano Letters*, **2**, 713 (2002)

84. B.L. Weeks, A. Noy, A.E. Miller, and J.J. De Yoreo, 'The effect of dissolution kinetics on feature size in dip-pen nanolithography', *Phys. Rev. Lett.,* **88**, 255505 (2002). Also in *Virtual Journal of Nanoscale Science & Technology,* June 24, 2002

85. B.L. Weeks, C.M. Ruddle, J.M. Zaug and D.J. Cook, 'Monitoring high-temperature solid-solid phase transitions of HMX with atomic force microscopy', *Ultramicroscopy,* **93**, 19 (2002)

86. A. Noy, A.E. Miller, J.E. Klare, B.L. Weeks, B.W. Woods, and J.J. De Yoreo, 'Fabrication and imaging of luminescent nanostructures and nanowires using dip-pen nanolithography', *Nano Letters*, **2**, 109-112 (2002)

87. B.L. Weeks, T. Rayment, and M.E. Welland, 'High-pressure nanolithography using low-energy electrons from a scanning tunnelling microscope', *Nanotechnology*, **13**, 38 (2002)

88. B.L. Weeks, J. Klosterman and P.N. Worsey, 'Design of a hypersonic waterjet apparatus driven by high explosives', *Rev. Sci. Instrum.* **72**, 3428 (2001).

89. C.T. Gibson, B.L. Weeks, J.R.I. Lee, C. Abell, and T. Rayment, 'A non-destructive method for the calibration of AFM cantilevers', *Rev. Sci. Instrum*., **72**, 2340 (2001)

90. B.L. Weeks**,** Z. Barber, M. Raval, M. E. Welland, and T. Rayment, 'Coated silica tips for use in high pressure, high temperature, scanning tunneling microscopy', *Ultramicroscopy*, **87**, 19 (2001)

91. B.L.Weeks**,** C. Durkan, H. Kuramochi, M. E. Welland, and T. Rayment, 'A high pressure, high temperature scanning tunneling microscope for *in-situ* studies of catalysts', Re*v. Sci. Instrum*. **71**, 3777 (2000)

REFEREED PROCEEDINGS:

1. O.A. Nafday, B.L. Weeks, J. Haaheim and R. Eby 'Patterning of PETN and HMX using Dip-pen nanolithography' Materials Research Society Spring Meeting, Fall (2005)

2. B.L. Weeks, J. Camarero, A. Noy, A.E. Miller, and J.J. De Yoreo, 'Development of a Microcantilever-Based Pathogen Detector' NanoTech 2003, February (2003)

3. J.A. Camarero, C-L Cheung, T. Lin, J.E. Johnson, B.L. Weeks, A. Noy and J.J. De Yoreo, 'Assembly of Oriented Virus Arrays by Chemo-Selective Ligation Methods and Nanolithography Techniques' NanoTech 2003, February (2003)

4. B.L. Weeks, R. Weese, and J.M. Zaug, 'Energetic Materials and Atomic Force Microscopy: Structure and Kinetics', 12th International Detonation Symposium, August (2002)

5. A. Noy, A.E. Miller, J.E. Klare, B.L. Weeks, B.W. Woods, and J.J. De Yoreo, 'Fabrication and imaging of luminescent nanostructures using dip-pen nanolithography' International Symposium on Optical Science and Technology, SPIE's 47th Annual Meeting, July (2002)

6. T. van Burren, C. Bostedt, B.R. Taylor, L.J. Hope-Weeks, B.L. Weeks, and L.J. Terminello, 'X-ray absorption of colloidal Ge quantum dots' International Symposium on Optical Science and Technology, SPIE's 47th Annual Meeting, July (2002)

7. B. Weeks, P. Worsey, D. Andershock, K. Kosman, 'Soybean oil, no longer just for cooking', Symposium of Explosives Engineering, Feb. 319-325 (1997)

INVITED PRESENTATIONS:

1. 'Soybean Oil, No Longer Just for Cooking', Mississippi Valley Chapter of Explosives Engineering, March (1997)

2. 'Applications of AFM to Nanotechnology', Pacific Nanotechnology Workshop Series on Nanotechnology (2002)

3. 'AFM the Tool for Nanotechnology,' TOYO nanotechnology seminar, October (2002), Tokyo, Japan

4. 'Using Dip-Pen Nanolithography to Template Arrays of Macromolecules', Nanoprint and Nanoimprint Technology Conference, December (2002)

5. 'A Microcantilever-Based Pathogen Detector' Scanning 2003, San Diego, CA, May (2003)

6. 'Hydrosilation reactions for a silicon cantilever-based biosensor' ACS Symposium in Memory of Arthur Adamson (2004).

7. 'Microcantilever sensors' ASME Nanotechnology Institute, Reno, NV, May (2004)

8. 'Measuring sublimation rates using AFM' Texas and Southwest Thermal Analysis and Rheology Forum (NATEX), Dallas TX, April (2006)

9. 'Prospects for using scanned probe lithography for defense applications' SPIE Defense and Security Symposium, Orlando, FL (2007)

10. 'Scanning Probe Microscope applications to sensors, energetic materials and lithography' Louisiana State University, Chemical Engineering Department (2013)

SELECTED PRESENTATIONS:

1. B. Weeks, C. Durkan, H. Kuramochi, M. Welland, T. Rayment, '*In-situ* observation of the dry reforming process utilizing high pressure scanning tunnelling microscopy', 8th ICI Symposium on Catalytic Chemistry, May (1999)

2. B.L. Weeks, Z. Barber, M.E. Welland, T. Rayment, '*In-situ* high pressure high temperature scanning tunnelling microscopy', Abstracts of Papers of the American Chemical Society, S 219: U520-U521 Part 1 Mar 26 (2000)

3. B. Weeks, 'Applications of high pressure scanning tunneling microscopy', 9th ICI Symposium on Catalytic Chemistry, May (2000)

4. C. K. Saw, J. M. Zaug, D. L. Farber, B. L. Weeks, and C. M. Aracne, 'Using simultaneous time-resolved SHG and XRD diagnostics to examine phase transitions of HMX and TATB', 12th Biennial International Conference of the APS Topical Group on Shock Compression of Condensed Matter, June (2001)

5. B.L. Weeks, A. Noy, A.E. Miller, and J.J. De Yoreo, 'Importance of dissolution kinetics in dip-pen nanolithography' Abstracts of Papers of the American Chemical Society, June (2002)

6. C. Aracne, C.K. Saw, J.M. Zaug, D.L. Farber, and B.L. Weeks, 'Examining Structural Effects in HMX and TATB using Second Harmonic Generation and X-ray Diffraction', 12th International Detonation Symposium, August (2002)

7. J.J. De Yoreo, B.L. Weeks, A. Noy and C.A. Orme, 'AFM investigations of direct nucleation and growth', East West surface science workshop (2002), Pamporovo, Bulgaria

8. C.L. Cheung, J.A. Camarero, B.W. Woods, B.L. Weeks, A. Noy, J.J. DeYoreo, T.L. Lin and J.E. Johnson, 'Assembly of Oriented 2-D Protein and Virus Arrays', Abstracts of Papers of the American Chemical Society, March (2004)

9. B.L. Weeks and J.J. De Yoreo, 'Development of a micro-cantilever based pathogen detector' Abstracts of Papers of the American Chemical Society, March (2004)

11. J. Tringe, B. Hart, T. Sulchek and B. Weeks 'Silicon cantilever surfaces for electronic detection of DNA in liquid' Materials Research Society Spring Meeting, April (2004)

12. R. Pitchimani, W. Zheng, S. Simon, L. Hope-Weeks, A. Burnham and B. Weeks 'Thermodynamic analysis of pure and impurity doped pentaerythritol tetranitrate crystals grown at room temperature', 34th North American Thermal Analysis Society Conference, Bowling Green, KY, August 5-9, (2006)

13. B.R. Hart and B.L. Weeks, 'Development of chemical methods for surface functionalization and their application to microcantilever array-based sensors' SPIE, OpticsEast, October (2007)

14. O.A.Nafday, L.Cabrales and B.L.Weeks, "An atomic force microscope investigation of block copolymers", SPE International Polyolefins Conference, February (2007)

15. R. Pitchimani and B. Weeks 'AFM study of PETN thin film coarsening', –7th Annual meeting , NATEX, Dallas, TX, May 13 (2008)

16. G. Zhang, S. Bhattacharia and B. Weeks 'Kinetic Roughening of Organic Energetic Material Thin Films by AFM', AIChE Annual Meeting, 7-12 November (2010)

17. G. Zhang, S. Bhattacharia and B. Weeks 'Engineering High Explosives Performance by Controlling Cavities Structure', AIChE Annual Meeting, 7-12 November (2010)

18. X. Zhang, G.-X. Zhang, Y.-C. Liao and Brandon Weeks 'Embossing of Crystalline Organic Thin Films Using Micro-contact Printing (μ-CP): Applications on Energetic Materials', Materials Research Society Fall Meeting, November (2011)

RESEARCH GRANTS FUNDED:

1. "Resolving the complexities in hotspot formation of energetic materials" Office of Naval Research, $1,200,000, PI 03/01/11 to 12/30/15

2. "Hands on Explosives Training" Industrial Funding – Midwest Research Institute, $330,000, PI 04/15/10 to 6/15/11

3. "Modeling and Experimental Determination of Cellulose Degradation for production of Biofuels" NSF, $300,000 (CO-PI: $75,000) 09/01/09 to 08/31/14

4. "Awareness and Localization of Explosives and Related Threats" Department of Homeland Security, $640,000, PI 07/01/08 to 06/30/17

5. "CAREER: Understanding Nanoscale Properties of Energetic Materials" National Science Foundation, $400,000, PI 06/01/07 to 5/31/13

6. "STIR: Feasibility Study on Nanoscale Thermophysical Measurements on Polymer Blended Explosives" ARO, $25,000, PI 08/01/07 to 04/30/08

7. "Nanoscale Features in the Mechanochemistry of Energetic Materials" Office of Naval Research, $300,000, PI 07/01/06 to 10/31/10

8. "Cantilever Sensors" Department of Energy, Lawrence Livermore National Laboratory, $75,000, PI 12/20/05 to 12/31/07

9. "Chemical Processing of Particle Size Characterization for Energetic Materials" Applied Research Associates, $95,000, PI 12/15/06 to 12/14/07

10. "High-Pressure Scanning Tunneling Microscopy for In-Situ Studies of Catalysts' ACS-Petroleum Research Fund, $35,000, PI 09/01/06 to 08/31/09

11. "In-Situ Atomic Force Microscopy of PETN Crystal Growth and Coarsening" Department of Energy, LLNL $420,000, PI 04/01/05 to 09/01/08

EDUCATION GRANTS:

1. “REU Site: Micro and Nano Device Engineering” National Science Foundation, $90,000 (CO-PI: $8,900) 03/01/07 to 02/29/08