Curriculum Vitae for Karen K. Gleason

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
- Associate Dean of Engineering for Research, 4/2008-present
- Alexander and I. Michael Kasser Professor of Chemical Engineering, 7/2006-present
- Associate Director, Institute for Soldier Nanotechnology (ISN), 7/2005-4/2008
- Executive Officer (vice-chair), 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 Conference on Hot-Wire Chemical Vapor Deposition, August 2008
Guest Editor of Special Issue on CVD of Polymeric Materials in *Chemical Vapor Deposition*
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

Professional Society Memberships:

American Chemical Society
American Institute of Chemical Engineers
Electrochemical Society
Materials Research Society

US Patents:

US Patent No. 5,888,591 (issued 03-30-1999)
Chemical Vapor Deposition of Fluorocarbon Polymer Thin Films

US Patent No. 6,153,269 (issued 11-28-2000)
Chemical Vapor Deposition of Fluorocarbon Polymer Thin Films: 1st divisional application

US Patent No. 6,156,435 (issued 12-05-2000)
Chemical Vapor Deposition of Fluorocarbon Polymer Thin Films: 2nd divisional application

US Patent No. 6,045,877 (issued 04-04-2004)
Pyrolytic Chemical Vapor Deposition of Silicone Films (with Michael C. Kwan)

U.S. Patent 6,887,578 (issued 05-03-2005)
Fluorocarbon-Organosilicon Copolymers and Coatings Prepared by Hot-Filament CVD (with Shashi K. Murthy)

U.S. Patent No. 6,509,138 (01021-2003)
Solventless, Resistless, Direct Dielectric Patterning (with Christopher K. Ober and Daniel Herr)

U.S. Patent No. 7,227,678 (issued 06-05-2007)
Air gaps for optical applications (with Leslie S. Loo and Lionel C. Kimerling)

U.S. Patent No. 7,190,871 (issued 03-13-2007)
Polysilane thin films for directly patternable waveguides

U.S. Patent No. 7,112,615 (issued 09-26-2006)
Porous material formation by chemical vapor deposition onto colloidal crystal

U.S. Patent No. 6,946,736 (issued 09-20-2005)
Electrical device including dielectric layer formed by direct patterning process

U.S. Patent Applications Published awaiting Review:

20070237947 Superhydrophobic fibers produced by electrospinning and chemical vapor deposition; Gleason; Karen K.; Rutledge; Gregory C. ; Gupta; Malancha; Ma; Minglin; Mao; Yu;

20070104860 Initiated chemical vapor deposition of vinyl polymers for the encapsulation of particles Gleason; Karen K.; Lau; Kenneth K.S.;

20070032620 Chemical vapor deposition of hydrogel films; Gleason; Karen K.; Chan; Kelvin;

20060269664 Oxidative chemical vapor deposition of electrically conductive and electrochromic polymers; Gleason; Karen K.; Lock; John;

20060228966 Chemical vapor deposition of antimicrobial polymer coatings; Gleason; Karen K.; Martin; Tyler Philip; Chan; Kelvin;

Publications in referred journals and as book chapters:

1. Tenhaeff W.E.;Gleason K.K.; Initiated and Oxidative Chemical Vapor Deposition of Polymeric Thin Films: iCVD and oCVD, ADVANCED FUNCTIONAL MATERIALS 18, 979–992 (2008, *invited feature article*)
2. Karaman M.; Kooi S.E.; and Gleason, K.K.; Vapor Deposition of Hybrid Organic–Inorganic Dielectric Bragg Mirrors having Rapid and Reversibly Tunable Optical Reflectance, CHEM. MATER. 20, 2262–2267 (2008).
3. Gupta, M; Kapur, V.; Pinkerton, N.M. ; Gleason, K.K. ; Initiated Chemical Vapor Deposition (iCVD) of Conformal Polymeric Nanocoatings for the Surface Modification of High-Aspect-Ratio Pores. CHEM. MATER. 20, 1646–1651 (2008).
4. Lee, L.H.; Gleason, K.K. ; Crosslinked Organic Sacrificial Materials for Air Gap Formation by Chemical Vapor Deposition Polymer, J. ELECTROCHEMICAL SOC. 155 4 G78-G86 (2008).
5. 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).
6. 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).
7. Lau, K.K.S.; Gleason, K.K.; Applying HWCVD to particle coatings and modeling the deposition mechanism, THIN SOLID FILMS 516, 674-677 (2008).
8. 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).
9. 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).
10. 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).
11. Chen, G.; Gupta M.; Gleason, K.K.; Initiated Chemical Vapor Deposition of Poly(Furfuryl Methacrylate), MACROMOLECULAR RAPID COMMUNICATION 28, 2205-2209 (2007).
12. 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 157, 894–898 (2007).
13. 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).
14. 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).
15. 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).
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17. 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).
18. 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).
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20. 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).
21. 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).
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26. 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).
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30. Gupta, M.; Gleason, K.K., Large Scale Initiated Chemical Vapor Deposition of poly(glycidyl methacrylate), THIN SOLID FILMS 515, 1579-1584 (2006).
31. 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).
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33. John P. Lock, Sung Gap Im, and Karen K. Gleason, Oxidative CVD of Electrically Conducting Poly(3,4-ethylenedioxythiophene), Macromolecules 2006, 39, 5326-5329
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35. W. Shannan O'Shaughnessy, Meiling Gao, and Karen K. Gleason, Initiated CVD of Trivinyltrimethylcyclotrisiloxane for Biomaterials, Langmuir 2006, 22, 7021-7026
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51. K. Chan, K. K. Gleason, Initiated CVD of Poly(methyl methacrylate) Thin Films, CHEMICAL VAPOR DEPOSITION, 11, 437 (2005).
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60. 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).
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63. L.S. Loo, K.K. Gleason, Investigation of polymer and nanoclay orientation distribution in nylon 6 /montmorillonite nanocomposite, POLYMER, 45(17), 5933-5939 (2004).
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