

CURRICULUM VITAE

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EDUCATION

Ph.D. Chemical Engineering, University of California, 1987
M.S. Chemical Engineering, Massachusetts Institute of Technology, 1982
B.S. Chemistry, Massachusetts Institute of Technology, 1982

PROFESSIONAL EXPERIENCE

Massachusetts Institute of Technology, Cambridge, MA
Alexander and I. Michael Kasser Professor of Chemical Engineering, 7-2006- present
Associate Director, Institute for Soldier Nanotechnology (ISN), 7/2005-present
Executive Officer, Department of Chemical Engineering, 7/2001-6/2004
Professor, 7/2000-present
Associate Professor, 7/93 to 2000
Assistant Professor, 9/87 to 6/93
GVD Corporation, Cambridge, MA
Co-founder and Chief Scientific Advisor, 5/2001-present
Exxon R&D Laboratories, Baton Rouge, LA, Summer Intern 1982
Corning Glass Work, Corning, NY, Summer Intern 1981
Union Carbide, Ambler, PA, Summer Intern 1980

HONORS

Chair, 5th International Hot-Wire Chemical Vapor Deposition, Cambridge, MA, August 2008
Donders Visiting Professorship Chair, Utrecht University, Netherlands, 2006
Keynote speaker, MURAI Workshop on Low k Dielectrics, Tsukuba, Japan, 2006
Excellence Award for Research in Manufacturing and Environment, Safety and Health; sponsored by Semiconductor Research Corporation and International SEMATECH, 2000
Tenth Annual Van Ness Award Lecturer, Rensselaer Polytechnic Institute, 2000
Keynote speaker, Dielectrics for ULSI Multilevel Interconnection, San Jose, CA 1999
Chair, Gordon Conference of Diamond Synthesis, Oxford UK, 1998
Esther and Harold E. Edgerton Career Development Professorship, 1991-95
National Science Foundation Presidential Young Investigators Award, 1990-95
Office of Naval Research Young Investigator Program, 1990-93
Herman P. Meissner Career Development Professorship in Chemical Engineering, 1987-90
Materials Research Society Graduate Student Award, 1986
Amoco Foundation Fellowship, 1982-85
NCAA Postgraduate Fellowship, 1982-83
MIT Outstanding Scholar Athlete, 1982
Warren K. Lewis Fellowship, 1981-1982
Corning's Women in Engineering Fellowship, 1981
Captain MIT Women's Swimming Team, 1980-82
All-American NCAA Division III Swimming, 1978-82
National Merit Scholarship, 1978
Westinghouse Science Talent Search Semifinalist, 1978

PUBLICATIONS

1. Lau, K.K.S. and Gleason, K.K.; *Thin Solid Films, Initiated chemical vapor deposition (iCVD) of copolymer thin films*, THIN SOLID FILMS 516, 678-680 (2008).
2. O'Shaughnessy, W.S.; Edell, D.J.; Gleason, K.K.; *Thin Solid Films, Initiated chemical vapor deposition of biopassivation coatings*, THIN SOLID FILMS 516, 684-686 (2008).
3. Lau, K.K.S.; Gleason, K.K.; *Applying HWCVD to particle coatings and modeling the deposition mechanism*, THIN SOLID FILMS 516, 674-677 (2008).
4. Martin, T.P.; Chan, K.; Gleason, K.K.; *Combinatorial initiated chemical vapor deposition (iCVD) for polymer thin film discovery*, THIN SOLID FILMS 516, 681-683 (2008).
5. Im, S.G.; Yoo, P.J. ; Hammond, P.T. ; Gleason, K.K. ; *Grafted Conducting Polymer Films for Nano-patterning onto Various Organic and Inorganic Substrates by Oxidative Chemical Vapor Deposition*, ADVANCED MATERIALS 19, 2863-2867 (2007).
6. S. O'Shaughnessy, S. Baxamusa, K.K.Gleason, *Additively Patterned Polymer Thin Films by Photo-Initiated Chemical Vapor Deposition (piCVD)* CHEMISTRY OF MATERIALS, 19, 5836-5838 (2007).
7. Chen, G.; Gupta M.; Gleason, K.K.; *Initiated Chemical Vapor Deposition of Poly(Furfuryl Methacrylate)*, MACROMOLECULAR RAPID COMMUNICATION 28, 1877-1882 (2007).
8. Lock, J.P.; Lutkenhaus. J.L.; Zacharia, N.S.; Im S.G.; Hammond, P.T.; and Gleason, K.K.; *Electrochemical Investigation of PEDOT Films Deposited via CVD for Electrochromic Applications*, SYNTHETIC METALS (in press).
9. S.G. Im and K.K. Gleason, *Systematic Control of the Electrical Conductivity of Poly (3, 4-ethylenedioxythiophene) via Oxidative Chemical Vapor Deposition (oCVD)*, MACROMOLECULES 40, 6552-6556 (2007).
10. S.G. Im and K.K. Gleason, *Doping level and work function control in oxidative chemical vapor deposited poly (3,4-ethylenedioxythiophene)*, APPL. PHYS. LETTS. 90, 152112 (2007).
11. T.P. Martin, K.L. Sedransk, K. Chan, S.H. Baxamusa, K.K. Gleason, *Solventless Surface Photoinitiated Polymerization: Grafting Chemical Vapor Deposition (gCVD)*, MACROMOLECULES 40(13), 4586-4591 (2007).
12. W.E. Tenhaeff, K.K. Gleason, *Initiated Chemical Vapor Deposition of Alternating Copolymers of Styrene and Maleic Anhydride*, LANGMUIR 23(12), 6624-6630 (2007).
13. K.K.S. Lau, K.K. Gleason, *All-Dry Synthesis and Coating of Methacrylic Acid Copolymers for Controlled Release*, MACROMOLECULAR BIOSCIENCE 7(4), 429-434 (2007).
14. T.P. Martin, S.E. Kooi, S.H. Chang, K.L. Sedransk, Gleason, K.K., *Initiated chemical vapor deposition of antimicrobial polymer coatings*, BIOMATERIALS 28(6), 909-915 (2007).
15. M. Ma, M. Gupta, Z. Li, L. Zhai, K.K. Gleason, R.E. Cohen, M.F. Rubner, G.C. Rutledge, *Decorated Electrospun Fibers Exhibiting Superhydrophobicity*, ADVANCED MATERIALS, 19(2), 255-259 (2007).

16. W. S. O'Shaughnessy, S. K. Murthy, D. J. Edell, and K. K. Gleason; *Stable Biopassive Insulation Synthesized by Initiated Chemical Vapor Deposition of Poly(1,3,5-trivinyltrimethylcyclotrisiloxane)* BIOMACROMOLECULES 8, 2564-2570 (2007).
17. O'Shaughnessy, W.S.; Mari-Buye, N.; Borros, S.; and Gleason, K.K.; *Initiated Chemical Vapor Deposition (iCVD) of a surface modifiable copolymer for covalent attachment and patterning of nucleophilic ligands.* MACROMOL. RAPID COMMUN. 28, 1877-1882 (2007).
18. Tyler P. Martin, Kenneth K.S. Lau, Kelvin Chan, Yu Mao, Malancha Gupta, W. Shannan O'Shaughnessy, Karen K. Gleason, *Initiated chemical vapor deposition (iCVD) of polymeric nanocoatings*, SURFACE AND COATINGS TECHNOLOGY, 201, 9400-9405 (2007).
19. Sung Gap Im, Elsa A. Olivetti and Karen K. Gleason, *Systematic control of the electrical conductivity of poly(3,4-ethylenedioxythiophene) via oxidative chemical vapor deposition (oCVD)*, SURFACE AND COATINGS TECHNOLOGY 201, 9406-9412 (2007).
20. R. Bakker, V. Verlaan, C.H.M. van der Werf, J.K. Rath, K.K. Gleason and R.E.I. Schropp, *Initiated chemical vapour deposition (iCVD) of thermally stable poly-glycidyl methacrylate*, SURFACE & COATINGS TECHNOLOGY 201 9422-9425 (2007).
21. Wyatt E. Tenhaeff and Karen K. Gleason, *Initiated chemical vapor deposition of perfectly alternating poly(styrene-alt-maleic anhydride)*, SURFACE AND COATINGS TECHNOLOGY 201, 9417-9421 (2007).
22. Kenneth K.S. Lau and Karen K. Gleason, *Particle functionalization and encapsulation by initiated chemical vapor deposition (iCVD)*, SURFACE AND COATINGS TECHNOLOGY, 201 ,9189-9194 (2007).
23. Choi, H-G.; Amara, J.P.; Martin, T.P.; Gleason, K.K.; Swager, T.M.; Jensen, K.F., *Structure and Morphology of Poly(isobenzofuran) Films Grown by Hot-filament Chemical Vapor Deposition*, CHEMISTRY OF MATERIALS 18, 6339-6344 (2006).
24. Martin, T.P.; Gleason, K.K., *Combinatorial Initiated CVD for Polymeric Thin Films*, CHEM. VAP. DEPOSITION 12, 685-691 (2006).
25. Chan, K.; Kostun, L.E.; Tenhaeff, W.E.; Gleason, K.K., *Initiated Chemical Vapor Deposition of Polyvinylpyrrolidone-Based Thin Films*, POLYMER 47, 6941-6947 (2006).
26. Gupta, M.; Gleason, K.K., *Large Scale Initiated Chemical Vapor Deposition of poly(glycidyl methacrylate)*, THIN SOLID FILMS 515, 1579-1584 (2006).
27. Lau, K.K.S.; Mao, Y.; Pryce Lewis, H.G.; Murthy, S.K.; Olsen, B.D.; Loo, L.S.; Gleason, K.K., *Polymeric nanocoatings by hot-wire chemical vapor deposition (HWCVD)*, THIN SOLID FILMS 501(1-2), 211-215 (2006).
28. M. Gupta and K.K. Gleason, *Initiated Chemical Vapor Deposition of Poly(1H, 1H, 2H, 2H-perfluorodecyl Acrylate) Thin Films*, LANGMUIR 22, 10047-10052 (2006).
29. John P. Lock, Sung Gap Im, and Karen K. Gleason, *Oxidative CVD of Electrically Conducting Poly(3,4-ethylenedioxythiophene)*, Macromolecules 2006, 39, 5326-5329
30. Kenneth K. S. Lau and Karen K. Gleason, *Particle Surface Design using an All-Dry Encapsulation Method*, Advanced Materials 2006, 18, 1972-1977

31. W. Shannan O'Shaughnessy, Meiling Gao, and Karen K. Gleason, Initiated CVD of Trivinyltrimethylcyclotrisiloxane for Biomaterials, *Langmuir* 2006, 22, 7021-7026
32. T.B. Casserly, K.K. Gleason, *Effect of substrate temperature on the plasma polymerization of poly(methyl methacrylate)*, *CHEMICAL VAPOR DEPOSITION* 1, 59 – 66 (2006).
33. K. Chan and K.K. Gleason, *Air-Gap Fabrication Using a Sacrificial Polymeric Thin Film Synthesized via Initiated Chemical Vapor Deposition*, *J. ELECTROCHEM. SOC.* 153, C223-C228 (2006).
34. K.K.S. Lau and K.K. Gleason, *Initiated Chemical Vapor Deposition (iCVD) of Poly(alkyl acrylates): A Kinetic Model*, *MACROMOLECULES*, 39, 3695-3303 (2006).
35. K.K.S Lau and K.K. Gleason, *Initiated Chemical Vapor Deposition (iCVD) of Poly(alkyl acrylates): An Experimental Study*, *MACROMOLECULES*, 39, 3688 -3694 (2006).
36. A.D. Ross and K.K. Gleason, *The CVD of Nanocomposites Fabricated via Ultrasonic Atomization*, *CHEMICAL VAPOR DEPOSITION*, 12(4), 225-230 (2006).
37. K. Chan and K.K. Gleason, *A Mechanistic Study of Initiated Chemical Vapor Deposition of Polymers: Analyses of Deposition Rate and Molecular Weight*, *MACROMOLECULES*, 39(11), 3890-3894 (2006).
38. Y. Mao and K.K. Gleason, *Vapor-Deposited Fluorinated Glycidyl Copolymer Thin Films with Low Surface Energy and Improved Mechanical Properties*, *MACROMOLECULES*, 39 (11), 3895 (2006).
39. Y. Mao, N. M. Felix, P. T. Nguyen, C. K. Ober, K. K. Gleason, *Positive- and Negative-Tone CVD Polyacrylic Electron-Beam Resists Developable by Supercritical CO₂*, *CHEMICAL VAPOR DEPOSITION*, 12(5) , 259 – 262 (2006).
40. Y. Mao, K.K. Gleason, *Positive-Tone Nanopatterning of Chemical Vapor Deposited Polyacrylic Thin Films*, *LANGMUIR*, 22(4), 1795 -1799, (2006).
41. Chan K, Gleason KK, *Photoinitiated chemical vapor deposition of polymeric thin films using a volatile photoinitiator*, *LANGMUIR*, 21(25), 11773-11779 (2005).
42. G.M. Poliskie, K.K. Gleason, *Stress relaxation of polyisoprene-laponite nanocomposites monitored by magic angle spinning ¹H NMR and optical microscopy*, *POLYMER COMPOSITES*, 26(6), 799-805 (2005).
43. T.B. Casserly and K.K. Gleason, *Enthalpies of Formation and Reaction for Primary Reactions of Methyl- and Methylmethoxysilanes from Density Functional Theory*, *PLASMA PROCESSES AND POLYMERS*, 2(9), 669-678 (2005).
44. T.B. Casserly and K.K. Gleason, *Chemical Vapor Deposition of Organosilicon Thin Films from Methoxysilane*, *PLASMA PROCESSES AND POLYMERS* 2(9), 679-698 (2005).
45. Ma, M.; Mao, Y.; Gupta, M.; Gleason, K. K.; Rutledge, G. C. *Superhydrophobic Fabrics Produced by Electrospinning and Chemical Vapor Deposition*, *MACROMOLECULES*; 2005; 38(23); 9742-9748.

46. G.M. Poliskie, T.S. Haddad, R.L. Blanski and K.K. Gleason, *Characterization of the phase transitions of ethyl substituted polyhedral oligomeric silsesquioxane*, THERMOCHIMICA ACTA, 438, 116 (2005).
47. K. Chan, K. K. Gleason, *Initiated CVD of Poly(methyl methacrylate) Thin Films*, CHEMICAL VAPOR DEPOSITION, 11, 437 (2005).
48. G.M. Poliskie, R.E. Cohen, K.K. Gleason, *Static uniaxial compression of polyisoprene-montmorillonite nanocomposites monitored by H-1 spin-lattice relaxation time constants*, JOURNAL OF APPLIED POLYMER SCIENCE 98(4), 1806-1813 (2005).
49. K. Chan, K.K. Gleason, *Initiated chemical vapor deposition of linear and cross-linked poly(2-hydroxyethyl methacrylate) for use as thin-film hydrogels*, LANGMUIR 21(19): 8930-8939 (2005).
50. D.K. Sparacin, C.Y. Hong, L.C. Kimerling, K.K. Gleason, *Trimming of microring resonators by photo-oxidation of a plasma-polymerized organosilane cladding material*, OPTICS LETTS. 30(17), 2251-2253 (2005).
51. T.B. Casserly, K.K. Gleason, *Density functional theory calculation of Si-29 NMR chemical shifts of organosiloxanes*, J. PHYS. CHEM. B, 109(28), 13605-13610 (2005).
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53. A.D. Ross, K.K. Gleason: *Effects of condensation reactions on the structural, mechanical, and electrical properties of plasma-deposited organosilicon thin films from octamethylcyclotetrasiloxane*: J. APPL. PHYS. 97, 113707 (2005).
54. A.D. Ross, K.K. Gleason, *Enhancement of mechanical properties of organosilicon thin films deposited from diethylsilane*, J. VACUUM SCI. TECHNOL. A, 23, 465-469 (2005).
55. J.P. Lock, K.K. Gleason, *Tunable waveguides via photo-oxidation of plasma-polymerized organosilicon films*, APPL. OPTICS, 44, 1691-1697 (2005).
56. P.Y. Mabboux, K.K. Gleason, *Chemical bonding structure of low dielectric constant Si : O : C : H films characterized by solid-state NMR*, J. ELECTROCHEM. SOC. 152, F7-F13 (2005).
57. S.K. Murthy, B.D. Olsen, K.K. Gleason, *Peptide Attachment to Vapor Deposited Polymeric Thin Films*, LANGMUIR, 20, 4774 (2004).
58. Y. Mao, K.K. Gleason, *Hot Filament Chemical Vapor Deposition of Poly(glycidyl methacrylate) Thin Films Using tert-Butyl Peroxide as an Initiator*, LANGMUIR, 20(6), 2484-2488 (2004).
59. L.S. Loo, K.K. Gleason, *Investigation of polymer and nanoclay orientation distribution in nylon 6 /montmorillonite nanocomposite*, POLYMER, 45(17), 5933-5939 (2004).
60. D.D. Burkey, K.K. Gleason, *Organosilicon Thin Films Deposited from Cyclic and Acyclic Precursors Using Water as an Oxidant*, J. ELECTROCHEM. SOC., 151(5) (2004).
61. Y. Mao, N.M. Felix, P.T. Nguyen, C.K. Ober, K.K. Gleason, *Towards all-dry lithography: Electron-beam patternable poly(glycidyl methacrylate) thin films from hot filament chemical vapor deposition*, J. VAC. SCI. & TECHNOL. B, 22(4), 2473 (2004).

62. S.K. Murthy, B.D. Olsen, K.K. Gleason, *Effect of filament temperature on the chemical vapor deposition of fluorocarbon-organosilicon copolymers*, J. APPL. POLY. SCI. 91(4), 2176 (2004) :
63. D.D. Burkey, K.K. Gleason, *Temperature-resolved Fourier transform infrared study of condensation reactions and porogen decomposition in hybrid organosilicon-porogen films*, J. VAC. SCI. & TECHNOL. A, 22(1), 61 (2004).
64. S.K. Murthy, K.K. Gleason, and D.J. Edell, *Vapor Deposition of Biopassivation Coatings for Neuroprostheses" in Neuroprosthetics: Theory and Practice* (ed. Horch, K. W. D., G., Eds.) (World Scientific, 2004). *book chapter*
65. Q. Wu, K.K. Gleason, *Plasma-enhanced chemical vapor deposition of low-k dielectric films using methylsilane, dimethylsilane, and trimethylsilane precursors*, J. VAC. SCI. & TECHNOL. A, 21(2), 388-393 (2003).
66. Q. Wu, K.K. Gleason, *Plasma-enhanced CVD of organosilicate glass (OSG) films deposited from octamethyltrisiloxane, bis(trimethylsiloxy)methylsilane, and 1,1,3,3-tetramethyldisiloxane*, PLASMAS AND POLYMERS, 8(1), 31-41 (2003).
67. L.S. Loo, K.K. Gleason, *Fourier transform infrared investigation of the deformation behavior of montmorillonite in nylon-6/nanoclay nanocomposite*. MACROMOLECULES, 36(8), 2587-2590 (2003).
68. L.S. Loo, K.K. Gleason, *Insights into structure and mechanical behavior of α and γ crystal forms of nylon-6 at low strain by infrared studies*. MACROMOLECULES, 36(16), 6114-6126 (2003).
69. J. Lin, S.K. Murthy, B.D. Olsen, K.K. Gleason, and A.M. Klibanov, A.M., *Making thin polymeric materials, including fabrics, microbicidal and also water-repellent*. BIOTECHNOLOGY LETTERS, 25(19), 1661-1665 (2003).
70. K.K.S. Lau, J. Bico, K.B.K. Teo, M. Chhowalla, G.A.J. Amaratunga, W.I. Milne, G.H. McKinley, and K.K. Gleason, *Superhydrophobic Carbon Nanotube Forest*, NANOLETTERS, 3(12), 1701-1705 (2003).
71. K.K.S. Lau, S.K. Murthy, H.G. Pryce Lewis, J.A. Caulfield, K.K. Gleason, *Fluorocarbon dielectrics via hot filament chemical vapor deposition*. J. FLUORINE CHEM., 122(1), 93-96 (2003).
72. D.D. Burkey, K.K. Gleason, *Structure and thermal properties of thin film poly(α -methylstyrene) deposited via plasma-enhanced CVD*, CHEMICAL VAPOR DEPOSITION, 9(2), 65-71 (2003).
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