C. JEFFREY BRINKER

A. Professional Preparation

Institution	Major/Area	Degree & Year
Rutgers University, New Brunswick, NJ	Ceramic Science	B.S., 6/72 (with High Honors).
Rutgers University, New Brunswick, NJ	Ceramic Science	M.S., 12/75
Rutgers University, New Brunswick, NJ	Ceramic Science	Ph.D., 12/78; Thesis Topic: "Alkali Metal Corrosion of Glass"

B. Current Appointments

Distinguished and Regent's Professor
Departments of Chemical and Nuclear Engineering, Chemistry, Molecular Genetics and Microbiology, Co-Director Center for Micro-Engineered Materials
The University of New Mexico, Albuquerque, NM. 87131; 505-277-6266 (office); jbrinker@unm.edu

Sandia Fellow
Science and Technology Office
Sandia National Laboratories, 1001 University Blvd SE, Albuquerque, NM 87106. 505-272-7627 (office); 505-259-4182 (mobile)
cjbrink@sandia.gov

C. Appointments and Affiliations:

2010 – current: Member UNM Cancer Center
2008 - current: Distinguished Professor of Chemical and Biological Engineering and Molecular Genetics and Microbiology, the University of New Mexico (UNM), Albuquerque, NM. Highest UNM distinction. Research activities include self- and directed-assembly of 2D and 3D nanoscale materials and assemblies, molecular templating, atomic layer deposition, nano/micro/macro integration, and bio/nano interfaces.
2006-Current: Distinguished Affiliate Scientist at the Center for Integrated Nanotechnologies (CINT), a Department of Energy/Office of Science Nanoscale Science Research Center (NSRC).
2006–Current: Regent's Professor of Chemical and Biological Engineering and Molecular Genetics and Microbiology, UNM. Co-developed new graduate curriculum in nanoscience and Microsystems. Led statewide NSF EPSCOR program on nanoscience and nanotechnology.
2003–Current, Laboratory Fellow (1 of 4 among 10K employees), Sandia National Laboratories (SNL), Albuquerque, NM. Serves as resource for and provides guidance to SNL materials science and nanotechnology programs.
1999 – 2006, Professor of Chemistry and Chemical and Nuclear Engineering, UNM
1999 – 2003, Senior Scientist, Chemical Synthesis and Nanomaterials Department, SNL
1991 – 1999, Distinguished National Laboratory Professor of Chemistry and Chemical and Nuclear Engineering, UNM
1991 – 1998, Distinguished Member of the Technical Staff, Direct Fabrication Dept, SNL
1979 – 1991, Member of the Technical Staff, Chemistry and Ceramics Department, SNL

D. Highly Cited Books, Publications, Patents – Citations > 100 *(h-index = 90, Google Scholar)*

1. Brinker, C. J.; Scherer, G. W.: *Sol-Gel Science: The Physics and Chemistry of Sol-Gel Processing*; Academic Press, Inc: San Diego, CA, 1990. *11956 citations.*
2. Brinker, C. J.; Lu, Y. F.; Sellinger, A.; Fan, H. Y.: Evaporation-induced self-assembly: Nanostructures made easy. *Advanced Materials* **1999**, *11*, 579-585. *1495 citations.*
3. Lu, Y. F.; Ganguli, R.; Drewien, C. A.; Anderson, M. T.; Brinker, C. J.; Gong, W. L.; Guo, Y. X.; Soyez, H.; Dunn, B.; Huang, M. H.; Zink, J. I.: Continuous formation of supported cubic and hexagonal mesoporous films by sol gel dip-coating. *Nature* **1997**, *389*, 364-368. *1305 citations.*
4. Raman, N. K.; Anderson, M. T.; Brinker, C. J.: Template-based approaches to the preparation of amorphous, nanoporous silicas. *Chemistry of Materials* **1996**, *8*, 1682-1701. *783 citations.*

5. Lu, Y. F.; Fan, H. Y.; Stump, A.; Ward, T. L.; Rieker, T.; Brinker, C. J.: Aerosol-assisted self-assembly of mesostructured spherical nanoparticles. *Nature* **1999**, *398*, 223-226. *780 citations*.
6. Brinker, C. J.: Hydrolysis and Condensation of Silicates - Effects of Structure. *Journal of Non-Crystalline Solids* **1988**, *100*, 31-50. *671 citations.*
7. Brinker, C. J.; Keefer, K. D.; Schaefer, D. W.; Ashley, C. S.: Sol-Gel Transition in Simple Silicates. *Journal of Non-Crystalline Solids* **1982**, *48*, 47-64. *598 citations*.
8. Sellinger, A.; Weiss, P. M.; Nguyen, A.; Lu, Y. F.; Assink, R. A.; Gong, W. L.; Brinker, C. J.: Continuous self-assembly of organic-inorganic nanocomposite coatings that mimic nacre. *Nature* **1998**, *394*, 256-260. *496 citations.*
9. *Lu, Y. F.; Yang, Y.; Sellinger, A.; Lu, M. C.; Huang, J. M.; Fan, H. Y.; Haddad, R.;* Lopez, G.; Burns, A. R.; Sasaki, D. Y.; Shelnutt, J.; Brinker, C. J.: Self-assembly of mesoscopically ordered chromatic polydiacetylene/silica nanocomposites. *Nature* **2001**, *410*, 913-917. *469 citations.*
10. Brinker, C. J.; Keefer, K. D.; Schaefer, D. W.; Assink, R. A.; Kay, B. D.; Ashley, C. S.: Sol-Gel Transition in Simple Silicates. II. *Journal of Non-Crystalline Solids* **1984**, *63*, 45-59. *463 citations.*
11. Brinker, C. J.; Scherer, G. W.: Sol to Gel to Glass: I. Gelation and Gel Structure. *Journal of Non-Crystalline Solids* **1985**, *70*, 301-322. *450 citations.*
12. Lu, Y. F.; Fan, H. Y.; Doke, N.; Loy, D. A.; Assink, R. A.; LaVan, D. A.; Brinker, C. J.: Evaporation-induced self-assembly of hybrid bridged silsesquioxane film and particulate mesophases with integral organic functionality. *Journal of the American Chemical Society* **2000**, *122*, 5258-5261. *441 citations.*
13. Fan, H. Y.; Yang, K.; Boye, D. M.; Sigmon, T.; Malloy, K. J.; Xu, H. F.; Lopez, G. P.; Brinker, C. J.: Self-assembly of ordered, robust, three-dimensional gold nanocrystal/silica arrays. *Science* **2004**, *304*, 567-571. *423 citations.*
14. Fan, H. Y.; Lu, Y. F.; Stump, A.; Reed, S. T.; Baer, T.; Schunk, R.; Perez-Luna, V.; Lopez, G. P.; Brinker, C. J.: Rapid prototyping of patterned functional nanostructures. *Nature* **2000**, *405*, 56-60. *404 citations.*
15. Brinker, C. J.; Hurd, A. J.; Schunk, P. R.; Frye, G. C.; Ashley, C. S.: Review of Sol-Gel Thin-Film Formation. *Journal of Non-Crystalline Solids* **1992**, *147*, 424-436. *355 citations.*
16. Brinker, C. J.; Frye, G. C.; Hurd, A. J.; Ashley, C. S.: Fundamentals of Sol-Gel Dip Coating. *Thin Solid Films* **1991**, *201*, 97-108. *312 citations.*
17. Song, Y. J.; Yang, Y.; Medforth, C. J.; Pereira, E.; Singh, A. K.; Xu, H. F.; Jiang, Y. B.; Brinker, C. J.; van Swol, F.; Shelnutt, J. A.: Controlled synthesis of 2-D and 3-D dendritic platinum nanostructures. *Journal of the American Chemical Society* **2004**, *126*, 635-645. *279 citations.*
18. Ashley, C. E.; Carnes, E. C.; Phillips, G. K.; Padilla, D.; Durfee, P. N.; Brown, P. A.; Hanna, T. N.; Liu, J.; Phillips, B.; Carter, M. B.; Carroll, N. J.; Jiang, X.; Dunphy, D. R.; Willman, C. L.; Petsev, D. N.; Evans, D. G.; Parikh, A. N.; Chackerian, B.; Wharton, W.; Peabody, D. S.; Brinker, C. J.: The targeted delivery of multicomponent cargos to cancer cells by nanoporous particle-supported lipid bilayers. *Nat Mater* **2011**, *10*, 389-397. *269 citations.* (COVER with commentary: Irvine, D. J., One nanoparticle, one kill. *Nature Materials News & Views* **2011**, 10, 342).
19. Bhatia, R. B.; Brinker, C. J.; Gupta, A. K.; Singh, A. K.: Aqueous sol-gel process for protein encapsulation. *Chemistry of Materials* **2000**, *12*, 2434-2441. *267 citations.*
20. Liu, N. G.; Dunphy, D. R.; Atanassov, P.; Bunge, S. D.; Chen, Z.; Lopez, G. P.; Boyle, T. J.; Brinker, C. J.: Photoregulation of mass transport through a photoresponsive azobenzene-modified nanoporous membrane. *Nano Letters* **2004**, *4*, 551-554. *235 citations.*
21. Fan, H. Y.; Leve, E. W.; Scullin, C.; Gabaldon, J.; Tallant, D.; Bunge, S.; Boyle, T.; Wilson, M. C.; Brinker, C. J.: Surfactant-assisted synthesis of water-soluble and biocompatible semiconductor quantum dot micelles. *Nano Letters* **2005**, *5*, 645-648. *217 citations.*

22. Bein, T.; Brown, K.; Frye, G. C.; Brinker, C. J.: Molecular-Sieve Sensors for Selective Detection at the Nanogram Level. *Journal of the American Chemical Society* **1989**, *111*, 7640-7641. *207 citations.*
23. Tsai, C. Y.; Tam, S. Y.; Lu, Y. F.; Brinker, C. J.: Dual-layer asymmetric microporous silica membranes. *Journal of Membrane Science* **2000**, *169*, 255-268. *204 citations.*
24. Doshi, D. A.; Huesing, N. K.; Lu, M. C.; Fan, H. Y.; Lu, Y. F.; Simmons-Potter, K.; Potter, B. G.; Hurd, A. J.; Brinker, C. J.: Optically, defined multifunctional patterning *of* photosensitive thin-film silica mesophases. *Science* **2000**, *290*, 107-111. *184 citations.*
25. Brinker, C. J.; Sehgal, R.; Hietala, S. L.; Deshpande, R.; Smith, D. M.; Loy, D.; Ashley, C. S.: Sol-Gel *Strategies* for Controlled Porosity Inorganic Materials. *Journal of Membrane Science* **1994**, *94*, 85-102. *180 citations.*
26. *Better Ceramics Through Chemistry, Proceedings of the Materials Research Society Spring Meeting*; Brinker, C. J.; Clark, D. E.; Ulrich, D. R., Eds.; North-Holland: Albuquerque, NM, 1984. *178 citations.*
27. Raman, N. K.; Brinker, C. J.: Organic Template Approach to Molecular-Sieving Silica Membranes. *Journal of Membrane Science* **1995**, *105*, 273-279. *177 citations.*
28. Brinker, C. J.; Kirkpatrick, R. J.; Tallant, D. R.; Bunker, B. C.; Montez, B.: NMR Confirmation of Strained Defects in Amorphous Silica. *Journal of Non-Crystalline Solids* **1988**, *99*, 418-428. *169 citations.*
29. Brinker, C. J.; Harrington, M. S.: Sol-Gel Derived Antireflective Coatings for Silicon. *Solar Energy Materials* **1981**, *5*, 159-172. *167 citations.*
30. Prakash, S. S.; Brinker, C. J.; Hurd, A. J.: Silica Aerogel Films at Ambient-Pressure. *Journal of Non-Crystalline Solids* **1995**, *190*, 264-275. *152 citations.*
31. Bailey, J. K.; Brinker, C. J.; Mecartney, M. L.: Growth Mechanisms of Iron-Oxide Particles of Differing Morphologies from the Forced Hydrolysis of Ferric-Chloride Solutions. *Journal of Colloid and Interface Science* **1993**, *157*, 1-13. *151 citations.*
32. Liu, J. W.; Stace-Naughton, A.; Jiang, X. M.; Brinker, C. J.: Porous Nanoparticle Supported Lipid Bilayers (Protocells) as Delivery Vehicles. *Journal of the American Chemical Society* **2009**, *131*, 1354-1355. *149 citations*
33. Doshi, D. A.; Gibaud, A.; Goletto, V.; Lu, M. C.; Gerung, H.; Ocko, B.; Han, S. M.; Brinker, C. J.: Peering into the self-assembly of surfactant templated thin-film silica mesophases. *Journal of the American Chemical Society* **2003**, *125*, 11646-11655. *143 citations.*
34. Doshi, D. A.; Gibaud, A.; Goletto, V.; Lu, M. C.; Gerung, H.; Ocko, B.; Han, S. M.; Brinker, C. J.: Peering into the self-assembly of surfactant templated thin-film silica mesophases. *Journal of the American Chemical Society* **2003**, *125*, 11646-11655. *143 citations.*
35. Gibaud, A.; Grosso, D.; Smarsly, B.; Baptiste, A.; Bardeau, J. F.; Babonneau, F.; Doshi, D. A.; Chen, Z.; Brinker, C. J.; Sanchez, C.: Evaporation-controlled self-assembly of silica surfactant mesophases. *Journal of Physical Chemistry B* **2003**, *107*, 6114-6118. *135 citations.*
36. Truesdell, R.; Mammoli, A.; Vorobieff, P.; van Swol, F.; Brinker, C. J.: Drag reduction on a patterned superhydrophobic surface. *Physical Review Letters* **2006**, *97*. *134 citations.*
37. Gogte, S.; Vorobieff, P.; Truesdell, R.; Mammoli, A.; van Swol, F.; Shah, P.; Brinker, C. J.: Effective slip on textured superhydrophobic surfaces. *Physics of Fluids* **2005**, *17*, 51701. *134 citations.*
38. Brinker, C. J.; Ward, T. L.; Sehgal, R.; Raman, N. K.; Hietala, S. L.; Smith, D. M.; Hua, D. W.; Headley, T. J.: Ultramicroporous Silica-Based Supported Inorganic Membranes. *Journal of Membrane Science* **1993**, *77*, 165-179. *132 citations.*
39. Brinker, C. J.; Hurd, A. J.: Fundamentals of Sol-Gel Dip-Coating. *Journal De Physique III* **1994**, *4*, 1231-1242. *126 citations.*

40. Liu, N. G.; Chen, Z.; Dunphy, D. R.; Jiang, Y. B.; Assink, R. A.; Brinker, C. J.: Photoresponsive nanocomposite formed by self-assembly of an azobenzene-modified silane. *Angewandte Chemie-International Edition* **2003**, *42*, 1731-1734. *124 citations.*
41. Yang, Y.; Lu, Y. F.; Lu, M. C.; Huang, J. M.; Haddad, R.; Xomeritakis, G.; Liu, N. G.; Malanoski, A. P.; Sturmayr, D.; Fan, H. Y.; Sasaki, D. Y.; Assink, R. A.; Shelnutt, J. A.; van Swol, F.; Lopez, G. P.; Burns, A. R.; Brinker, C. J.: Functional nanocomposites prepared by self-assembly and polymerization of diacetylene surfactants and silicic acid. *Journal of the American Chemical Society* **2003**, *125*, 1269-1277. *122 citations.*
42. Fan, H. Y.; Bentley, H. R.; Kathan, K. R.; Clem, P.; Lu, Y. F.; Brinker, C. J.: Self-assembled aerogel-like low dielectric constant films. *Journal of Non-Crystalline Solids* **2001**, *285*, 79-83. *115 citations.*
43. Brinker, C. J.; Scherer, G. W.; Roth, E. P.: Sol to Gel to Glass: II. Physical and Structural Evolution During Constant Heating Rate Experiments. *Journal of Non-Crystalline Solids* **1985**, *72*, 345-368. *115 citations.*
44. Deshpande, R.; Hua, D. W.; Smith, D. M.; Brinker, C. J.: Pore Structure Evolution in Silica-Gel During Aging/Drying. III. Effects of Surface-Tension. *Journal of Non-Crystalline Solids* **1992**, *144*, 32-44. *113 citations.*
45. Brinker, C. J.; Hurd, A. J.; Frye, G. C.; Ward, K. J.; Ashley, C. S.: Sol-Gel Thin-Film Formation. *Journal of Non-Crystalline Solids* **1990**, *121*, 294-302. *113 citations.*
46. Collins, J. P.; Schwartz, R. W.; Sehgal, R.; Ward, T. L.; Brinker, C. J.; Hagen, G. P.; Udovich, C. A.: Catalytic dehydrogenation of propane in hydrogen permselective membrane reactors. *Industrial & Engineering Chemistry Research* **1996**, *35*, 4398-4405. *112 citations.*
47. Brinker, C. J.; Tallant, D. R.; Roth, E. P.; Ashley, C. S.: Sol-Gel Transition in Simple SIlicates: III. Structural Studies During Densification. *Journal of Non-Crystalline Solids* **1986**, *82*, 117-126. *112 citations.*
48. Liu, J. W.; Jiang, X. M.; Ashley, C.; Brinker, C. J.: Electrostatically Mediated Liposome Fusion and Lipid Exchange with a Nanoparticle-Supported Bilayer for Control of Surface Charge, Drug Containment, and Delivery. *Journal of the American Chemical Society* **2009**, *131*, 7567-7569. *107 citations*.
49. Clark, T.; Ruiz, J. D.; Fan, H. Y.; Brinker, C. J.; Swanson, B. I.; Parikh, A. N.: A new application of UV-ozone treatment in the preparation of substrate-supported, mesoporous thin films. Chemistry of Materials 2000, 12, 3879-3884. 106 citations.
50. Wang, D. H.; Luo, H. M.; Kou, R.; Gil, M. P.; Xiao, S. G.; Golub, V. O.; Yang, Z. Z.; Brinker, C. J.; Lu, Y. F.: A general route to macroscopic hierarchical 3D nanowire networks. Angewandte Chemie-International *Edition* **2004**, *43*, 6169-6173. *105 citations*.

Highly Cited Patents

1. Bein, T; Brown, KD, Frye, GC; Brinker, C.J. Molecular Sieve Sensors for Selective Detection at the Nanogram Level. US Patent 5,151,110, Sep 19, 1992. *2007 citations.*
2. Frye, GC; Brinker, CJ; Doughty, DH; Bein, T; Moller, K. Coatings with Controlled Porosity and Chemical Properties. US Patent 5,589,396, Dec 31, 1996. *123 citations.*
3. Deshpande, R; Smith, D; Brinker, CJ. Preparation of High Porosity Xerogels by Chemical Surface Modification. WO Patent 1,994,025,149, Nov 10, 1994. *112 citations.*
4. Anderson, MT; Brinker, CJ; Ganguli, R; Lu, Y. Process to form Mesostructured Aerogels. US Patent 5,858,457. Jan 12, 1999. *111 citations*.

E. Honors and Awards; Professional Societies; and Review and Advisory Committees:

Awards and Honors

- 1988 W.H. Zachariasen Award for best contribution to the glass literature 1985-87, awarded by the Journal of Non-Crystalline Solids.
- 1986 Department of Energy Basic Energy Sciences Award for Outstanding Scientific Accomplishment in Metallurgy and Ceramics
- 1993 Directeur de Recherche Universite Pierre et Marie Curie, Paris VI
- 1994 Department of Energy Basic Energy Sciences Award for Significant Implications for DOE Related Technologies in Metallurgy and Ceramics.
- 1995 Department of Energy Basic Energy Sciences Award for Sustained Outstanding Research in Metallurgy and Ceramics.
- 1996 American Chemical Society Ralph K. Iler Award in the Chemistry of Colloidal Materials.
- 1996 R&D 100 Award: Low Temperature/Pressure Aerogel Process
- 1996 Lockheed Martin NOVA Award
- 1998 Motorola/CMEM Research Mentorship Award
- 1998 Department of Energy Basic Energy Sciences Award for Outstanding Scientific Accomplishment in Metallurgy and Ceramics
- 2001 Collegiate Inventors Competition Award for Optically-Adjustable Nanostructures
- 2002 Elected to the National Academy of Engineering
- 2002 DOE Ernest O. Lawrence Memorial Award in Materials Science
- 2003 Materials Research Society MRS Medal
- 2005 University of New Mexico Research Excellence Award
- 2006 Directeur de Recherche Universite Pierre et Marie Curie, Paris VI
- 2006 Rutgers University Distinguished Alumnus Award
- 2007 R&D 100 Award: Self-Assembling Process for Fabricating Tailored Thin Films
- 2008 R&D100 Award: Patterned Superhydrophobic Surfaces
- 2008 Edward R. Orton Jr. Memorial Award, American Ceramic Society and ASM
- 2009 IBM Distinguished Lecturer in Materials Science and Engineering
- 2009 Named Fellow of the Materials Research Society
- 2010 Robert B. Sosman Award, American Ceramic Society
- 2011 R&D100 Award Biomimetic Water Purification Membranes
- 2012 Médaille du Collège de France, Paris
- 2012 Federal Laboratory Consortium, Notable Technology Development Award – Biomimetic Membranes
- 2013 Federal Laboratory Consortium, Outstanding Regional Partnership – UNM Health Sciences Center/Sandia National Laboratories Partnership
- 2014 Federal Laboratory Consortium, Notable Technology Development Award, Nano-Stabilized Enzymatic Membrane for CO2 Capture
- 2014 Elected to Board of Directors, Materials Research Society (3 year term)
- 2015 University of New Mexico STC, Innovation Fellow Award
- 2015 R&D100 Award – CO_2 Memzyme
- 2015 R&D 100's 'Green Technology Special Recognition Gold Award' for CO_2 Memzyme
- 2015 UNM Presidential Medal of Distinction
- 2015 Elected to the US National Academy of Inventors
- 2017 Life Time Achievement Award in Sol-Gel Science and Technology

Professional Societies and Review and Advisory Committees

- **Peer Review:** Editorial Boards for *J. Nanomaterials, J. Sol-Gel Science/Technology*; *Small*; *Current Opinion in Solid State and Materials Science*, A*CS Nano.* Editor: *Annual Review of Nanoresearch*.
- **Advisory Role:** Advisory Boards for International Workshop on Glasses and Ceramics from Gels; International Conference on Inorganic Membranes; International Conference on Multifunctional Hybrid and Nanomaterials (I-IV), International Symposium on Aerogels. Founder and Co-Organizer, Materials Research Symposium Series: *Better Ceramics Through Chemistry* I, II, III, IV, V, VI and *Organic/Inorganic Hybrid Materials* I, II, III. Member, Board of Directors, Materials Research Society
-
- **Federal Advisory Roles:** U.S. Air Force Scientific Advisory Board, Consultant; President's Council of Advisors on Science and Technology (PCAST), consultant; NSF National Nanoscience Initiative Review Panel; Brookhaven National Laboratory, Program Reviewer; DOE/BES Materials Sciences and Engineering Division Program Reviewer, Naval Research Laboratory, BioMolecular Materials Program Reviewer, BES Office of Science Committee of Visitors.
- **Honorary Affiliations:** Fellow American Ceramics Society, Fellow Materials Research Society, Directeur de Recherché Universite Pierre et Marie Curie, Paris VI, Member National Academy of Engineering, Member National Academy of Inventors.

F. Research Interests: Silica sol-gel chemistry, inorganic polymers, controlled porosity materials, fundamentals of film formation, defects in glasses and gels, novel inorganic materials, sensors, inorganic membranes, nanostructured/nanoconfined composites, aerogels, self-assembled structures, nanocrystals, bio-nano interfaces, superhydrophobicity, biomimicry and cell-based devices, drug delivery, vaccine development, sensors, atomic layer deposition, nanolithography

G. Research Focus and Related Professional Activities

- Brinker actively worked to involve chemists in ceramic science and engineering by creating the very successful Materials Research Society symposium series, Better Ceramics Through Chemistry, which ran biennially for fourteen years and recently spawned a successor series on Organic/Inorganic Hybrid Materials. Commenced in 1984, this was arguably the first symposium series to focus on 'bottom-up' assembly of nanostructured materials from molecular precursors and served as a primary basis for contemporary activities in nanotechnology.
- Brinker co-authored a textbook entitled, Sol-Gel Science: The Physics and Chemistry of Sol-Gel Processing (Academic Press, 1990), with George Scherer (Princeton University). This book has served as a valuable resource to the worldwide scientific community who are now working in this burgeoning field and remains the most highly cited textbook on sol-gel processing (over 10,000 copies sold).
- Brinker co-authored two chapters in Nanotechnology Research Directions for Societal Needs in 2020: Retrospective and Outlook, M.C. Roco, C.A. Mirkin, M.C. Hersam, eds. (October 2010): "Nanotechnology for Sustainability: Energy Conversion, Storage, and Conservation", with David Ginger and "Nanotechnology for Sustainability: Environment, Water, Food, Minerals, and Climate" with M. Diallo.
- Brinker pioneered so-called 'sol-gel processing' as a means of solution-based synthesis of a wide range of inorganic and composite nanomaterials. By combining sol-gel processing with molecular self-assembly, he pioneered powerful evaporation-induced self-assembly procedures (six Science and Nature papers), enabling the facile synthesis of highly ordered porous and composite nanostructured films and particles. During the past several years he used self-assembled porous nanoparticles in the development of the protocell (a nanoporous particle supported lipid bilayer)

as a universal targeted nanocarrier platform for selective delivery of multicomponent cargoes to cancer, a principle thrust area of the UNM Cancer Center and Health Sciences Research portfolios.

- Brinker's combined appointments at UNM School of Engineering, the UNM Cancer Center, Sandia National Labs, and the Center for Integrated Nanotechnologies (CINT) a DOE Office of Science Nanoscale Science Research Center provide a rich training environment and access to a vast array of nanofabrication and nano-characterization tools and platforms. He directs research concerning the fabrication and structural, chemical, and functional characterization of nanostructures with a specific aim to engineer and optimize their *in vivo* performance as nanocarriers.

H. Major Student/Post-doc Awards and Fellowships:

- **Terisse Brocato** (PhD student) School of Engineering Award – the Charlotte and William Kraft Graduate Fellowship, the University of New Mexico, 2013-2015
- **Paul Durfee** (MS 2013, PhD student) Best poster award "Size and Surface Engineered Mesoporous Nanoparticles Direct Altered Biodistribution and Clearance", P. Durfee, Y.S. Lin, J. Townson, J. Minster, C.J. Brinker. Rio Grande Symposium on Advanced Materials, RGSAM, October 2013, Albuquerque, NM
- **Paul Durfee** (MS 2013, PhD student) George D. Montoya Research Scholarship, the University of New Mexico, 2013
- **Paul Durfee** (MS 2013, PhD student) School of Engineering Award – the Charlotte and William Kraft Graduate Fellowship, the University of New Mexico, 2013-2014
- **Paul Durfee** (MS 2013, PhD student) Edmund J. and Thelma W. Evans Charitable Trust Scholarship, the University of New Mexico, 2012-2013.
- **Yu-Shen Lin** (U. Minnesota; post-doc) Center for Nanotechnology in Cancer Fellowship, the University of New Mexico, 2013-2014.
- **Jason Townson** (U. W. Ontario; post-doc) Junior Investigator Award, Gabrielle's Angels Foundation, 2012-2013.
- **Lauren Zarzar (**visiting graduate student, Harvard University) Akzo-Nobel Student Award, American Chemical Society, Denver, CO, August 28 – September 2, 2011. For work performed summers 2010-2011 while mentored by Bryan Kaehr, C. Jeffrey Brinker, published in *Angewandte Chemie*
- **David Padilla** (PhD student), Eric Carnes, Katie Epler, Robert Castillo, Genevieve Phillips, Jeff Brinker, Carlee Ashley, *The Selective Transfection of Hepatocellular Carcinoma Using Peptide Targeted Silica Nanoparticle-Supported Lipid Bilayers,* 23rd Rio Grande Symposium on Advanced Materials – RGSAM, Best Poster competition, 2nd place, Albuquerque, NM Oct 2011.
- **Mekensey Buley** (M.S. 2012) Graduate Research Fellowship (Nanoparticle Human Interactions), Sandia National Laboratories/University of New Mexico Excellence in Engineering Research Program, 2011-2012.
- **Carlee Ashley** (PhD May 2010), President Harry S. Truman Postdoctoral Fellowship, Sandia National Laboratories, 2010 – 2013.
- **Annikka Jensen** (PhD student), Integrated Graduate Education and Research Traineeship (IGERT) Fellowship in Integrating Nanotechnology with Cell Biology and Neuroscience, 2010-2012.
- **Carlee Ashley** (PhD May 2010), Outstanding Graduate student 2010, Chemical and Nuclear Engineering Department, the University of New Mexico.

- **Carlee Ashley** (PhD May 2010), Michael Gallegos Prize for Entrepreneurship, $25,000, University of New Mexico Technology Business Plan Competition, April 2010
- **Carlee Ashley** (PhD May 2010), Materials Research Society Graduate Student Silver award, December 2009
- **Carlee Ashley** (PhD May 2010), Mekensey Buley (MS 2013), D.S. Peabody, and C.J. Brinker. Materials Research Society Fall Meeting, *Targeted in-vitro Delivery of a Chemotherapeutic Agent to Human Hepatocarcinoma via a Bacteriophage Carrier*, Top Poster Award, Open competition (599 entries), Dec 2008.
- **Carlee Ashley** (PhD May 2010), Darren Dunphy, **Eric Carnes** (PhD 2008), D. Petsev, P. Atanassov, D.S. Peabody, and C. J Brinker, Materials Research Society Fall Meeting, *Self-Assembly of Well-Ordered, Close-Packed 2D Arrays of Recombinant Virus-Like Partiles that Nucleate the Growth of Inorganic Nanomaterials*, Top Ten Poster Award, Open competition (609 entries), December 2008.
- **Shisheng Xiong** (PhD Dec 2010), Y. Gao, J. Pang, John Grey, and C. J. Brinker. Materials Research Society Fall Meeting, *Functional Monolayer Nanoparticle/polymer Composites Formed by Evaporation Induced Self-Assembly at a Fluid Interface,* Top Ten Poster Award, Open competition (600 entries), Dec 2008.
- **Jennifer Pelowitz** (MS 2012), Integrated Graduate Education and Research Traineeship (IGERT) Fellowship in Integrating Nanotechnology with Cell Biology and Neuroscience, 2009-2011.
- **Patrick Johnson** (PhD student), Integrated Graduate Education and Research Traineeship (IGERT) Fellowship in Integrating Nanotechnology with Cell Biology and Neuroscience, 2008-2011
- **Adam Wise** (PhD 2012) Integrated Graduate Education and Research Traineeship (IGERT) Fellowship in Nanoscience and Microsystems, National Science Foundation, 2007-2010
- **Eric Carnes** (PhD July 2008), **Carlee Ashley** (PhD May 2010), NSF Ethics Fellows, the University of New Mexico, National Science Foundation Pilot Program between School of Engineering and Department of Philosophy graduate students to develop and team-teach *Engineering Ethics*, 2007-2008.
- **Carlee Ashley** (PhD May 2010), Integrated Graduate Education and Research Traineeship (IGERT) Fellowship in Nanoscience and Microsystems, National Science Foundation, 2006-2009
- **Ryan Molecke** (PhD 2011), Integrated Graduate Education and Research Traineeship (IGERT) Fellowship in Nanoscience and Microsystems, National Science Foundation, 2006-2009
- **Eric C. Carnes** (PhD 2008), 3rd Annual Symposium on Integrating Nanotechnology with Cell Biology and Neuroscience – INCBN IGERT, August 17-18, 2009, Albuquerque, NM, NSF IGERT Graduate Fellow Award
- **Eric Carnes** (PhD July 2008) Integrated Graduate Education and Research Traineeship (IGERT) Fellowship in Integrating Nanotechnology with Cell Biology and Neuroscience, National Science Foundation, 2006-2008
- **Cynthia M. Douthit** (undergrad Chem Eng), **Eric C. Carnes (**PhD 2008**)**, **Carlee Ashley** (PhD 2010), **DeAnna Lopez** (undergrad Chem Eng), **Alex Capecelatro** (visiting student, UCLA), and C. Jeffrey Brinker. CCMC Fall 2008 Industrial Advisory Board (IAB) and Technical Review Meeting, University of New Mexico, Albuquerque, NM, November 18–20, 2008. *Examining Integration Techniques using Living Yeast Cells into Self-Assembled Nanostructures*, 1st place, student poster competition.

- **DeAnna Lopez** (undergrad Chem Eng)**, Eric Carnes** (PhD 2008). Microscopy Facility Image Competition, Cancer Center Fluorescence Microscopy Facility, University of New Mexico, February 2008, Albuquerque, NM. First prize, Spectral Image category, Confocal microscope

image "Cells Take the Lead" in Life in Print, Science News Online, Jan 26, 2008, vol. 173, no. 4, p. 56.

- **Carlee Ashley*** (PhD 2010), **Eric Carnes** (PhD 2008), Landon White (undergrad Chem Eng), Zhen Yuan, Darren Dunphy, Dimiter Petsev, Plamen Atanassov, David Peabody, Jin Wang, and C. Jeffrey Brinker. New Mexico Chapter of the American Vacuum Society, Albuquerque, NM, May 22, 2007. ***Grazing Incidence Small Angle X-ray Scattering (GISAXS) Characterization of 2D Bacteriophage Arrays Deposited via Convective Assembly,*** First prize*, Graduate Student Oral Paper Competition (* all expenses paid trip to the AVS 54th International Symposium, Seattle, WA, October 14-19, 2007).

- **Carlee Ashley** (PhD 2010), **Eric Carnes** (PhD 2008), Helen Baca, Deanna Lopez (undergrad Chem Eng), Seema Singh, Jeff Brinker. Industrial Advisory Board Meeting of the UNM/Rutgers/Penn State Ceramic and Composite Materials Center (CCMC), March 13, 2007, Albuquerque, NM. *Cell-Directed Assembly of 3-D Bio-Nano Interfaces,* First Prize, Graduate student poster competition.

- **The Top 20 Most-Cited Papers in Materials Science**, 1996-2006. In-cites Essential Science Indicators, http://www.in-cites.com/papers/top20-mat-sci.html, November 2006, *Continuous formation of supported cubic and hexagonal mesoporous films by sol-gel dip-coating.* Lu Y.F. (PhD 1998), Ganguli, R. (MS 1997), Drewien, C.A., Anderson, M.T., Brinker, C.J., Gong, W.L., Guo, Y.X. Soyez, H., Dunn, B., Huang, M.H., Zink, J.I., NATURE, v. 389, pp. 364-368 (1997).

- **Helen K. Baca** (PhD 2005), Materials Research Society Student Gold Award, 2005

- **Helen Baca** (PhD 2005), DoD National Science and Defense Graduate Fellowship, 2001- 2003

- **Dhaval Doshi** (PhD 2002) Los Alamos National Laboratory Director's Postdoctoral Fellowship, 2002-2004

- **Dhaval Doshi** (PhD 2002), Collegiate Inventors Competition Award, *Optically-Adjustable Nanostructures*, 2001

- **Dhaval Doshi** (PhD 2002), Materials Research Society Student Gold Award, 2001 **Yunfeng Lu** (PhD 1998), Presidential Early Career Award for Scientists and Engineers (PECASE), 2005.

- **Mencheng Lu** (PhD 2001), Materials Research Society Best Poster Award, 1999

- **Hongyou Fan** (PhD 2000), Materials Research Society Student Silver Award, 2000

- **Hongyou Fan** (PhD 2000), University of New Mexico Chemical Engineering Alumni Award for Outstanding Graduate student, 2000

- **Yunfeng Lu** (PhD 1998), Materials Research Society Student Gold Award, 1999

- **Yunfeng Lu** (PhD 1998), American Chemical Society Unilever (Young Investigator) Award in Colloid and Surface Chemistry, 2005

- **Yunfeng Lu** (PhD 1998), 31st American Chemical Society Victor K. LaMer PhD Thesis Award in Colloid and Surface Chemistry, 2000

D. Student Awards

- Bouvie, C.; Epler, K.; Padilla, D.; Gomez, A.; Anderson, M.; Fleig, P.; Chackerian, B.; Brinker, C. J.; Ashley, C. E.; Carnes, E. C. Mesoporous Oxide Nanoparticles for Controlled Release and Targeted Delivery of Antigens., MRS Spring 2014 Meeting. Symposium Y: Biomaterials for Biomolecule Delivery and Understanding Cell-Niche Interactions., San Francisco, CA., April 2014. **Best Presentation Award**, MRS Symposium Y.

- David Padilla, Brian Wilkinson, Trevin Heisey, Cameron Burgard, Cody Wiley, Linda Felton, Jeffrey Brinker, and Eric Carnes, *Development of nanoporous particle-supported lipid bilayers (Protocells) for topical and transdermal delivery of various therapeutics*, Rio Grande Symposium on Advanced Materials – RGSAM, Best Poster competition, 1st place (Tie), Albuquerque, NM Oct 22, 2012

- David Padilla, Eric Carnes, Katie Epler, Robert Castillo, Genevieve Phillips, Jeff Brinker, Carlee Ashley, *The Selective Transfection of Hepatocellular Carcinoma Using Peptide Targeted Silica Nanopaarticle-Supported Lipid Bilayers,* Rio Grande Symposium on Advanced Materials – RGSAM, Best Poster competition, 2nd place, October 11, 2011, Albuquerque, NM

- D. Padilla, KE Epler, RE Castillo, G. Phillips, D. Wilkinson, C. Burgard, B. Wilkinson, N. Johannes, EC Carnes, CJ Brinker and CE Ashley, First prize, poster competition, *Development of Porous Nanoparticle-Supported Lipid Bilayers (Protocells) for Targeted-Gene Delivery*, American Vacuum Society, May 24, 2011, Albuquerque, NM,

- Katie Epler, 2011-2012 New Mexico Society of Professional Engineers – Albuquerque Chapter Scholarship by the New Mexico Engineering Foundation

- RE Castillo, KE Epler, D. Wilkinson, N. Johannes, A. Jensen, C.E. Ashley, E.C. Carnes and CJ Brinker, *Development of Porous Nanoparticle-Supported Lipid Bilayers (Protocells) for Targeted-Gene Delivery*, Rio Grande Symposium on Advanced Materials – RGSAM, Best Undergraduate Student Poster competition, 1st place, October 11, 2010, Albuquerque, NM

- Cynthia M. Douthit, Eric C. Carnes (PhD 2008), Carlee Ashley (PhD 2010), DeAnna Lopez, Alex Capecelatro, and C. Jeffrey Brinker. American Institute of Chemical Engineers - AIChE 2008 Annual Meeting, Philadelphia, November 16-21, 2008. *Examining Integration Techniques using Living Yeast Cells into Self-Assembled Nanostructures*, 2nd place, student poster competition.

- Alison Stace-Naughton, Dartmouth visiting undergrad (summer 2008, winter 2009; co-author JACS 2009 paper), Goldwater Fellowship, 2009-2011

- Eric Carnes (PhD 2008), Carlee Ashley (PhD 2010), DeAnna Lopez (Undergrad Chem Eng), Cynthia Douthit (Undergrad Chem Eng); Seema Singh; Darren Dunphy; C. Jeffrey Brinker. New Mexico Chapter of the American Vacuum Society, Albuquerque, NM, May 22, 2007. *Integration of Living Cells within Self-Assembled Nanostructures***,** First Prize, Undergraduate Student Poster Competition.

- Cynthia M. Douthit (undergrad Chem Eng), Eric C. Carnes (PhD 2008), Carlee Ashley (PhD 2010), DeAnna Lopez (undergrad Chem Eng), Shelly Karlin (undergrad Chem Eng), Jennifer Pelowitz (undergrad Chem Eng), Alex Capecelatro (undergrad UCLA), Darren Dunphy, Hattie Gresham, Graham Timmins, University of New Mexico, Albuquerque, New Mexico; and C. Jeffrey Brinker, Sandia National Laboratories, Albuquerque, New Mexico. Rio Grande Symposium on Advanced Materials -- RGSAM, October 9, 2007, Albuquerque, NM, *Integrating Living Yeast Cells into Patterned Self-Assembled Nanostructures*, First Prize, Undergraduate student poster competition

- David J. Kissel (PhD 2011), Daniel D. Gonzales (undergrad), The University of New Mexico, Albuquerque, NM; C. Jeffrey Brinker, Sandia National Laboratories, Albuquerque, NM. Rio Grande Symposium on Advanced Materials -- RGSAM, October 9, 2007, Albuquerque, NM. *High Precision Water Adsorption Behavior on a Variety of Surfaces and Materials Using Advanced Ultrasonic Techniques*, Second Prize, Undergraduate student poster competition.

- Andrew D. Collord (Undergrad Chem Engr) and Darren R. Dunphy, University of New Mexico, Albuquerque, NM; Michael Tate and Hugh Hillhouse, Purdue University, West Lafayette, IN; C. Jeffery Brinker, University of New Mexico, Albuquerque, NM and Sandia National Laboratories, Albuquerque, NM. Rio Grande Symposium on Advanced Materials -- RGSAM, October 9, 2007, Albuquerque, NM. *Structure and Aqueous Stability of Surfactant-Templated Porous Films Synthesized using a Hybrid Inorganic/Organic Sol-Gel Precursor*, Third Prize, Undergraduate student poster competition.

- Patrick Johnson (undergrad UCSD), Eric Branson (undergrad UNM), C. Jeffrey Brinker, and Seema Singh, Sandia National Laboratories' Student Symposium, Albuquerque, NM , August 2, 2007. Gecko Inspired Super Adhesives, First Prize, Undergraduate Student Poster Competition.

- DeAnna Lopez (Undergrad Chem Eng), Eric Carnes (PhD 2008), Carlee Ashley (PhD 2008), Cynthia Douthit (undergrad Chem Eng), Jennifer Pelowitz (undergrad Chem Eng), Shelly Karlin (undergrad Chem Eng), Anny Alsup, Hattie Gresham, Graham Timmins, Jeffrey Brinker. Sandia National Laboratories' Student Symposium, Albuquerque, NM , August 2, 2007. *Cell-to-cell communication among nano-confined cells in self-assembled matrices*, First Prize, Undergraduate Student Poster Competition.|

- Patrick Johnson (undergrad UCSD), Eric Branson (undergrad UNM), C. Jeffrey Brinker, and Seema Singh, Rio Grande Symposium on Advanced Materials – RGSAM, Albuquerque, NM , October 10, 2006. *Gecko Inspired Super Adhesives*, Third Prize, Undergraduate Student Poster Competition.

E. Invited Presentations (2001-2014)

1. Brinker, C. Jeffrey, Plenary Lecture: *Silica @ Cells: A Special Biotic/Abiotic Interface*, ACIN 2015 – New Era of Nanotechnology, Third International Conference on Advanced Complex Inorganic Nanomaterials (ACIN),13 - 17 July 2015, Namur, Belgium

2. Brinker, C. Jeffrey, *Modular Mesoporous Ssilica Nanoparticles (MSN) and MSN-Supported Lipid Bilayers (aka "Protocells") as Nanocarriers*, University of New Mexico Cancer Center, Sandia National Laboratories, and Los Alamos National Laboratory, Annual

Research Retreat, June 26, 2015, Albuquerque, NM

3. Townson JL, Lin Y-S, Durfee P, Ashley CE and Brinker C. Jeffrey, *Protocells: Mesoporous silica nanoparticle supported lipid bilayers for targeted delivery*, Fourth International Conference on Multifunctional Hybrid and Nanomaterials, Sitges/Barcelona, Spain, March 9-13, 2015 (Conference Organizing Committee, Session Chair, Featured Speaker)

4. Brinker, C. Jeffrey. *Peptide-Directed Protocells and Virus-Like Particles.* 2014 Principle Investigators Meeting, NCI Alliance for Nanotechnology in Cancer, Rockville, MD, October 1-3, 2014.

5. Brinker, C. Jeffrey. *Protocells for Synthetic Biology.* DOE Workshop on Dissipative Self-Assembly as a Foundation for Biomimetic Systems, Pittsburgh, PA, August 14-15, 2014.

6. Brinker, C. Jeffrey. *Protocells: Mesoporous silica nanoparticles encapsulated within synthetic or active cell membranes for drug delivery*, 5th Annual Nanotechnology for Health Care Conference, Winthrop Rockefeller Institute/University of Arkansas, Morrilton, AK, April 2-4, 2014.

7. Brinker, C. Jeffrey. Advancing the Frontiers of Science and Engineering, Sandia Fellows Symposium in Recognition of National Engineers' Week, Sandia National Laboratories, *Self-Assembly of Functional Nanostructures*, Albuquerque, NM, February 19, 2014.

8. Brinker, C. Jeffrey. University of Virginia School of Engineering, Mechanical and Aerospace Engineering, Fall 2013 Seminar Series. Silica @ Cells: A Special Interface, Charlottesville, VA, October 17, 2013.

9. Townson JL, Lin Y-S, Agola JO, Carnes EC, Leong HS, Lewis JD, Walker W, Willman CL, and Brinker, C. Jeffrey. *Re-Examining the Size/Charge Paradigm: Differing In Vivo Characteristics of Size and Charge-Matched Mesoporous Silica Nanoparticles*, NCI Alliance for Nanotechnology in Cancer, Bethesda, MD, Bethesda, MD, September 17-19, 2013.

10. Brinker, C Jeffrey. Colorado School of Mines, Metallurgical/Materials Engineering, Re- *Re-Examining the Size/Charge Paradigm: Differing In Vivo Characteristics of Size and Charge-Matched Mesoporous Silica Nanoparticles*, Golden, CO, Sep 11 2013

11. Brinker, C Jeffrey. *Sol-Gel Strategies for Optimized Hierarchical Materials,* Exxon Mobile, Houston, TX, June 28, 2013.

12. Brinker CJ, Ashley CE, Carnes CE, Kaehr BJ, Townson J. *Nano-Engineered Biotic/Abiotic Materials and Interfaces for Understanding and Controlling Biology and Disease.* Bottom-Up Approaches to Nanotechnology, Le Studium® Conference, Loire Valley Institute for Advanced Studies, Orléan, FR, May 29-31, 2013.

13. Brinker CJ, Carnes EC, Ashley CE, and Townson JL. *Protocells: Mesoporous Silica Supported Lipid Bilayers for Targeted Delivery of Multicomponent Cargos.* 254th American Chemical Society National Meeting – Division of Polymer Chemistry, Hybrid Materials Symposium. New Orleans, LA, April 7-11, 2013.

14. Brinker CJ, Townson JL, Kaehr BJ, Carnes EC, and Ashley CE. *Silica and Cells, A Special Relationship.* 254th American Chemical Society National Meeting – ACS Award in Colloid and Surface Chemistry: Symposium in Honor of Steve Granick. New Orleans, LA, April 7-11, 2013.

15. Townson J, Lin Yu-Shen, Ashley CE, Carnes EC, and Brinker CJ. *Protocells: Mesoporous Silica Nanoparticle. Supported Lipid Bilayers for Targeted Delivery of Multicomponent Cargos to Cancer.* Materials Research Society Spring 2013 meeting, Symposium MM: New Tools for Cancer Using Nanomaterials, Nanostructures, and Nanodevices. San Francisco, CA, April 1-5, 2013.

16. Brinker CJ, Ashley CE, Carnes EC, Kaehr BJ, Duphy DR, Townson JL. *Silica cells: A Special Hybrid Interface.* 3rd International Conference on Multifunctional, Hybrid and Nanomaterials, Sorrento, Italy, March 3-7, 2013.

17. Ashley, Carlee; Carnes, Eric; Epler, Katharine; Padilla, David; Townson, Jason; Wharton, Walker; and Brinker, C. Jeffrey. *Protocells: Mesoporous silica supported lipid bilayers for targeted delivery of multicomponent cargos to cancer.* Nanoscience and Nanotechnology for Health and Medicine, 224th ACS National Meeting, August 19-23, 2012, Philadelphia, PA.

18. Brinker, C. Jeffrey; Ashley, Carlee; Carnes, Eric; Kaehr, Bryan and Townson, Jason. *Silica and Cells: A special relationship,* XXI International Materials Research Congress, August 12-17, 2012, Cancun, Mexico.

19. Brinker, C. Jeffrey. *Silica and Cells: A special relationship,* Nippon Sheet Glass Lecture, University of California, July 19, 2012, Los Angeles, CA.

20. Brinker, C. Jeffrey. *Evaporation Induced Self-Assembly of Porous and Composite Nanostructures*, Chemistry of Hybrid Materials Guest Lecture, Collège de France, June 5, 2012, Paris, France.

21. Brinker, C. Jeffrey. *Protocells (Nanoporous Particle Supported Lipid Bilayers) for Targeted Drug Delivery*, Chemistry of Hybrid Materials Guest Lecture, Collège de France, June 12, 2012, Paris, France

22. Brinker, C. Jeffrey. *Replicating Cellular Life Forms in Silica*, Chemistry of Hybrid Materials Guest Lecture, Collège de France, June 19, 2012, Paris, France

23. Brinker, C. Jeffrey. *Biotic/Abiotic Materials: Behavior of Cells in Nanostructural Isolation*, Chemistry of Hybrid Materials Guest Lecture, Collège de France, June 26, 2012, Paris, France

24. Brinker, C. Jeffrey. *Engineered Biotic/Abiotic Materials and Interfaces for Understanding and Controlling Biology*, Materials Science and Engineering Seminar Series, Carnegie Mellon University, April 27, 2012, Pittsburgh, PA

25. Brinker, C. Jeffrey, Dunphy, Darren R., Jiang, Ying-Bing, and Chen, Zhu. E*vaporation-induced Self-assembly of Porous and Composite Thin Film Nanostructures,* Materials Research Society Spring 2012 Meeting, Solution Synthesis of Inorganic Films and Nanostructured Materials Symposium*,* April 9-13, 2012 San Francisco, CA .

26. Brinker, C. Jeffrey, Ashley, Carlee E., Carnes, Eric C., Castillo, Robert E., Epler, Katharine E., Padilla, David P., Townson, Jason L., and Wharton, Walker. *Protocells: Nanoporous Nanoparticle Supported Lipid Bilayers for Targeted Delivery of Multicomponent Cargos to Cancer*, Materials Research Society Spring 2012 Meeting, Hierarchically Self-assembled Materials–From Molecule to Nano and Beyond Symposium, April 9-13, 2012 San Francisco, CA.

27. Kaehr, Bryan J., Townson, Jason L, and Brinker, C Jeffrey. *Cell replication in silico*, American Chemical Society 2012 Annual Meeting, Self-Assembled Nanostructures of Biopolymers, Organic Semiconductors, and Inorganics Symposium, March 25-30, 2012, San Diego, CA.

28. Brinker, C. Jeffrey. *Protocells: Mesoporous Silica Supported Lipid Bilayers for Targeted Delivery of Multicomponent Cargos to Cancer,* Frontiers in Nanotechnology Seminar Series, Life and Biomedical Sciences, Northwestern University, March 16, 2012, Evanston, IL

29. Brinker, C. Jeffrey. *Engineered Biotic/Abiotic Materials and Interfaces for Understanding and Controlling Biology and Disease,* Department of NanoEngineerinng, Jacobs School of Engineering, University of California, March 7, 2012, San Diego, CA.

30. Brinker, C. Jeffrey. *Protocells: Mesoporous Silica Supported Lipid Bilayers for Targeted Delivery of Multicomponent Cargos to Cancer,* 2012 Nanobiotechnology Seminar Series, Stanford School of Medicine, March 6, 2012, Palo Alto, CA.

31. Brinker, C. Jeffrey. *Engineered Biotic/Abiotic Materials and Interfaces for Understanding and Controlling Biology and Disease,* Department of Chemical and Environmental Engineering Seminar series, University of California, January 27, 2012, Riverside, CA

32. Jiang, Ying-Bing, Yang S, Rogers, D, Leung, K, and Rempe S. *Merging Self-Assembly with Atomic Layer Deposition to Mimic Biological Water Purification Membranes*. Materials Research Society Fall Meeting, Water Purification and Separation Symposium, November 28 – December 2, 2011, Boston, MA.

33. Brinker, C Jeffrey. *Cell and Protein Directed Sol-Gel Processing of Biotic-Abiotic Interfaces and Architectures*, 16th Annual International Sol-Gel Conference, August 28 - September 2, 2011, Hangzhou, China.

34. Brinker, C. Jeffrey. *Less is More: Achieving Complex Functionality in Simple Porous Nanoparticles*, 1st Gordon Conference on Cancer Nanotechnology, Colby College, Waterville, ME, July 17-22, 2011

35. Brinker, C. Jeffrey. *Evaporation-Induced Self-Assembly of Nanoporous Materials*, Gordon Conference on Nanoporous Materials and Their Applications, Holderness School, August 7-12, 2011, Holderness, NH

36. Brinker, C. Jeffrey, *Uses of Mesoporous Hybrids for Nanomedicine*, invited tutorial, Hybrid Materials 2011, Second International Conference on Multifunctional, Hybrid and Nanomaterials, March 6-10, 2011, Strasbourg, FR

37. Brinker, C. Jeffrey, Ashley, C.E., Carnes, E.C., Khripin, C., Kaehr, B.J. *Directing Sol-Gel Processing with Proteins and Living Cells*. Robert B. Sosman Award Lecture, American

Ceramics Society, Materials Science and Technology 2010 Conference, October 17-21, 2010, Houston, TX.

38. Brinker, C. Jeffrey. *Engineered Biotic/Abiotic Materials and Interfaces for Understanding and Controlling Biology*, Karolinska Institutet, Swedish Medical Nanoscience Center, Sept 7, 2010, Stockholm, Sweden

39. Brinker, C.Jeffrey. *Engineered Biotic/Abiotic Materials and Interfaces for Understanding and Controlling Biology*, Plenary lecture, XIX International Materials Research Congress 2010, August 15-19, 2010, Cancun, Mexico

40. Brinker, C. Jeffrey. *Engineered Biotic/Abiotic Materials and Interfaces for Understanding and Controlling Biology,* Center for Nanoscience – CeNS, University of Munich, July 21, 2010, Munich Germany

41. Brinker, C. Jeffrey, Ashley, C.E., Carnes, E.C., Kaehr, B.J. *Engineered Biotic/Abiotic Materials and Interfaces for Understanding and Controlling Biology*, California NanoSystems Institute - CNSI, University of California, April 23, 2010, Los Angeles, CA.

42. Brinker, C. Jeffrey. *Merging Evaporation-induced Self-assembly With Plasma-directed Atomic Layer Deposition to Fabricate Natural Designs in Silica*, Materials Research Society Spring meeting, Novel Assembly Methods, Structures and Properties Symposium, April 5-9, 2010, San Francisco, CA.

43. Brinker, C. Jeffrey. *Protocells-A Universal Nanocarrier for Targeted Delivery of Multicomponent Cargos to Cancer.* NIH 4th Annual NDC Awardee Meeting, April 5-8, 2010, Pacific Grove, CA.

44. Brinker, C. Jeffrey. *Biotic/Abiotic Interfaces, Materials, and Architectures.* Vanderbilt University Department of Chemical & Biomolecular Engineering, February, 22, 2010, Nashville, TN.

45. Brinker, C. Jeffrey. *Protocells – A Universal Nanocarrier for Targeted Delivery of Multicomponent Cargos to Cancer,* Medtronic, February 9, 2010, Minneapolis, MN.

46. Brinker, C. Jeffrey. *Keynote talk: Protocells – A Universal Nanocarrier for Targeted Delivery of Multicomponent Cargos to Cancer,* Nanomedicine and Molecular Imaging Summit – SNM Molecular Imaging Center of Excellence, January 31-February 2, 2010, Albuquerque, NM.

47. Brinker, C. Jeffrey. *Metabolically and Optically Defined Lithography Using Living Cells – A New Platform for Cellular Integration.* Chemical and Biological Defense Science and Technology (CBD S&T) Conference, November 16-20, 2009, Dallas, Texas.

48. Brinker, C. Jeffrey. *Sol-Gel Strategies for Optimized Hierarchical Materials*, 2009 AIChE Annual Meeting, Plenary Session for Stine Award, November 9-13, 2009, Nashville, TN.

49. Brinker, C. Jeffrey (E.C. Carnes, co-author). *Metabolically and Optically Defined Lithography Using Living Cells,* 13th International Conference on Surface and Colloid Science - 83rd ACS Colloid and Surface Science Symposium, June 14-19, 2009, Columbia University, New York, NY.

50. Brinker, C. Jeffrey. *Sol-Gel Strategies for Optimized Hierarchical Materials.* Materials Research Society Spring Meeting, Architectured Multifunctional Materials Symposium, April 12-17, 2009, San Francisco, CA.

51. Brinker, C. Jeffrey. *Metabolically and Optically Defined Lithography using Living Cells.* 237th ACS National Meeting. Chemical Methods of Nanofabrication Symposium, March 23, 2009. Salt Lake City, UT.

52. Brinker, C. Jeffrey. *Evaporation-Induced Self-Assembly of Porous and Composite Nanostructures and New Bio-Nano Interfaces.* Renesselaer Polytechnic Institute, IBM Distinguished Lecture, February 4, 2009. Troy, NY.

53. Brinker, C. Jeffrey. *Biomimetic and Bioinspired Strategies for Drug Delivery with Nanoparticles.* 2009 Bioscience and Technology Forum, Sandia National Laboratories. January 26, 2009. Albuquerque, NM.

54. Brinker, C. Jeffrey. *Evaporation-Induced Self-Assembly of Porous and Composite Nanostructures,* Materials Research Society Fall 2008 Meeting, Low-Cost Solution-Based Deposition of Inorganic Films for Electronic/Photonic Devices Symposium, December 1-5, 2008. Boston, MA.

55. Brinker, C. Jeffrey. *Evaporation-Induced Self-Assembly at Solid and Fluid Interfaces and Its Extension to Cell-Directed Assembly.* Materials Research Society Fall 2008 Meeting, Grazing-Incidence Small-Angle X-Ray Scattering Symposium, December 1-5, 2008. Boston, MA.

56. Brinker, C. Jeffrey. *Directing the Assembly of "Sol-Gel" Silica Films with Living Cells*, Symposium International en l'honneur de Jacques Livage, College de France, November 18, 2008, Paris, France.

57. Brinker, C. Jeffrey. *Evaporation-Induced Self-Assembly of Porous and Composite Thin film Nanostructures*, Departments of Chemical Engineering and Materials Science and Engineering, Lehigh University, October 24, 2008, Bethleham, PA.

58. Brinker, C. Jeffrey. *Sol-Gel Processing – A Retrospective and Perspective,* Edward Orton Jr. Memorial Lecture, American Ceramics Society 110th Annual Meeting, October 5-9, 2008. Pittsburgh, PA.

59. Brinker, C. Jeffrey. *Evaporation-Induced Self-Assembly of Porous and Composite Thin Film Nanostructures,* Skip Scriven Memorial Lecture, International Society of Coating Science and Technology, September 7-10, 2008, Marina del Rey, CA.

60. Brinker, C. Jeffrey. *Evaporation Induced Self-Assembly of Porous and Composite Nanostructures and New Bio-Nano Interfaces* Jacob J. Bikerman Lecture, Case Western Reserve University Department of Chemical Engineering, April 14, 2008, Cleveland, OH.

61. Brinker, C. Jeffrey. Gordon Conference on Composites. *Self-Assembly of Nanostructures*, January 17, 2008. Ventura, CA.

62. Brinker, C. Jeffrey. Argonne National Laboratory/Advanced Photon Source Basic Energy Sciences Operational Review, *Directing the Assembly of Nanostructured Films with Living Cells*,

December 12, 2007. Argonne, IL.

63. Brinker, C. Jeffrey. HK IAS – US ICMR Workshop on Advanced Materials, *Directing the Assembly of Nanostructured Films with Living Cells*, HKUST, September 12-15, 2007. Hong Kong.

64. Brinker, C. Jeffrey. XIVth International Sol-Gel Conference**.** Invited Tutorial: Sol-Gel *Structure Formation: Disordered and Ordered*, September 2-7, 2007. Montpelier, FR.

65. Brinker, C. Jeffrey. XIVth International Sol-Gel Conference **.** *Directing the Self-Assembly of Nanostructured Sol-Gel Films with Living Cells*, September 2-7, 2007. Montpelier, FR.

66. Brinker, C. Jeffrey. Institute of Materials Research and Engineering (IMRE), *Evaporation Induced Self-Assembly of Functional Nanostructures,* August 16, 2007. Singapore

67. Brinker, C. Jeffrey. SBE 3rd International Conference on Bioengineering and Nantechnology, *Symbiotic Assembly of Bio/Nano Interfaces and Architectures*, August 12-15, 2007. Biopolis, Singapore.

68. Brinker, C. Jeffrey. Department of Chemical and Environmental Engineering, University of California – Riverside, *Evaporation Induced Self-Assembly and its Extension to Living Cell-Directed Assembly of Novel Bio/Nano Interfaces,* June 1, 2007. Riverside, CA.

69. Brinker, C. Jeffrey. Argonne National Laboratory, *Directing the Assembly of Nanostructured Films with Living Cells*, May 29, 2007. Argonne, IL.

70. Brinker, C. Jeffrey. Materials Research Society Spring Meeting, Symposium S: Synthesis, Processing and Properties of Organic/Inorganic Hybrid Materials. *Evaporation-induced self-assembly of porous and composite nanostructures*, April 10, 2007. San Francisco, CA.

71. Brinker, C. Jeffrey. Cabot Corporation, *Evaporation-Induced Self Assembly (EISA) of Porous and Composite Nanostructures,* . March 30, 2007. Billerica, MA

72. Brinker, C. Jeffrey. Spring 2007 Meeting of the American Physical Society, *Directing the Assembly of Nanostructured Films with Living Cells,* March 5-9, 2007. Denver, CO.
73. Brinker, C. Jeffrey. . University of Washington, Department of Chemistry, *Evaporation-Induced Self-Assembly (EISA) of Porous and Composite Nanostructures*, February, 16, 2007, Seattle, WA.

74. Brinker, C. Jeffrey. Macromolecular Science and Engineering Symposium, University of Michigan, *Evaporation-Induced Self-Assembly of Porous and Composite Nanostructures*, October 26, 2006. Ann Arbor, MI.

75. Brinker, C. Jeffrey. 2006 International Institute for Nanotechnology Symposium, Northwestern University, *Evaporation Induced Self-Assembly of Functional Nanostructures*, October 11-12, 2006. Evanston, IL.

76. Brinker, C. Jeffrey. Argonne National Laboratory, Dedication of Argonne's Center for Nanoscale Materials, *Evaporation-Induced Self-Assembly of Porous and Composite Thin Film Nanostructures*, September 19, 2006. Argonne, IL.

77. Brinker, C. Jeffrey. Northwestern University, Materials Science Department, *Symbiotic Assembly of Bio/Nano Interfaces and Architectures*, Evanston, IL.

78. Brinker, C. Jeffrey. . 232nd American Chemical Society National Meeting & Exposition, *Bridging the Gap: Observation of Ultra Long Range Hydrophobic Interactions,* September 18, 2006. September 10-14, 2006, San Francisco, CA.

79. Brinker, C. Jeffrey, St. Gobain Céramiques Avancées Desmarquest, *Surfactant-Directed and Living Cell-Directed Assembly of Porous and Composite 3-D Nanostructures,* June 2006, Montreuil, Cedex, France..

80. Brinker, C. Jeffrey, Université Pierre et Marie Curie, *Surfactant-Directed and Living Cell-Directed Assembly of Porous and Composite 3-D Nanostructure,* Paris, June 2006, Cedex, France

81. Brinker, C. Jeffrey, Materials Research Society Spring Meeting. *Bio-Inspired Self-Assembly of Synthetic Water Channels*, April 17-21, 2006, San Francisco, CA.

82. Brinker, C. Jeffrey, Distinguished Alumnus Award Address, *Evaporation Induced Self-Assembly of Porous and Composite Nanostructures,* Rutgers University, March 3, 2006, New Brunswick, NJ

83. Brinker, C. Jeffrey, Materials Research Society Multifunctional Ceramic Composites Workshop. *Bio-Inspired Self-Assembly of Porous and Composite 3D Nanostructures*, Beckman Institute, University of Illinois at Urbana-Champaign, October 3-5, 2005, Urbana, IL.

84. Brinker, C. Jeffrey. 13th International Workshop on Sol-Gel Science and Technology. *Complex Structures and Functions through Cell-Directed Assembly*, August 21-26, 2005, Los Angeles, CA.

85. Brinker, C. Jeffrey. NACE – Corrosion 2005. *Self-Assembly of Responsive Nanostructured Particles and Films for Smart Coatings*, April 3-7, 2005. Houston, TX.

86. Brinker, C. Jeffrey. Materials Research Society Spring Meeting, Self-Organizing Systems in Multifunctional Nanomaterials and Nanostructures Symposium, *Cell-Directed Assembly of the Bio-Nano Interface*, March 28 – April 1, 2005, San Francisco, CA.

87. Brinker, C. Jeffrey. 229th American Chemical Society Meeting, *Evaporation-Induced Self-Assembly of Porous, Composite and Biocompatible Thin Film Nanostructures*, March 13-17, 2005. San Diego, CA.

88. Brinker, C. Jeffrey. AAAS Annual Meeting, *Bio-Inspired Self-Assembly of Porous and Composite Nanostructures*, February 17-21, 2005. Washington, DC.

89. Brinker, C. Jeffrey. AFOSR Biomimetics, Biomaterials and Biointerfacials Sciences Program Review, *Bio-Inspired Self-Assembly of Porous and Composite Nanostructures*, January 16-21, 2005. San Diego, CA.

90. Brinker, C. Jeffrey. North Carolina State University, Department of Chemical Engineering. , *Evaporation-Induced Self-Assembly of Porous and Composite Thin film Nanostructures*,. September 20-21, 2004. Raleigh, NC.

91. Brinker, C. Jeffrey. ICI Small-Scale Structures Workshop, *Evaporation-Induced Self-Assembly of Porous and Composite Thin film Nanostructures*, September 17, 2004, Somerset, NJ.

92. Brinker, C. Jeffrey. Workshop on Membrane Science, Argonne National Laboratories Advanced Photon Source, *Evaporation-Induced Self-Assembly of Porous and Composite Thin film Nanostructures,* August 17-18, 2004. Argonne, IL.

93. Brinker, C. Jeffrey. 2nd IUPAC International Symposium on Macro- and Supra-Molecular Architecture and Materials (MAM-04), *Evaporation-Induced Self-Assembly of Porous and Composite Thin film Nanostructures,* June 13-17, 2004. Missoula, MT.

94. Brinker, C. Jeffrey. Symposium and Workshop on Mesoporous Crystals and Related Nanostructured Materials, *Evaporation-Induced Self-Assembly of Porous and Composite Nanostructures*, June 1-5, 2004, Stockholm, Sweden.

95. Brinker, C. Jeffrey. Stanford University, Department of Materials Science and Engineering, *Evaporation-Induced Self-Assembly of Porous and Composite Thin film Nanostructures,* April 29, 2004, Palo Alto, CA.

96. Brinker, C. Jeffrey. Particles 2004 Symposium, (KEY NOTE) *Evaporation Induced Self-Assembly of Nanocomposite Particles, Films, and Arrays,* March 6-9, 2004, Orlando, FL.

97. Brinker, C. Jeffrey., MRS Gold Medal Lecture, Materials Research Society Fall Meeting, *Self-Assembly of Biologically Inspired Complex Functional Materials,* December 1-5, 2003, Boston, MA.

98. Brinker, C. Jeffrey. 7th International Symposium on Aerogels – ISA7, *Collossal Slip on Superhydrophobic Aerogel Surfaces*, November 2-5, 2003, Alexandria, VA.

99. Brinker, C. Jeffrey. Departments of Chemical and Materials Engineering, Arizona State University, *Self-Assembly of Biologically Inspired Complex Functional Materials,* September 5, 2003. Tempe, AZ.

100. Brinker, C. Jeffrey. XII International Workshop on Sol-Gel Science and Technology, (PLENARY LECTURE) *Sol-Gel Processing of Complex Functional Materials Emulating Nature,* August 25 -29, 2003, Sydney, Australia.

101. Brinker, C. Jeffrey. Lane Lecture, Departments of Materials Science and Engineering and Chemistry, University of Illinois Champaign, *Self-Assembly of Bio-Inspired Nanostructures,* April 7, 2003, Champaign IL.

102. Brinker, C. Jeffrey. Hollingsworth Lectureship in Engineering, Departments of Chemical and Mechanical Engineering, University of Texas*, Multi-Scale Self-Assembly and Patterning of Functional Nanostructures,* February 10, 2003, Austin TX.

103. Brinker, C. Jeffrey. First World Congress on Biomimetics and Artificial Muscles, Artificial Muscle Research Institute, NASA Langley Research Center, Santa Fe Science and Technology, Inc., Sony Corporation, Frontier Science Laboratories and Digital Creatures Laboratories. *Multi-Scale Self-Assembly and Patterning of Functional Hybrid Nanostructures*. Dec. 12, 2002, Albuquerque NM.

104. Brinker, C. Jeffrey. MRS Fall Meeting-Surfaces, Interfaces and Membranes: Symposium AA Membranes-Preparation, Properties and Applications. *Hybrid Amine-Functional Membrane for CO2 Separation*. Dec. 2-6, 2002, Boston MA.

105. Brinker, C. Jeffrey. KEYNOTE address at *XIII International Symposium on Organosilicon Chemistry, Self-Assembly of Functional Hybrid Organosilicate Nanostructures*. University of Guanajuato, Aug. 28, 2002, Guanajuato, Mexico.

106. Brinker, C. Jeffrey. ACS National Meeting*, Multi-Scale Self-Assembly and Patterning of Functional Hybrid Nanostructures*, Aug. 19, 2002, Boston, MA

107. Brinker, C. Jeffrey. AFOSR/UES, Inc., Workshop on Nanoscale Approaches to Multifunctional Coatings, *Opportunities for Nano-Structured 'Sol-Gel' Derived Materials in Corrosion Inhibition*, Aug. 12, 2002, Keystone, CO

108. Brinker, C. Jeffrey. 47th Annual International Symposium on Optical Science and Technology, *Optically Active and Optically Activated Nanostructures,* SPIE Annual Meeting, Aug. 7, 2002, Seattle, WA.

109. Brinker, C. Jeffrey. Gordon Conference on Inorganic Chemistry *Self-Assembly of Hybrid Inorganic/Organic Porous and Composite Nanostructures.* Salve Regina University, July 28, 2002, Newport, RI.

110. Brinker, C. Jeffrey. *In-Situ Grazing Incidence Small Angle X-Ray Scattering Experiments*, Le Mans France. Universite du Maine, Department of Physics June 11, 2002, Paris, FR..

111. Brinker, C. Jeffrey. *In-Situ Grazing Incidence Small Angle X-Ray Scattering Experiments,* Paris, France. Universite Pierre et Marie Curie, Davide Grosso and Florence Babonneau Research Team, June 11, 2002, Paris, FR.

112. Brinker, C. Jeffrey. *Multi-Component Surfactant-Templated Mesoporous Materials,* Paris France. Universite Pierre et Marie Curie, Clement Sanchez Resarch Team, June 11, 2002, Paris, FR.

113. Brinker, C. Jeffrey. *Sol-Gel and Surfactant-Templated Mesoporous Materials,* Technical University of Vienna, Department of Chemistry. Ulrich Schubert Research Group. June 3, 2002, Vienna, Austria.

114. Brinker, C. Jeffrey. *Sol-Gel and Surfactant-Templated Mesoporous Materials,* Thomas Bein Research Group, University of Munich, .May 28, 2002, Munich Germany.

115. Brinker, C. Jeffrey. *Surfactant-Assisted Self-Assembly of Nanocrystal Arrays*, Particles 2001, Orlando, FL

116. Brinker, C. Jeffrey. *Synthesis and Characterization of Functional Mesostructured Silica Films*, American Chemical Society National Meeting, 2001, San Diego, CA

117. Brinker, C. Jeffrey. *Self-Assembled Porous Poly(bridged silsesquioxane) Low-K films*, Materials Research Society Spring Meeting, April 2001, San Francisco, CA

118. Brinker, C. Jeffrey. *Tuning Silica Membranes*, American Chemical Society National Meeting, March 2001, San Diego, CA

F. PATENTS Issued

No.	US Patent No.	Patent Title	Date Allowed or Issued
41	8,992,984 B1	Protocells and Their Use for Targeted Delivery of Multicomponent Cargos to Cancer Cells	Feb 20, 2015
40	8,734,816	Porous Nanoparticle Supported Lipid Bilayer Nanostructures	May 27, 2014
39	8,501,057 B1	Freezing Assisted Fabrication of Nano and Micro Hollow Tube Cubic Metal Oxides	Aug 6, 2013
38	8,318,127 B1	Methods for Preparing High Crystallinity and surface Area Porous Metal Oxides	Nov 27, 2012
37	8,246,933	Aerosol Method for Nano Silver-Silica Composite Antimicrobial Agent	Aug 21, 2012
36	8,187,678	Ultra-Thin Microporous/Hybrid Materials	May 29, 2012
35	EP 2294152B1	Superhydrophobic Aerogel That Does Not Require Per-Fluoro Compounds or Contain any Fluorine	Nov 14, 2012
34	8,092,595	Self Assembly of Water Soluble Nanocrystals	Jan 10, 2012
33	7,947,579	Method of Making Dense, Conformal, Ultra-Thin Cap Layers of Nanoporous Low-k ILD by Plasma-Assisted Atomic Layer Deposition	May 24, 2011
32	RE 41,612E	Method for making surface-templated thin films	Reissued Aug 31, 2010
31	7,744,673B2	Hollow Sphere Metal Oxides	6/29/2010
30	7,485,343	Preparation of hydrophobic coatings	Feb 9, 2009
29	7,332,264 B2	Photo-definable self-assembled materials	Feb 19, 2008

28	6,983,093	Fluid Light Guide Having Hydrophobic Aerogel Cladding Layer	Jan 3, 2006
27	6,913,832	Prototyping of Patterned Functional Nanostructures	Jul 5, 2005
26	6,808,867 B2	Photo-Definable Self-Assembled Materials	Oct 26, 2004
25	6,536,604	Inorganic dual-layer microporous supported membranes	Mar 25, 2003
24	6,495,352	Sol-gel method for encapsulating molecules	Dec 17, 2002
23	6,471,761	Prototyping of patterned functional nanostructures	Oct 29, 2002
22	6,387,453	Method for making surfactant-templated thin films	May 14, 2002
21	6,270,846	Method for making surfactant-templated, high-porosity thin films	Aug 7, 2001
20	6,264,741	Self-assembly of nanocomposite materials	July 24, 2001
19	6,258,305	Method for net-shaping using aerogels	July 10, 2001
18	6,057,377	Molecular receptors in metal oxide sol-gel materials prepared via molecular imprinting	May 2, 2000
17	5,949,071	Uncooled thin film pyroelectric IR detector with aerogel thermal isolation	Sept 7, 1999
16	5,948,482	Ambient pressure process for preparing aerogel thin films reliquified sols useful in preparing aerogel thin films	Sept 7, 1999
15	5,935,646	Molecular sieving silica membrane fabrication process	Aug 10, 1999
14	5,858,457	Process to form mesostructured films	Jan 12, 1999
13	5,772,735	Supported inorganic membranes	Jun 30, 1998
12	5,770,275	Molecular sieving silica membrane fabrication process	Jun 23, 1998
11	5,589,396	Coatings with controlled porosity and chemical properties	Dec 31, 1996
10	5,565,142	Preparation of high porosity xerogels by chemical surface modification	Oct 15, 1996
9	5,313,485	Luminescent light source for laser pumping and laser system containing same	May 17, 1994
8	5,240,647	Process for making solid-state radiation-emitting composition	Aug 31, 1993
7	5,224,972	Coatings with controlled porosity and chemical properties	July 6, 1993
6	5,151,110	Molecular sieve sensors for selective detection at the nanogram level	Sept 29, 1992
5	5,137,659	Solid-state radiation-emitting compositions and devices	Aug 11, 1992

4	5,122,305	Solid-state radiation-emitting compositions and devices	Jun 16, 1992
3	5,078,919	Composition containing aerogel substrate loaded with tritium	Jan 7, 1992
2	4,652,467	Inorganic-polymer-derived dielectric films	Mar 24, 1987
1	4,476,156	Low temperature process for obtaining thin glass films	Oct 9, 1984

G. BOOKS AND BOOK CHAPTERS

Books, authored

1. Sol-Gel Science: The Physics and Chemistry of Sol-Gel Prcessing
   Brinker, C. Jeffrey and Scherer, George W.
   Academic Press, San Diego, CA, April 1990

Books, edited

1. Better Ceramics Through Chemistry
   Brinker, C. Jeffrey; Clark, David E.; and Ulrich, Donald R. editors. Materials Research Society Symposia Proceedings, Volume 32, North-Holland, New York/Amsterdam, 1984.

2. Better Ceramics Through Chemistry II
   Brinker, C. Jeffrey; Clark, David E.; and Ulrich, Donald R., editors. Materials Research Society Symposia Proceedings, Volume 73, Materials Research Society, Pittsburgh, PA, 1986.

3. Better Ceramics Through Chemistry III
   Brinker, C. Jeffrey; Clark, David E.; and Ulrich, Donald R., editors. Materials Research Society Symposia Proceedings, Volume 121, Materials Research Society, Pittsburgh, PA, 1988.

4. Better Ceramics Through Chemistry IV
   Zelinski, Brian J.J.; Brinker, C. Jeffrey; Clark, David E.; and Ulrich, Donald R., editors. Materials Research Society Symposia Proceedings, Volume 180, Materials Research Society, Pittsburgh, PA, 1990.

5. Better Ceramics Through Chemistry V
   Hampden-Smith, Mark; Klemperer, Walter G.; and Brinker, C. Jeffrey, editors. Materials Research Society Symposia Proceedings, Volume 271
   Materials Research Society, Pittsburgh, PA, 1992.

6. Better Ceramics Through Chemistry VI
   Cheetham, Anthony K.; Brinker, C. Jeffrey; Mecartney, Martha L.; and Sanchez, Clément, editors. Materials Research Society Symposia Proceedings, Volume 346, Materials Research

Society, Pittsburgh, PA, 1994.

7. Organic/Inorganic Hybrid Materials
   Laine, Richard M.; Sanchez, Clément; Giannelis, E.P.; and Brinker, C. Jeffrey, editors. Materials Research Society Symposia Proceedings, Volume 519, Materials Research Society, Pittsburgh, PA, 1998.

8. Aerogels 6
   Ashley, Carol S.; Brinker, C. Jeffrey; and Smith, Douglas, M., editors.
   Proceedings of the Sixth International Symposium on Aerogels -- Special Issue of the *Journal of Non-Crystalline Solids*, Volume 286, North-Holland, New York/Amsterdam, 2000.

9. Organic/Inorganic Hybrid Materials II
   Laine, Richard M.; Sanchez, Clément; Giannelis, E.P.; and Brinker, C. Jeffrey, editors. Materials Research Society Symposia Proceedings, Volume 628, Materials Research Society, Pittsburgh, PA, 2000.

10. Organic/Inorganic Hybrid Materials III
    Sanchez, Clément; Laine, Richard M.; Yang, Shu; and Brinker, C. Jeffrey, editors. Materials Research Society Symposia Proceedings, Volume 628, Materials Research Society, Pittsburgh, PA, 2002.

11. Self-Assembled Nanostructured Materials
    Lu, Yunfeng; Brinker, C. Jeffrey; Antonietti, Markus; and Chunli, B., editors. Materials Research Society Symposia Proceedings, Volume 775, Materials Research Society, Pittsburgh, PA, 2003.

12. Annual Review of Nano Research – Volume 1
    Cao, Guozhong and Brinker C. Jeffrey Brinker, editors. World Scientific Publishing Co., Ltd., Singapore/London, 2006.

13. Annual Review of Nano Research – Volume 2
    Cao, Guozhong and Brinker C. Jeffrey Brinker, editors. World Scientific Publishing Co., Ltd., Singapore/London, 2008.

14. Annual Review of Nano Research – Volume 3
    Cao, Guozhong and Brinker C. Jeffrey Brinker, editors. World Scientific Publishing Co., Ltd., Singapore/London, 2010.

BOOK CHAPTERS

1. Brinker, C. J.: Dip Coating. In Chemical Solution Deposition of Functional Oxide Thin Films; Schneller, T., Waser, R., Kosec, M., Payne, D., Eds.; Springer Vienna, 2013; pp 233-261.

2. Nanotechnology for Sustainability: Energy Conversion, Storage, and Conservation, C. Jeffrey Brinker and David Ginger, in Nanotechnology Research for Societal Needs in 2020: Retrospective and Outlook, M.C. Rocco, C.A. Mirkin, M.C. Hersam, eds, Elsevier Press, Amsterdam (October 2010)

3. Nanotechnology for Sustainability: Environment, Water, Food, Minerals, and Climate, M. Diallo and C. Jeffrey Brinker, in Nanotechnology Research Directions for Societal Needs in 2020: Retrospective and Outlook, M.C. Rocco, C.A. Mirkin, M.C. Hersam, eds, Elsevier Press, Amsterdam (October 2010).

4. Control of Morphology in Mesoporous and Mesostructured Hybrid Materials
Darren R. Dunphy, Bernd Smarsly, C. Jeffrey Brinker
in The Supramolecular Chemistry of Organic-Inorganic Hybrid Materials, Knut Rurack, ed, John Wiley & Sons, Inc., Hoboken, NJ (March 2010)

5. Photoresponsive Nanocomposite Materials Including Axobenzene-Containing Polysilsesquixane Films and Photoswitched Nanovalves, Nanguo Liu and C. Jeffrey Brinker in Smart Light-Responsive Materials: Azobenzene Containing Polymers and Liquid Crystals, Yue Zhao and Tomiki Ikeda, eds., John Wiley & Sons, Inc., Hoboken, NJ Chapter 13, 457-504 (March 2009)

N. PUBLICATIONS, PEER-REVIEWED JOURNALS (Brinker h-index 90; see Google Scholar http://scholar.google.com/citations?hl=en&user=DZk5ffwAAAAJ&view_op=list_works&sortby=pubdate)

Refereed Journal papers published

1. Sun, B.; Pokhrel, S.; Dunphy, D. R.; Zhang, H.; Ji, Z.; Wang, X.; Wang, M.; Liao, Y.-P.; Chang, C. H.; Dong, J.; Li, R.; Mädler, L.; Brinker, C. J.; Nel, A. E.; Xia, T. Reduction of Acute Inflammatory Effects of Fumed Silica Nanoparticles in the Lung by Adjusting Silanol Display through Calcination and Metal Doping. *ACS Nano* 2015, Published online August 13, 2015.

2. Harper, J.C.; Carson, B.D.; Bachand, G.D.; Arndt, W.D.; Finley, M.R.; Brinker, C.J.; Edwards, T.L. Laser Machined Plastic Laminates: Towards Portable Diagnostic Devices for Use in Low Resource Environments. *Electroanalysis*, **2015**, Published online July 14, 2015.

3. Nel, A.E.; Parak, W.J.; Chan, W.CW; Xia, T.; Hersam, M.C.; Brinker, C.J; Zink, J.I.; Pinkerton, K.E.; Baer, D.R.; Weiss, P.S. Where Are We Heading in Nanotechnology Environmental Health and Safety and Materials Characterization? *ACS Nano*, **2015**, 9(6), 5627-5630.

4. Johnson, P.E.; Muttil, P.; MacKenzie, D.; Carnes, E.C.; Pelowitz, J.; Mara, N.A.; Mook, W.M.; Jett, S.D.; Dunphy, D.R.; Timmins, G.S.; Brinker, C. J. Spray-Dried Multiscale Nano-biocomposites Containing Living Cells. *ACS Nano*, **2015**,9 (7), 6961-6977

5. Dunphy, D.; Sheth, P. H.; Garcia Jr., F. L.; Brinker, C. J. Enlarged Pore Size in Mesoporous Silica Films Templated by Pluronic F127: Use of Poloxamer mixtures and increased template/SiO2 ratios in materials synthesized by evaporation-induced self assembly. *Chemistry of Materials* **2015**, *27*, 75-84.

6. Sun, J.; Jakobsson, E.; Wang, Y.; Brinker, C. J. Nanoporous Silica-Based Protocells at Multiple Scales for Designs of Life and Nanomedicine. *Life* **2015**, *5*, 214-229.

7. Dobroff, A. S.; Rangel, R.; Guzman-Roja, L.; Salmeron, C. C.; Gelovani, J. G.; Sidman, R. L.; Bologa, C. G.; Oprea, T. I.; Brinker, C. J.; Pasqualini, R. Ligand-Directed Profiling of Organelles

with Internalizing Phage Libraries. *Current Protocols in Protein Science* **2015**, 30.34. 31-30.34. 30.

8. Chou, S. S.; Huang, Y.-K.; Kim, J.; Kaehr, B.; Foley, B. M.; Lu, P.; Dykstra, C.; Hopkins, P. E.; Brinker, C. J.; Huang, J. Controlling the metal to semiconductor transition of MoS2 and WS2 in solution. *Journal of the American Chemical Society* **2015**.

9. Zhu, J.; Quan, Z.; Lin, Y. S.; Jiang, Y. B.; Wang, Z.; Zhang, J.; Jin, C.; Zhao, Y.; Liu, Z.; Brinker, C. J.; Zxu, H. Porous ice phases with VI and distorted VII structures constrained in nanoporous silica. *Nano Letters* **2014**, *14*, 6554-6558.

10. Townson, J. L.; Lin, Y. S.; Chou, S. S.; Awad, Y. H.; Coker, E. N.; Brinker, C. J.; Kaehr, B. Synthetic fossilization of soft biological tissues and their shape-preserving transformation into silica or electron-conductive replicas. *Nat Comm* **2014**, *5*, 5665.

11. Fu, Y.; Li, B.; Jiang, Y.-B.; Dunphy, D.; Tsai, A.; Tam, S. Y.; Fan, H. Y.; Zhang, H.; Rogers, D. M.; Rempe, S. B.; Atanassov, P.; Cecchi, J. L.; Brinker, C. J. Atomic Layer Desposition of L-Alnaine Polypeptide. *Journal of the American Chemical Society* **2014**, *136*, 15821-15824.

12. Li, R.; Ji, Z.; Chang, C. H.; Dunphy, D. R.; Cai, X.; Meng, H.; Zhang, H.; Sun, B.; Wang, X.; Dong, J.; Lin, S.; Wang, M.; Liao, Y.-P.; Brinker, C. J.; Nel, A. E.; Xia, T.: Surface Interactions with Compartmentalized Cellular Phosphates Explains Rare Earth Oxide Nanoparticle Hazard and Provides Opportunities for Safer Design. *ACS Nano **2014**, 8, 1771-1783.*

13. Zhou, D.; Ji, Z.; Jiang, X.; Dunphy, D.; Brinker, C. J.; Keller, A.: Influence of Material Properties on TiO2 Nanoparticle Agglomeration. *PLoS One* **2013**, *8*, e81239.

14. Xiong, S.; Dunphy, D. R.; Wilkinson, D. C.; Jiang, Z.; Strzalka, J.; Wang, J.; Su, Y.; de Pablo, J. J.; Brinker, C. J.: Revealing the Interfacial Self-Assembly Pathway of Large-Scale, Highly-Ordered, Nanoparticle/Polymer Monolayer Arrays at an Air/Water Interface. *Nano Letters* **2013**, *13*, 1041-1046.

15. Townson, J. L.; Lin, Y.-S.; Agola, J. O.; Carnes, E. C.; Leong, H. S.; Lewis, J. D.; Haynes, C. L.; Brinker, C. J.: Re-examining the Size/Charge Paradigm: Differing in Vivo Characteristics of Size- and Charge-Matched Mesoporous Silica Nanoparticles. *Journal of the American Chemical Society* **2013**, *135*, 16030-16033.

16. Tarn, D.; Ashley, C. E.; Xue, M.; Carnes, E. C.; Zink, J. I.; Brinker, C. J.: Mesoporous Silica Nanoparticle Nanocarriers: Biofunctionality and Biocompatibility. *Accounts of Chemical Research* **2013**, *46*, 792-801.

17. Pascal, J.; Ashley, C. E.; Wang, Z.; Brocato, T.; Butner, J.; Carnes, E. C.; Koay, E.; Brinker, C. J.; Cristini, V.: Mechanistic Modeling Identifies Drug-Uptake History as Predictor of Tumor Drug Resistance and Nano-Carrier-Mediated Response. *ACS Nano* **2013**, *7,* 11174-11182.

18. Meng, H.; Zhao, Y.; Dong, J.; Xue, M.; Lin, Y.-S.; Ji, Z.; Mai, W. X.; Zhang, H.; Chang, C. H.; Brinker, C. J.; Zink, J. I.; Nel, A. E.: Two-Wave Nanotherapy To Target the Stroma and Optimize Gemcitabine Delivery To a Human Pancreatic Cancer Model in Mice. *ACS Nano* **2013**, *7*, 10048-10065.

19. Kendall, E. L.; Ngassam, V. N.; Gilmore, S. F.; Brinker, C. J.; Parikh, A. N.: Lithographically Defined Macroscale Modulation of Lateral Fluidity and Phase Separation Realized via Patterned Nanoporous Silica-Supported Phospholipid Bilayers. *Journal of the American Chemical Society* **2013**, *EPub ahead of print, 2013 Oct 10.*

20. Dengler, E. C.; Liu, J.; Kerwin, A.; Torres, S.; Olcott, C. M.; Bowman, B. N.; Armijo, L.; Gentry, K.; Wilkerson, J.; Wallace, J.; Jiang, X.; Carnes, E. C.; Brinker, C. J.; Milligan, E. D.: Mesoporous silica-supported lipid bilayers (protocells) for DNA cargo delivery to the spinal cord. *Journal of Controlled Release* **2013**, *168*, 209-224 (Cover).
21. Chou, S. S.; Kaehr, B.; Kim, J.; Foley, B. M.; De, M.; Hopkins, P. E.; Huang, J.; Brinker, C. J.; Dravid, V. P.: Chemically exfoliated MoS2 as near-infrared photothermal agents. *Angew Chem Int Ed Engl* **2013**, *52*, 4160-4.
22. Brinker, C. J.; Clem, P. G.: Quartz on Silicon. *Science* **2013**, *340*, 818-819.
23. Zhang, H.; Dunphy, D. R.; Jiang, X.; Meng, H.; Sun, B.; Tarn, D.; Xue, M.; Wang, X.; Lin, S.; Ji, Z.; Li, R.; Garcia, F. L.; Yang, J.; Kirk, M. L.; Xia, T.; Zink, J. I.; Nel, A.; Brinker, C. J.: Processing Pathway Dependence of Amorphous Silica Nanoparticle Toxicity: Colloidal vs Pyrolytic. *Journal of the American Chemical Society* **2012**, *134*, 15790-15804.
24. Zarzar, L. D.; Swartzentruber, B. S.; Harper, J. C.; Dunphy, D. R.; Brinker, C. J.; Aizenberg, J.; Kaehr, B.: Multiphoton Lithography of Nanocrystalline Platinum and Palladium for Site-Specific Catalysis in 3D Microenvironments. *Journal of the American Chemical Society* **2012**, *134*, 4007-4010.
25. Kaehr, B.; Townson, J. L.; Kalinich, R. M.; Awad, Y. H.; Swartzentruber, B. S.; Dunphy, D. R.; Brinker, C. J.: Cellular complexity captured in durable silica biocomposites. *Proceedings of the National Academy of Sciences* **2012**, *109*, 17336-17341 (Commentary: Ying, J.Y., Cells made of silica. *Nature Nanotechnology News & Views* **2012**, 7, 777-778).
26. Jiang, X.; Bao, L.; Cheng, Y.-S.; Dunphy, D. R.; Li, X.; Brinker, C. J.: Aerosol-assisted synthesis of monodisperse single-crystalline [small alpha]-cristobalite nanospheres. *Chemical Communications* **2012**, *48*, 1293-1295.
27. Hopkins, P. E.; Kaehr, B.; Piekos, E. S.; Dunphy, D.; Brinker, C. J.: Minimum thermal conductivity considerations in aerogel thin films. *Journal of Applied Physics* **2012**, *111*, 113532-7.
28. Harper, J. C.; Edwards, T. L.; Savage, T.; Harbaugh, S.; Kelley-Loughnane, N.; Stone, M. O.; Brinker, C. J.; Brozik, S. M.: Orthogonal Cell-Based Biosensing: Fluorescent, Electrochemical, and Colorimetric Detection with Silica-Immobilized Cellular Communities Integrated with an ITO-Glass/Plastic Laminate Cartridge. *Small* **2012**, *8*, 2743-2751 (Cover).
29. Harper, J. C.; Brozik, S. M.; Brinker, C. J.; Kaehr, B.: Biocompatible Microfabrication of 3D Isolation Chambers for Targeted Confinement of Individual Cells and Their Progeny. *Analytical Chemistry* **2012**, *84*, 8985-8989.
30. Epler, K.; Padilla, D.; Phillips, G.; Crowder, P.; Castillo, R.; Wilkinson, D.; Wilkinson, B.; Burgard, C.; Kalinich, R.; Townson, J.; Chackerian, B.; Willman, C.; Peabody, D.; Wharton, W.; Brinker, C. J.; Ashley, C.; Carnes, E.: Targeted Delivery of Protein Toxins: Delivery of Ricin Toxin A-Chain by Peptide-Targeted Mesoporous Silica Nanoparticle-Supported Lipid Bilayers (Adv. Healthcare Mater. 3/2012). *Advanced Healthcare Materials* **2012**, *1*, 241-241.
31. Brinker, C. J.: Nanoparticle immunotherapy: Combo combat. *Nat Mater* **2012**, *11*, 831-832.
32. Ashley, C. E.; Carnes, E. C.; Epler, K. E.; Padilla, D. P.; Phillips, G. K.; Castillo, R. E.; Wilkinson, D. C.; Wilkinson, B. S.; Burgard, C. A.; Kalinich, R. M.; Townson, J. L.; Chackerian, B.; Willman, C. L.; Peabody, D. S.; Wharton, W.; Brinker, C. J.: Delivery of Small Interfering RNA by Peptide-Targeted Mesoporous Silica Nanoparticle-Supported Lipid Bilayers. *ACS Nano* **2012**, *6*, 2174-2188 (COVER).

33. Zarzar, L. D.; Kim, P.; Kolle, M.; Brinker, C. J.; Aizenberg, J.; Kaehr, B.: Direct writing and actuation of three-dimensionally patterned hydrogel pads on micropillar supports. *Angew Chem Int Ed Engl* **2011**, *50*, 9356-60.

34. Xiong, S.; Molecke, R.; Bosch, M.; Schunk, P. R.; Brinker, C. J.: Transformation of a Close-Packed Au Nanoparticle/Polymer Monolayer into a Large Area Array of Oriented Au Nanowires via E-beam Promoted Uniaxial Deformation and Room Temperature Sintering. *Journal of the American Chemical Society* **2011**, *133*, 11410-11413.

35. Luk, T. S.; Xiong, S.; Chow, W. W.; Miao, X.; Subramania, G.; Resnick, P. J.; Fischer, A. J.; Brinker, C. J.: Anomolous Enhanced Emission from PbS Quantum Dots on a Photonic-Crystal Microcavity. *J. Opt. Soc. Am. B* **2011**, *28*, 1365-1373.

36. Khripin, C. Y.; Pristinski, D.; Dunphy, D. R.; Brinker, C. J.; Kaehr, B.: Protein-Directed Assembly of Arbitrary Three-Dimensional Nanoporous Silica Architectures. *ACS Nano* **2011**, *5*, 1401-1409.

37. Jiang, X.; Liu, N.; Assink, R. A.; Jiang, Y.; Brinker, C. J.: Photoresponsive release from azobenzene-modified single cubic crystal NaCl/silica particles. *J. Nanomaterials* **2011**, *2011*, 1-6.

38. Jiang, X.; Jiang, Y.-B.; Brinker, C. J.: Hydrothermal synthesis of monodisperse single-crystalline alpha-quartz nanospheres. *Chemical Communications* **2011**, *47*, 7524-7526.

39. Jiang, X.; Jiang, Y.; Liu, N.; Xu, H. F.; Rathod, S.; Shah, P.; Brinker, C. J.: Controlled release from core-shell nanoporous silica particles for corrosion inhibition of aluminum alloys. *Journal of Nanomaterials* **2011**, *2011*, 760237+.

40. Hopkins, P. E.; Kaehr, B.; Phinney, L. M.; Koehler, T. P.; Grillet, A. M.; Dunphy, D.; Garcia, F.; Brinker, C. J.: Measuring the Thermal Conductivity of Porous, Transparent SiO2 Films With Time Domain Thermoreflectance. *J. Heat Transf.-Trans. ASME* **2011**, *133*, 061601.

41. Harper, J. C.; Lopez, D. M.; Larkin, E. C.; Economides, M. K.; McIntyre, S. K.; Alam, T. M.; Tartis, M. S.; Werner-Washburne, M.; Brinker, C. J.; Brozik, S. M.; Wheeler, D. R.: Encapsulation of S. cerevisiae in Poly(glycerol) Silicate Derived Matrices: Effect of Matrix Additives and Cell Metabolic Phase on Long-Term Viability and Rate of Gene Expression. *Chemistry of Materials* **2011**, *23*, 2555-2564.

42. Dunphy, D. R.; Garcia, F. L.; Kaehr, B.; Khripin, C. Y.; Collord, A. D.; Baca, H. K.; Tate, M. P.; Hillhouse, H. W.; Strzalka, J. W.; Jiang, Z.; Wang, J.; Brinker, C. J.: Tricontinuous Cubic Nanostructure and Pore Size Patterning in Mesostructured Silica Films Templated with Glycerol Monooleate. *Chemistry of Materials* **2011**, *23*, 2107-2112.

43. Dunphy, D. R.; Garcia, F. L.; Jiang, Z.; Strzalka, J.; Wang, J.; Brinker, C. J.: X-Ray characterization of self-assembled long-chain phosphatidylcholine/bile salt/silica mesostructured films with nanoscale homogeneity. *Chemical Communications* **2011**, *47*, 1806-1808.

44. Baca, H. K.; Carnes, E. C.; Ashley, C. E.; Lopez, D. M.; Douthit, C.; Karlin, S.; Brinker, C. J.: Cell-directed-assembly: Directing the formation of nano/bio interfaces and architectures with living cells. *Biochimica et Biophysica Acta (BBA) - General Subjects* **2011**, *1810*, 259-267.

45. Ashley, C. E.; Dunphy, D. R.; Jiang, Z.; Carnes, E. C.; Yuan, Z.; Petsev, D. N.; Atanassov, P. B.; Velev, O. D.; Sprung, M.; Wang, J.; Peabody, D. S.; Brinker, C. J.: Convective Assembly of 2D Lattices of Virus-like Particles Visualized by In-Situ Grazing-Incidence Small-Angle X-Ray Scattering. *Small* **2011**, *7*, 1043-1050.

46. Ashley, C. E.; Carnes, E. C.; Phillips, G. K.; Padilla, D.; Durfee, P. N.; Brown, P. A.; Hanna, T. N.; Liu, J.; Phillips, B.; Carter, M. B.; Carroll, N. J.; Jiang, X.; Dunphy, D. R.; Willman, C. L.; Petsev, D. N.; Evans, D. G.; Parikh, A. N.; Chackerian, B.; Wharton, W.; Peabody, D. S.; Brinker, C. J.: The

targeted delivery of multicomponent cargos to cancer cells by nanoporous particle-supported lipid bilayers. *Nat Mater* **2011**, *10*, 389-397 (COVER).

47. Ashley, C. E.; Carnes, E. C.; Phillips, G. K.; Durfee, P. N.; Buley, M. D.; Lino, C. A.; Padilla, D. P.; Phillips, B.; Carter, M. B.; Willman, C. L.; Brinker, C. J.; Caldeira, J. d. C.; Chackerian, B.; Wharton, W.; Peabody, D. S.: Cell-Specific Delivery of Diverse Cargos by Bacteriophage MS2 Virus-like Particles. *ACS Nano* **2011**, *5*, 5729-5745 (COVER).
48. J.C. Harper, C. Khirpin, E.C. Carnes, C.E. Ashley, D.M. Lopez, T. Savage, H. Jones, R. Davis, D. Nunez, L.M. Brinker, B.J. Kaehr, S. Brozik, and C.J. Brinker. Cell-Directed Integration into 3D Lipid-Silica Nanostructured Matrices, ACS Nano, 4 (10) 5539-5550 (2010).
49. X.M. Jiang and C. Jeffrey Brinker, Rigid templating of high surface-area, mesoporous, nanocrystalline rutile using a polyether block amide copolymer template, Chemical Communications 46 (33) 6123-6125 (2010)
50. Z. Chen, Y.B. Jiang, D.R. Dunphy, D.P. Adams, C. Hodges, N.G. Liu, N. Zhang, G. Xomeritakis, N.R. Aluru, S.J. Gaik, H.W. Hillhouse, and C.J. Brinker, DNA translocation through an array of kinked nanopores, Nature Materials 9 (8) 667-675 (Aug 2010)
51. S. Xiong, X. Miao, J. Spencer, C. Khripin, T.S. Luk, C.J. Brinker, Integration of a Close-Packed Quantum Dot Monolayer with a Photonic-Crystal Cavity Via Interfacial Self-Assembly and Transfer, SMALL 6 (19) 2126-2129 (Oct 2010)..
52. X.M. Jiang, T.L. Ward, F. van Swol, and C. J. Brinker, Numerical Simulation of Ethanol-Water-NaCl Droplet Evaporation, Industrial & Engineering Chemistry Research 49 (12), 5631-5643 (2010).
53. B.J. Kaehr, and C. Jeffrey Brinker, Using bacterial cell growth to template catalytic asymmetry, Chemical Communications 46(29) 5268:5270 (2010)
54. C.Y. Khripin, C. Jeffrey Brinker, and Bryan Kaehr, Mechanically tunable multiphoton fabricated protein hydrogels investigated using atomic force microscopy, Soft Matter, 6(10), 2842-2848 (2010).
55. E.L. Kendall, E. Mills, J.W. Liu, X.M. Jiang, C.J. Brinker, B.J. Kaehr, Salt-induced lipid transfer between colloidal supported lipid bilayers, Soft Matter 6(12) 2628-2632 (2010)
56. X.M. Jiang, T. L. Ward, Y. S. Cheng, J. W. Liu, and C. J. Brinker, Aerosol fabrication of hollow mesoporous silica nanoparticles and encapsulation of L-methionine as a candidate drug cargo, Chemical Communications 46 (17), 3019-3021 (2010).
57. S. Moghaddam, E. Pengwang, Y. B. Jiang, A. R. Garcia, D. J. Burnett, C. J. Brinker, R. I. Masel, and M. A. Shannon, An inorganic-organic proton exchange membrane for fuel cells with a controlled nanoscale pore structure, Nature Nanotechnology 5 (3) (2010), 230-236.
58. E.C. Carnes, D.M. Lopez, N.P. Donegan, A. Cheung, H. Gresham, G.S. Timmins, C.J. Brinker, Confinement-induced quorum sensing of individual Staphylococcus aureus bacteria, Nature Chemical Biology 6 (2010) 41-45 (2010)
59. L.N. Zhang, S. Singh, C.S. Tian, Y.R. Shen, Y. Wu, M.A. Shannon, C.J. Brinker, Nanoporous silica-water interfaces studied by sum-frequency vibrational spectroscopy, Journal of Chemical Physics 130 (15) (2009) 154702-10

60. G. Xomeritakis, C.Y. Tsai, Y.B. Jiang, C.J. Brinker, Tubular ceramic-supported sol-gel silica-based membranes for flue gas carbon dioxide capture and sequestration, Journal of Membrane Science 341 (2009) 30-36.

61. S.R. Taylor, G.J. Shiflet, J.R. Scully, R.G. Buchheit, W.J. van Ooij, K. Sieradzki, R.E. Diaz, C.J. Brinker, A.L. Moran, Increasing Coating Functionality Using Nanodimensioned Materials, Nanotechnology Applications in Coatings, American Chemical Society, Washington, DC, 2009, pp. 126-155.

62. G. Subramania, Y.J. Lee, A.J. Fischer, T.S. Luk, C.J. Brinker, D. Dunphy, Emission modification of CdSe quantum dots by titanium dioxide visible logpile photonic crystal, Applied Physics Letters 95(15) (2009) 151101.

63. J.W. Liu, A. Stace-Naughton, X.M. Jiang, C.J. Brinker, Porous Nanoparticle Supported Lipid Bilayers (Protocells) as Delivery Vehicles, Journal of the American Chemical Society 131 (2009) 1354-1355.

64. J.W. Liu, A. Stace-Naughton, C.J. Brinker, Silica nanoparticle supported lipid bilayers for gene delivery, Chemical Communications (2009) 5100-5102.

65. J.W. Liu, X.M. Jiang, C. Ashley, C.J. Brinker, Electrostatically Mediated Liposome Fusion and Lipid Exchange with a Nanoparticle-Supported Bilayer for Control of Surface Charge, Drug Containment, and Delivery, Journal of the American Chemical Society 131 (2009) 7567-+.

66. C.J. Homer, X.M. Jiang, T.L. Ward, C.J. Brinker, J.P. Reid, Measurements and simulations of the near-surface composition of evaporating ethanol-water droplets, Physical Chemistry Chemical Physics 11 (2009) 7780-7791.

67. D.R. Dunphy, T.M. Alam, M.P. Tate, H.W. Hillhouse, B. Smarsly, A.D. Collord, E. Carnes, H.K. Baca, R. Kohn, M. Sprung, J. Wang, C.J. Brinker, Characterization of Lipid-Templated Silica and Hybrid Thin Film Mesophases by Grazing Incidence Small-Angle X-ray Scattering, Langmuir 25 (2009) 9500-9509.

68. E.C. Carnes, J.C. Harper, C.E. Ashley, D.M. Lopez, L.M. Brinker, J.W. Liu, S. Singh, S.M. Brozik, C.J. Brinker, Cell-Directed Localization and Orientation of a Functional Foreign Transmembrane Protein within a Silica Nanostructure, Journal of the American Chemical Society 131 (2009) 14255-+.

69. J.B. Pang, S.S. Xiong, F. Jaeckel, Z.C. Sun, D. Dunphy, C.J. Brinker, Free-standing, patternable nanoparticle/polymer monolayer arrays formed by evaporation induced self-assembly at a fluid interface, Journal of the American Chemical Society 130 (2008) 3284-+.

70. J.B. Pang, J.N. Stuecker, Y.B. Jiang, A.J. Bhakta, E.D. Branson, P. Li, J. Cesarano, D. Sutton, P. Calvert, C.J. Brinker, Directed aerosol writing of ordered silica nanostructures on arbitrary surfaces with self-assembling inks, Small 4 (2008) 982-989.

71. M.H. Huang, H.M. Soyez, B.S. Dunn, J.I. Zink, A. Sellinger, C.J. Brinker, In situ fluorescence probing of the chemical and structural changes during formation of hexagonal phase cetyltrimethylammonium bromide and lamellar phase CTAB/Poly(dodecylmethacrylate) sol-gel silica thin films, Journal of Sol-Gel Science and Technology 47 (2008) 300-310.

72. D. Dunphy, H.Y. Fan, X.F. Li, J. Wang, C.J. Brinker, Dynamic investigation of gold nanocrystal assembly using in situ grazing-incidence small-angle X-ray scattering, Langmuir 24 (2008) 10575-10578.

73. E. Dovgolevsky, S. Kirmayer, E. Lakin, Y. Yang, C.J. Brinker, G.L. Frey, Self-assembled conjugated polymer-surfactant-silica mesostructures and their integration into light-emitting diodes, Journal of Materials Chemistry 18 (2008) 423-436.

74. R.T. Cygan, C.J. Brinker, M.D. Nyman, K. Leung, S.B. Rempe, A molecular basis for advanced materials in water treatment, Mrs Bulletin 33 (2008) 42-47.

75. P.M. Barkhudarov, P.B. Shah, E.B. Watkins, D.A. Doshi, C.J. Brinker, J. Majewski, Corrosion inhibition using superhydrophobic films, Corrosion Science 50 (2008) 897-902.

76. S. Yilma, N.G. Liu, A. Samoylov, T. Lo, C.J. Brinker, V. Vodyanoy, Amphotericin B channels in phospholipid membrane-coated nanoporous silicon surfaces: Implications for photovoltaic driving of ions across membranes, Biosensors & Bioelectronics 22 (2007) 1605-1611.

77. S. Yilma, J. Cannon-Sykora, A. Samoylov, T. Lo, N. Liu, C.J. Brinker, W.C. Neely, V. Vodyanoy, Large-conductance cholesterol-amphotericin B channels in reconstituted lipid bilayers, Biosensors & Bioelectronics 22 (2007) 1359-1367.

78. T.H. Yang, C.K. Yee, M.L. Amweg, S. Singh, E.L. Kendall, A.M. Dattelbaum, A.P. Shreve, C.J. Brinker, A.N. Parikh, Optical detection of ion-channel-induced proton transport in supported phospholipid bilayers, Nano Letters 7 (2007) 2446-2451.

79. G. Xomeritakis, N.G. Liu, Z. Chen, Y.B. Jiang, R. Kohn, P.E. Johnson, C.Y. Tsai, P.B. Shah, S. Khalil, S. Singh, C.J. Brinker, Anodic alumina supported dual-layer microporous silica membranes, Journal of Membrane Science 287 (2007) 157-161.

80. Y.-B. Jiang, G. Xomeritakis, Z. Chen, D. Dunphy, D.J. Kissel, J.L. Cecchi, C.J. Brinker, Sub-10 nm Thick Microporous Membranes Made by Plasma-Defined Atomic Layer Deposition of a Bridged Silsesquioxane Precursor, Journal of the American Chemical Society 129 (2007) 15446-15447.

81. H.Y. Fan, C. Hartshorn, T. Buchheit, D. Tallant, R. Assink, R. Simpson, D.J. Kissel, D.J. Lacks, S. Torquato, C.J. Brinker, Modulus-density scaling behaviour and framework architecture of nanoporous self-assembled silicas, Nature Materials 6 (2007) 418-423.

82. G. De, R. Kohn, G. Xomeritakis, C.J. Brinker, Nanocrystalline mesoporous palladium activated tin oxide thin films as room-temperature hydrogen gas sensors, Chemical Communications (2007) 1840-1842.

83. H.K. Baca, E. Carnes, S. Singh, C. Ashley, D. Lopez, C.J. Brinker, Cell-Directed Assembly of Bio/Nano Interfaces -- A New Scheme for Cell Immobilization, Accounts of Chemical Research 40 (2007) 836-845.

84. Wright, J. Gabaldon, D.B. Burckel, Y.B. Jiang, Z.R. Tian, J. Liu, C.J. Brinker, H.Y. Fan, Hierarchically organized nanoparticle mesostructure arrays formed through hydrothermal self-assembly, Chemistry of Materials 18 (2006) 3034-3038.

85. R. Truesdell, A. Mammoli, P. Vorobieff, F. van Swol, C.J. Brinker, Drag reduction on a patterned

superhydrophobic surface, Physical Review Letters 97 (2006).

86. S. Singh, J. Houston, F. van Swol, C.J. Brinker, Superhydrophobicity - Drying transition of confined water, Nature 442 (2006) 526-526.

87. A.T. Rodriguez, M. Chen, Z. Chen, C.J. Brinker, H.Y. Fan, Nanoporous carbon nanotubes synthesized through confined hydrogen-bonding self-assembly, Journal of the American Chemical Society 128 (2006) 9276-9277.

88. H.S. Peng, J. Tang, L. Yang, J.B. Pang, H.S. Ashbaugh, C.J. Brinker, Z.Z. Yang, Y.F. Lu, Responsive periodic mesoporous polydiacetylene/silica nanocomposites, Journal of the American Chemical Society 128 (2006) 5304-5305.

89. J.B. Pang, L. Yang, B.F. McCaughey, H.S. Peng, H.S. Ashbaugh, C.J. Brinker, Y.F. Lu, Thermochromatism and structural evolution of metastable polydiacetylenic crystals, Journal of Physical Chemistry B 110 (2006) 7221-7225.

90. J.B. Pang, L. Yang, D.A. Loy, H.S. Peng, H.S. Ashbaugh, J. Mague, C.J. Brinker, Y.F. Lu, Mesoscopically ordered organosilica and carbon-silica hybrids with uniform morphology by surfactant-assisted self-assembly of organo bis-silanetriols, Chemical Communications (2006) 1545-1547.

91. S.J. Kwoun, R.M. Lec, R.A. Cairncross, P. Shah, C.J. Brinker, Characterization of superhydrophobic materials using multiresonance acoustic shear wave sensors, Ieee Transactions on Ultrasonics Ferroelectrics and Frequency Control 53 (2006) 1400-1403.

92. Y.B. Jiang, N.G. Liu, H. Gerung, J.L. Cecchi, C.J. Brinker, Nanometer-thick conformal pore sealing of self-assembled mesoporous silica by plasma-assisted atomic layer deposition, Journal of the American Chemical Society 128 (2006) 11018-11019.

93. X.M. Jiang, C.J. Brinker, Aerosol-assisted self-assembly of single-crystal core/nanoporous shell particles as model controlled release capsules, Journal of the American Chemical Society 128 (2006) 4512-4513.

94. H. Gerung, Y. Zhao, L. Wang, R.K. Jain, T.J. Boyle, C.J. Brinker, S.M. Han, Two-photon absorption of matrix-free Ge nanocrystals, Applied Physics Letters 89 (2006).

95. H. Gerung, T.J. Boyle, L.J. Tribby, S.D. Bunge, C.J. Brinker, S.M. Han, Solution synthesis of germanium nanowires using a Ge2+ alkoxide precursor, Journal of the American Chemical Society 128 (2006) 5244-5250.

96. H.Y. Fan, A. Wright, J. Gabaldon, A. Rodriguez, C.J. Brinker, Y.B. Jiang, Three-dimensionally ordered gold nanocrystal/silica superlattice thin films synthesized via sol-gel self-assembly, Advanced Functional Materials 16 (2006) 891-895.

97. H.Y. Fan, J. Gabaldon, C.J. Brinker, Y.B. Jiang, Ordered nanocrystal/silica particles self-assembled from nanocrystal micelles and silicate, Chemical Communications (2006) 2323-2325.

98. C.J. Brinker, D.R. Dunphy, Morphological control of surfactant-templated metal oxide films, Current Opinion in Colloid & Interface Science 11 (2006) 126-132.

99. H.K. Baca, C. Ashley, E. Carnes, D. Lopez, J. Flemming, D. Dunphy, S. Singh, Z. Chen, N.G. Liu, H.Y. Fan, G.P. Lopez, S.M. Brozik, M. Werner-Washburne, C.J. Brinker, Cell-directed assembly of lipid-silica nanostructures providing extended cell viability, Science 313 (2006) 337-341.

100. D. Yu, J. Volponi, S. Chhabra, C.J. Brinker, A. Mulchandani, A.K. Singh, Aqueous sol-gel encapsulation of genetically engineered Moraxella spp. cells for the detection of organophosphates, Biosensors & Bioelectronics 20 (2005) 1433-1437.

101. K. Yang, H.Y. Fan, K.J. Malloy, C.J. Brinker, T.W. Sigmon, Optical and electrical properties of self-assembled, ordered gold nanocrystal/silica thin films prepared by sol-gel processing, Thin Solid Films 491 (2005) 38-42.

102. G. Xomeritakis, C.Y. Tsai, C.J. Brinker, Microporous sol-gel derived aminosilicate membrane for enhanced carbon dioxide separation, Separation and Purification Technology 42 (2005) 249-257.

103. S. Torquato, A. Donev, A.G. Evans, C.J. Brinker, Manufacturable extremal low-dielectric, high-stiffness porous materials, Journal of Applied Physics 97 (2005).

104. B. Smarsly, A. Gibaud, W. Ruland, D. Sturmayr, C.J. Brinker, Quantitative SAXS analysis of oriented 2D hexagonal cylindrical silica mesostructures in thin films obtained from nonionic surfactants, Langmuir 21 (2005) 3858-3866.

105. H.S. Peng, J. Tang, J.B. Pang, D.Y. Chen, L. Yang, H.S. Ashbaugh, C.J. Brinker, Z.Z. Yang, Y.F. Lu, Polydiacetylene/silica nanocomposites with tunable mesostructure and thermochromatism from diacetylenic assembling molecules, Journal of the American Chemical Society 127 (2005) 12782-12783.

106. M. Nyman, D. Ingersoll, S. Singh, F. Bonhomme, T.M. Alam, C.J. Brinker, M.A. Rodriguez, Comparative study of inorganic cluster-surfactant arrays, Chemistry of Materials 17 (2005) 2885-2895.

107. S. Gogte, P. Vorobieff, R. Truesdell, A. Mammoli, F. van Swol, P. Shah, C.J. Brinker, Effective slip on textured superhydrophobic surfaces, Physics of Fluids 17 (2005).

108. H. Gerung, S.D. Bunge, T.J. Boyle, C.J. Brinker, S.M. Han, Anhydrous solution synthesis of germanium nanocrystals from the germanium(II) precursor Ge[N(SiMe3)(2)](2), Chemical Communications (2005) 1914-1916.

109. H. Gerung, C.J. Brinker, S.R.J. Brueck, S.M. Han, In situ real-time monitoring of profile evolution during plasma etching of mesoporous low-dielectric-constant SiO2, Journal of Vacuum Science & Technology A 23 (2005) 347-354.

110. H.Y. Fan, E.W. Leve, C. Scullin, J. Gabaldon, D. Tallant, S. Bunge, T. Boyle, M.C. Wilson, C.J. Brinker, Surfactant-assisted synthesis of water-soluble and biocompatible semiconductor quantum dot micelles, Nano Letters 5 (2005) 645-648.

111. H.Y. Fan, E. Leve, J. Gabaldon, A. Wright, R.E. Haddad, C.J. Brinker, Ordered two- and three-dimensional arrays self-assembled from water-soluble nanocrystal-micelles, Advanced Materials 17 (2005) 2587-+.

112. H.Y. Fan, Z. Chen, C.J. Brinker, J. Clawson, T. Alam, Synthesis of organo-silane functionalized

nanocrystal micelles and their self-assembly, Journal of the American Chemical Society 127 (2005) 13746-13747.

113. D.A. Doshi, P.B. Shah, S. Singh, E.D. Branson, A.P. Malanoski, E.B. Watkins, J. Majewski, F. van Swol, C.J. Brinker, Investigating the interface of superhydrophobic surfaces in contact with water, Langmuir 21 (2005) 7805-7811.

114. D.A. Doshi, A.M. Dattelbaum, E.B. Watkins, C.J. Brinker, B.I. Swanson, A.P. Shreve, A.N. Parikh, J. Majewski, Neutron reflectivity study of lipid membranes assembled on ordered nanocomposite and nanoporous silica thin films, Langmuir 21 (2005) 2865-2870.

115. Z.P. Xu, P.S. Braterman, K. Yu, H.F. Xu, Y.F. Wang, C.J. Brinker, Unusual hydrocarbon chain packing mode and modification of crystallite growth habit in the self-assembled nanocomposites zinc-aluminum-hydroxide oleate and elaidate (cis- and trans-[Zn2Al(OH)(6)(CH3(CH2)(7)CH=CH(CH2)(7)COO-)] and magnesium analogues, Chemistry of Materials 16 (2004) 2750-2756.

116. D.H. Wang, H.M. Luo, R. Kou, M.P. Gil, S.G. Xiao, V.O. Golub, Z.Z. Yang, C.J. Brinker, Y.F. Lu, A general route to macroscopic hierarchical 3D nanowire networks, Angewandte Chemie-International Edition 43 (2004) 6169-6173.

117. Y.J. Song, Y. Yang, C.J. Medforth, E. Pereira, A.K. Singh, H.F. Xu, Y.B. Jiang, C.J. Brinker, F. van Swol, J.A. Shelnutt, Controlled synthesis of 2-D and 3-D dendritic platinum nanostructures, Journal of the American Chemical Society 126 (2004) 635-645.

118. N.G. Liu, D.R. Dunphy, P. Atanassov, S.D. Bunge, Z. Chen, G.P. Lopez, T.J. Boyle, C.J. Brinker, Photoregulation of mass transport through a photoresponsive azobenzene-modified nanoporous membrane, Nano Letters 4 (2004) 551-554.

119. G. Garnweitner, B. Smarsly, R. Assink, D.R. Dunphy, C. Scullin, C.J. Brinker, Characterization of self-assembled lamellar thermoresponsive silica-hydrogel nanocomposite films, Langmuir 20 (2004) 9811-9820.

120. H.Y. Fan, K. Yang, D.M. Boye, T. Sigmon, K.J. Malloy, H.F. Xu, G.P. Lopez, C.J. Brinker, Self-assembly of ordered, robust, three-dimensional gold nanocrystal/silica arrays, Science 304 (2004) 567-571.

121. C.J. Brinker, Evaporation-induced self-assembly: Functional nanostructures made easy, Mrs Bulletin 29 (2004) 631-640.

122. K. Yu, X. Wu, C.J. Brinker, J. Ripmeester, Mesostructured MTES-derived silica thin film with spherical voids investigated by TEM: 1. Mesostructure determination, Langmuir 19 (2003) 7282-7288.

123. K. Yu, B. Smarsly, C.J. Brinker, Self-assembly and characterization of mesostructured silica films with a 3D arrangement of isolated spherical mesopores, Advanced Functional Materials 13 (2003) 47-52.

124. S. Yilma, J.C. Sykora, T.T. Lo, A.M. Samoylov, N. Viswaprakash, N. Liu, T.A. Roppel, W.C. Neely, C.J. Brinker, V.J. Vodyanoy, Photovoltaic driving of current through amphotericin B/cholesterol channels, Biophysical Journal 84 (2003) 51A-51A.

125. Y. Yang, Y.F. Lu, M.C. Lu, J.M. Huang, R. Haddad, G. Xomeritakis, N.G. Liu, A.P. Malanoski, D. Sturmayr, H.Y. Fan, D.Y. Sasaki, R.A. Assink, J.A. Shelnutt, F. van Swol, G.P. Lopez, A.R. Burns, C.J. Brinker, Functional nanocomposites prepared by self-assembly and polymerization of diacetylene surfactants and silicic acid, Journal of the American Chemical Society 125 (2003) 1269-1277.

126. G. Xomeritakis, S. Naik, C.M. Braunbarth, C.J. Cornelius, R. Pardey, C.J. Brinker, Organic-templated silica membranes - I. Gas and vapor transport properties, Journal of Membrane Science 215 (2003) 225-233.

127. G. Xomeritakis, C.M. Braunbarth, B. Smarsly, N. Liu, R. Kohn, Z. Klipowicz, C.J. Brinker, Aerosol-assisted deposition of surfactant-templated mesoporous silica membranes on porous ceramic supports, Microporous and Mesoporous Materials 66 (2003) 91-101.

128. X. Wu, K. Yu, C.J. Brinker, J. Ripmeester, Mesostructured MTES-derived silica thin film with spherical voids investigated by TEM: 2. Dislocations and strain relaxation, Langmuir 19 (2003) 7289-7294.

129. D.H. Wang, W.L. Zhou, B.F. McCaughy, J.E. Hampsey, X.L. Ji, Y.B. Jiang, H.F. Xu, J.K. Tang, R.H. Schmehl, C. O'Connor, C.J. Brinker, Y.F. Lu, Electrodeposition of metallic nanowire thin films using mesoporous silica templates, Advanced Materials 15 (2003) 130-+.

130. B. Smarsly, K. Yu, C.J. Brinker, Detailed investigation of the microporous character of mesoporous silicas as revealed by small-angle scattering techniques, in: S.E. Park, R. Ryoo, W.S. Ahn, C.W. Lee, J.S. Chang (Eds.), Nanotechnology in Mesostructured Materials, vol. 146, 2003, pp. 295-298.

131. B. Smarsly, G. Xomeritakis, K. Yu, N.G. Liu, H.Y. Fan, R.A. Assink, C.A. Drewien, W. Ruland, C.J. Brinker, Microstructural characterization of polystyrene-block-poly(ethylene oxide)-templated silica films with cubic-ordered spherical mesopores, Langmuir 19 (2003) 7295-7301.

132. B. Smarsly, G. Garnweitner, R. Assink, C.J. Brinker, Preparation and characterization of mesostructured polymer-functionalized sol-gel-derived thin films, Progress in Organic Coatings 47 (2003) 393-400.

133. B. McCaughey, C. Costello, D.H. Wang, J.E. Hampsey, Z.Z. Yang, C.J. Li, C.J. Brinker, Y.F. Lu, Self-assembly of mesostructured conjugated poly(2,5-thienylene ethynylene)/silica nanocomposites, Advanced Materials 15 (2003) 1266-+.

134. Y.F. Lu, B.F. McCaughey, D.H. Wang, J.E. Hampsey, N. Doke, Z.Z. Yang, C.J. Brinker, Aerosol-assisted formation of mesostructured thin films, Advanced Materials 15 (2003) 1733-+.

135. N.G. Liu, Z. Chen, D.R. Dunphy, Y.B. Jiang, R.A. Assink, C.J. Brinker, Photoresponsive nanocomposite formed by self-assembly of an azobenzene-modified silane, Angewandte Chemie-International Edition 42 (2003) 1731-1734.

136. N.G. Liu, R.A. Assink, B. Smarsly, C.J. Brinker, Synthesis and characterization of highly ordered functional mesoporous silica thin films with positively chargeable -NH2 groups, Chemical Communications (2003) 1146-1147.

137. N.G. Liu, R.A. Assink, C.J. Brinker, Synthesis and characterization of highly ordered mesoporous thin films with -COOH terminated pore surfaces, Chemical Communications (2003) 370-371.

138. Gibaud, D. Grosso, B. Smarsly, A. Baptiste, J.F. Bardeau, F. Babonneau, D.A. Doshi, Z. Chen, C.J. Brinker, C. Sanchez, Evaporation-controlled self-assembly of silica surfactant mesophases, Journal of Physical Chemistry B 107 (2003) 6114-6118.

139. Gibaud, D. Doshi, B. Ocko, V. Goletto, C.J. Brinker, Time-resolved in situ grazing incidence small angle x-ray scattering experiment of evaporation induced self-assembly, in: S.E. Park, R. Ryoo, W.S. Ahn, C.W. Lee, J.S. Chang (Eds.), Nanotechnology in Mesostructured Materials, vol. 146, 2003, pp. 351-354.

140. Gibaud, A. Baptiste, D.A. Doshi, C.J. Brinker, L. Yang, B. Ocko, Wall thickness and core radius determination in surfactant templated silica thin films using GISAXS and X-ray reflectivity, Europhysics Letters 63 (2003) 833-839.

141. G. Garnweitner, B. Smarsly, R. Assink, W. Ruland, E. Bond, C.J. Brinker, Self-assembly of an environmentally responsive polymer/silica nanocomposite, Journal of the American Chemical Society 125 (2003) 5626-5627.

142. D.R. Dunphy, S. Singer, A.W. Cook, B. Smarsly, D.A. Doshi, C.J. Brinker, Aqueous stability of mesoporous silica films doped or grafted with aluminum oxide, Langmuir 19 (2003) 10403-10408.

143. D.A. Doshi, A. Gibaud, N.G. Liu, D. Sturmayr, A.P. Malanoski, D.R. Dunphy, H.J. Chen, S. Narayanan, A. MacPhee, J. Wang, S.T. Reed, A.J. Hurd, F. van Swol, C.J. Brinker, In-situ X-ray scattering study of continuous silica-surfactant self-assembly during steady-state dip coating, Journal of Physical Chemistry B 107 (2003) 7683-7688.

144. D.A. Doshi, A. Gibaud, V. Goletto, M.C. Lu, H. Gerung, B. Ocko, S.M. Han, C.J. Brinker, Peering into the self-assembly of surfactant templated thin-film silica mesophases, Journal of the American Chemical Society 125 (2003) 11646-11655.

145. Y.F. Wang, C. Bryan, H.F. Xu, P. Pohl, Y. Yang, C.J. Brinker, Interface chemistry of nanostructured materials: Ion adsorption on mesoporous alumina, Journal of Colloid and Interface Science 254 (2002) 23-30.

146. T.T. Lo, T.A. Roppel, J.J. Cannon, S. Yilma, A.M. Samoylov, W.C. Neely, N.G. Liu, C.J. Brinker, V.J. Vodyanoy, Large amphotericin B/cholesterol ion channels, Biophysical Journal 82 (2002) 2711.

147. N.G. Liu, K. Yu, B. Smarsly, D.R. Dunphy, Y.B. Jiang, C.J. Brinker, Self-directed assembly of photoactive hybrid silicates derived from an azobenzene-bridged silsesquioxane, Journal of the American Chemical Society 124 (2002) 14540-14541.

148. K. Yu, A.J. Hurd, A. Eisenberg, C.J. Brinker, Syntheses of silica/polystyrene-block-poly(ethylene oxide) films with regular and reverse mesostructures of large characteristic length scales by solvent evaporation-induced self-assembly, Langmuir 17 (2001) 7961-7965.

149. Y.F. Lu, Y. Yang, A. Sellinger, M.C. Lu, J.M. Huang, H.Y. Fan, R. Haddad, G. Lopez, A.R. Burns, D.Y. Sasaki, J. Shelnutt, C.J. Brinker, Self-assembly of mesoscopically ordered chromatic

polydiacetylene/silica nanocomposites, Nature 410 (2001) 913-917.

150. S.L. Hietala, V.M. Hietala, C.J. Brinker, Dual SAW sensor technique for determining mass and modulus changes, Ieee Transactions on Ultrasonics Ferroelectrics and Frequency Control 48 (2001) 262-267.

151. H.Y. Fan, F. Van Swol, Y.F. Lu, C.J. Brinker, Multiphased assembly of nanoporous silica particles, Journal of Non-Crystalline Solids 285 (2001) 71-78.

152. H.Y. Fan, S. Reed, T. Baer, R. Schunk, G.P. Lopez, C.J. Brinker, Hierarchically structured functional porous silica and composite produced by evaporation-induced self-assembly, Microporous and Mesoporous Materials 44 (2001) 625-637.

153. H.Y. Fan, H.R. Bentley, K.R. Kathan, P. Clem, Y.F. Lu, C.J. Brinker, Self-assembled aerogel-like low dielectric constant films, Journal of Non-Crystalline Solids 285 (2001) 79-83.

154. C.Y. Tsai, S.Y. Tam, Y.F. Lu, C.J. Brinker, Dual-layer asymmetric microporous silica membranes, Journal of Membrane Science 169 (2000) 255-268.

155. Y.F. Lu, H.Y. Fan, N. Doke, D.A. Loy, R.A. Assink, D.A. LaVan, C.J. Brinker, Evaporation-induced self-assembly of hybrid bridged silsesquioxane film and particulate mesophases with integral organic functionality, Journal of the American Chemical Society 122 (2000) 5258-5261.

156. H.Y. Fan, Y.F. Lu, A. Stump, S.T. Reed, T. Baer, R. Schunk, V. Perez-Luna, G.P. Lopez, C.J. Brinker, Rapid prototyping of patterned functional nanostructures, Nature 405 (2000) 56-60.

157. D.A. Doshi, N.K. Huesing, M.C. Lu, H.Y. Fan, Y.F. Lu, K. Simmons-Potter, B.G. Potter, A.J. Hurd, C.J. Brinker, Optically, defined multifunctional patterning of photosensitive thin-film silica mesophases, Science 290 (2000) 107-111.

158. C.A. Click, R.A. Assink, C.J. Brinker, S.J. Naik, An investigation of molecular templating in amorphous silicas by cross-polarization NMR spectroscopy, Journal of Physical Chemistry B 104 (2000) 233-236.

159. T. Clark, J.D. Ruiz, H.Y. Fan, C.J. Brinker, B.I. Swanson, A.N. Parikh, A new application of UV-ozone treatment in the preparation of substrate-supported, mesoporous thin films, Chemistry of Materials 12 (2000) 3879-3884.

160. R.B. Bhatia, C.J. Brinker, A.K. Gupta, A.K. Singh, Aqueous sol-gel process for protein encapsulation, Chemistry of Materials 12 (2000) 2434-2441.

161. Y.F. Lu, H.Y. Fan, A. Stump, T.L. Ward, T. Rieker, C.J. Brinker, Aerosol-assisted self-assembly of mesostructured spherical nanoparticles, Nature 398 (1999) 223-226.

162. Y.F. Lu, G.Z. Cao, R.P. Kale, S. Prabakar, G.P. Lopez, C.J. Brinker, Microporous silica prepared by organic templating: Relationship between the molecular template and pore structure, Chemistry of Materials 11 (1999) 1223-1229.

163. C.J. Brinker, Y.F. Lu, A. Sellinger, H.Y. Fan, Evaporation-induced self-assembly: Nanostructures made easy, Advanced Materials 11 (1999) 579-+.

164. T.J. Boyle, C.J. Brinker, T.J. Gardner, A.G. Sault, R.C. Hughes, Catalytic membrane sensors. A thin film modified H-2 resistive sensor for multi-molecular detection, Comments on Inorganic Chemistry 20 (1999) 209-231.

165. Sellinger, P.M. Weiss, A. Nguyen, Y.F. Lu, R.A. Assink, W.L. Gong, C.J. Brinker, Continuous self-assembly of organic-inorganic nanocomposite coatings that mimic nacre, Nature 394 (1998) 256-260.

166. Samuel, C.J. Brinker, L.J.D. Frink, F. van Swol, Direct measurement of solvation forces in complex microporous media: A new characterization tool, Langmuir 14 (1998) 2602-2605.

167. J.A. Ruffner, P.G. Clem, B.A. Tuttle, C.J. Brinker, C.S. Sriram, J.A. Bullington, Uncooled thin film infrared imaging device with aerogel thermal isolation: deposition and planarization techniques, Thin Solid Films 332 (1998) 356-361.

168. C.J. Brinker, Oriented inorganic films, Current Opinion in Colloid & Interface Science 3 (1998) 166-173.

169. S.M. Rao, C.S. Scotto, C.J. Brinker, T.J. Ross, Development of surface-specific, anti-weathering stone preservation treatment, International Series on Advances in Architecture 3 (1997) 233.

170. Y.F. Lu, R. Ganguli, C.A. Drewien, M.T. Anderson, C.J. Brinker, W.L. Gong, Y.X. Guo, H. Soyez, B. Dunn, M.H. Huang, J.I. Zink, Continuous formation of supported cubic and hexagonal mesoporous films by sol gel dip-coating, Nature 389 (1997) 364-368.

171. R.A. Cairncross, P.R. Schunk, K.S. Chen, S.S. Prakash, J. Samuel, A.J. Hurd, C.J. Brinker, Pore evolution and solvent transport during drying of gelled sol-gel coatings: Predicting 'springback', Drying Technology 15 (1997) 1815-1825.

172. S.M. Rao, C.J. Brinker, T.J. Ross, Environmental microscopy in stone conservation, Scanning 18 (1996) 508-514.

173. N.K. Raman, M.T. Anderson, C.J. Brinker, Template-based approaches to the preparation of amorphous, nanoporous silicas, Chemistry of Materials 8 (1996) 1682-1701.

174. S. Prabakar, R.A. Assink, N.K. Raman, S.A. Myers, C.J. Brinker, Identification of self- and cross-condensation products in organically modified silica sols by Si-29 and O-17 NMR spectroscopy, Journal of Non-Crystalline Solids 202 (1996) 53-60.

175. J.P. Collins, R.W. Schwartz, R. Sehgal, T.L. Ward, C.J. Brinker, G.P. Hagen, C.A. Udovich, Catalytic dehydrogenation of propane in hydrogen permselective membrane reactors, Industrial & Engineering Chemistry Research 35 (1996) 4398-4405.

176. G.Z. Cao, Y.F. Lu, L. Delattre, C.J. Brinker, G.P. Lopez, Amorphous silica molecular sieving membranes by sol-gel processing, Advanced Materials 8 (1996) 588-&.

177. C.J. Brinker, Porous inorganic materials, Current Opinion in Solid State & Materials Science 1 (1996) 798-805.

178. N.K. Raman, C.J. Brinker, Organic template approach to molecular-sieving membranes,

Journal of Membrane Science 105 (1995) 273-279.

179. S.S. Prakash, C.J. Brinker, A.J. Hurd, S.M. Rao, SILICA AEROGEL FILMS PREPARED AT AMBIENT-PRESSURE BY USING SURFACE DERIVATIZATION TO INDUCE REVERSIBLE DRYING SHRINKAGE, Nature 374 (1995) 439-443.

180. S.S. Prakash, C.J. Brinker, A.J. Hurd, SILICA AEROGEL FILMS AT AMBIENT-PRESSURE, Journal of Non-Crystalline Solids 190 (1995) 264-275.

181. F. Nishida, J.M. McKiernan, B. Dunn, J.I. Zink, C.J. Brinker, A.J. Hurd, IN-SITU FLUORESCENCE PROBING OF THE CHEMICAL-CHANGES DURING SOL-GEL THIN-FILM FORMATION, Journal of the American Ceramic Society 78 (1995) 1640-1648.

182. C.J. Brinker, N.K. Raman, M.N. Logan, R. Sehgal, R.A. Assink, D.W. Hua, T.L. Ward, STRUCTURE-PROPERTY RELATIONSHIPS IN THIN-FILMS AND MEMBRANES, Journal of Sol-Gel Science and Technology 4 (1995) 117-133.

183. P.J. Davis, R. Deshpande, D.M. Smith, C.J. Brinker, R.A. Assink, PORE STRUCTURE EVOLUTION IN SILICA-GEL DURING AGING/DRYING .4. VARYING PORE FLUID PH, Journal of Non-Crystalline Solids 167 (1994) 295-306.

184. C.J. Brinker, R. Sehgal, S.L. Hietala, R. Deshpande, D.M. Smith, D. Loy, C.S. Ashley, SOL-GEL STRATEGIES FOR CONTROLLED POROSITY INORGANIC MATERIALS, Journal of Membrane Science 94 (1994) 85-102.

185. C.J. Brinker, A.J. Hurd, FUNDAMENTALS OF SOL-GEL DIP-COATING, Journal De Physique Iii 4 (1994) 1231-1242.

186. N.K. Raman, T.L. Ward, C.J. Brinker, R. Sehgal, D.M. Smith, Z. Duan, M. Hampdensmith, J.K. Bailey, T.J. Headley, CATALYST DISPERSION ON SUPPORTED ULTRAMICROPOROUS INORGANIC MEMBRANES USING DERIVATIZED SILYLATION AGENTS, Applied Catalysis a-General 96 (1993) 65-82.

187. S.L. Hietala, D.M. Smith, V.M. Hietala, C.J. Brinker, CLOSED POROSITY ALUMINOSILICATE FOR ELECTRONIC PACKAGING APPLICATIONS, Journal of Materials Research 8 (1993) 1122-1127.

188. C.J. Brinker, T.L. Ward, R. Sehgal, N.K. Raman, S.L. Hietala, D.M. Smith, D.W. Hua, T.J. Headley, ULTRAMICROPOROUS SILICA-BASED SUPPORTED INORGANIC MEMBRANES, Journal of Membrane Science 77 (1993) 165-179.

189. J.K. Bailey, C.J. Brinker, M.L. Mecartney, GROWTH MECHANISMS OF IRON-OXIDE PARTICLES OF DIFFERING MORPHOLOGIES FROM THE FORCED HYDROLYSIS OF FERRIC-CHLORIDE SOLUTIONS, Journal of Colloid and Interface Science 157 (1993) 1-13.

190. W.C. Ackerman, D.M. Smith, J.C. Huling, Y.W. Kim, J.K. Bailey, C.J. Brinker, GAS VAPOR ADSORPTION IN IMOGOLITE - A MICROPOROUS TUBULAR ALUMINOSILICATE, Langmuir 9 (1993) 1051-1057.

191. Y. Zhang, N. Raman, J.K. Bailey, C.J. Brinker, R.M. Crooks, A NEW SOL-GEL ROUTE FOR THE PREPARATION OF NANOMETER-SCALE SEMICONDUCTOR PARTICLES THAT

EXHIBIT QUANTUM OPTICAL BEHAVIOR, Journal of Physical Chemistry 96 (1992) 9098-9100.

192. D.M. Smith, R. Deshpande, C.J. Brinker, W.L. Earl, B. Ewing, P.J. Davis, INSITU PORE STRUCTURE CHARACTERIZATION DURING SOL-GEL SYNTHESIS OF CONTROLLED POROSITY MATERIALS, Catalysis Today 14 (1992) 293-303.

193. M.J. Hampdensmith, T.A. Wark, C.J. Brinker, THE SOLID-STATE AND SOLUTION STRUCTURES OF TIN(IV) ALKOXIDE COMPOUNDS AND THEIR USE AS PRECURSORS TO FORM TIN OXIDE CERAMICS VIA SOL GEL-TYPE HYDROLYSIS AND CONDENSATION, Coordination Chemistry Reviews 112 (1992) 81-116.

194. R. Deshpande, D.W. Hua, D.M. Smith, C.J. Brinker, PORE STRUCTURE EVOLUTION IN SILICA-GEL DURING AGING DRYING .3. EFFECTS OF SURFACE-TENSION, Journal of Non-Crystalline Solids 144 (1992) 32-44.

195. P.J. Davis, C.J. Brinker, D.M. Smith, R.A. Assink, PORE STRUCTURE EVOLUTION IN SILICA-GEL DURING AGING DRYING .2. EFFECT OF PORE FLUIDS, Journal of Non-Crystalline Solids 142 (1992) 197-207.

196. P.J. Davis, C.J. Brinker, D.M. Smith, PORE STRUCTURE EVOLUTION IN SILICA-GEL DURING AGING DRYING .1. TEMPORAL AND THERMAL AGING, Journal of Non-Crystalline Solids 142 (1992) 189-196.

197. C.J. Brinker, D.M. Smith, R. Deshpande, P.M. Davis, S. Hietala, G.C. Frye, C.S. Ashley, R.A. Assink, SOL-GEL PROCESSING OF CONTROLLED PORE OXIDES, Catalysis Today 14 (1992) 155-163.

198. C.J. Brinker, A.J. Hurd, P.R. Schunk, G.C. Frye, C.S. Ashley, REVIEW OF SOL-GEL THIN-FILM FORMATION, Journal of Non-Crystalline Solids 147 (1992) 424-436.

199. W.L. Warren, P.M. Lenahan, C.J. Brinker, C.S. Ashley, S.T. Reed, G.R. Shaffer, SOL-GEL SILICATE THIN-FILM ELECTRONIC-PROPERTIES, Journal of Applied Physics 69 (1991) 4404-4408.

200. W.L. Warren, P.M. Lenahan, C.J. Brinker, RELATIONSHIP BETWEEN STRAINED SILICON-OXYGEN BONDS AND RADIATION-INDUCED PARAMAGNETIC POINT-DEFECTS IN SILICON DIOXIDE, Solid State Communications 79 (1991) 137-141.

201. W.L. Warren, P.M. Lenahan, C.J. Brinker, EXPERIMENTAL-EVIDENCE FOR 2 FUNDAMENTALLY DIFFERENT E' PRECURSORS IN AMORPHOUS-SILICON DIOXIDE, Journal of Non-Crystalline Solids 136 (1991) 151-162.

202. W.G. Fahrenholtz, S.L. Hietala, P. Newcomer, N.R. Dando, D.M. Smith, C.J. Brinker, EFFECT OF PHYSICAL STRUCTURE ON THE PHASE DEVELOPMENT OF ALUMINOSILICATE GELS, Journal of the American Ceramic Society 74 (1991) 2393-2397.

203. C.J. Brinker, A.J. Hurd, G.C. Frye, P.R. Schunk, C.S. Ashley, SOL-GEL THIN-FILM FORMATION, Nippon Seramikkusu Kyokai Gakujutsu Ronbunshi-Journal of the Ceramic Society of Japan 99 (1991) 862-877.

204. C.J. Brinker, G.C. Frye, A.J. Hurd, C.S. Ashley, FUNDAMENTALS OF SOL-GEL DIP

COATING, Thin Solid Films 201 (1991) 97-108.

205. W.L. Warren, P.M. Lenahan, C.J. Brinker, C.S. Ashley, S.T. Reed, DEPOSITION OF HIGH-QUALITY SOL-GEL OXIDES ON SILICON, Journal of Electronic Materials 19 (1990) 425-428.

206. D.W. Schaefer, C.J. Brinker, D. Richter, B. Farago, B. Frick, DYNAMICS OF WEAKLY CONNECTED SOLIDS - SILICA AEROGELS, Physical Review Letters 64 (1990) 2316-2319.

207. S.L. Hietala, D.M. Smith, C.J. Brinker, A.J. Hurd, A.H. Carim, N. Dando, STRUCTURAL STUDIES OF ANOMALOUS BEHAVIOR IN THE SILICA-ALUMINA GEL SYSTEM, Journal of the American Ceramic Society 73 (1990) 2815-2821.

208. C.J. Brinker, A.J. Hurd, G.C. Frye, K.J. Ward, C.S. Ashley, SOL-GEL THIN-FILM FORMATION, Journal of Non-Crystalline Solids 121 (1990) 294-302.

209. C.J. Brinker, R.K. Brow, D.R. Tallant, R.J. Kirkpatrick, SURFACE-STRUCTURE AND CHEMISTRY OF HIGH SURFACE-AREA SILICA-GELS, Journal of Non-Crystalline Solids 120 (1990) 26-33.

210. D.M. Smith, C.L. Glaves, D.P. Gallegos, C.J. Brinker, PORE STRUCTURE CHARACTERIZATION OF CATALYST SUPPORTS VIA LOW-FIELD NMR-SPECTROSCOPY, ACS Symposium Series 411 (1989) 251-261.

211. S.L. Hietala, D.M. Smith, J.L. Golden, C.J. Brinker, ANOMALOUSLY LOW SURFACE-AREA AND DENSITY IN THE SILICA-ALUMINA GEL SYSTEM, Journal of the American Ceramic Society 72 (1989) 2354-2358.

212. C.L. Glaves, G.C. Frye, D.M. Smith, C.J. Brinker, A. Datye, A.J. Ricco, S.J. Martin, PORE STRUCTURE CHARACTERIZATION OF POROUS FILMS, Langmuir 5 (1989) 459-466.

213. G.C. Frye, S.J. Martin, A.J. Ricco, C.J. Brinker, MONITORING THIN-FILM PROPERTIES WITH SURFACE ACOUSTIC-WAVE DEVICES - DIFFUSION, SURFACE-AREA, AND PORE-SIZE DISTRIBUTION, Acs Symposium Series 403 (1989) 208-221.

214. C.J. Brinker, R.A. Assink, SPINNABILITY OF SILICA SOLS - STRUCTURAL AND RHEOLOGICAL CRITERIA, Journal of Non-Crystalline Solids 111 (1989) 48-54.

215. T. Bein, K. Brown, G.C. Frye, C.J. Brinker, MOLECULAR-SIEVE SENSORS FOR SELECTIVE DETECTION AT THE NANOGRAM LEVEL, Journal of the American Chemical Society 111 (1989) 7640-7641.

216. A.J. Hurd, C.J. Brinker, OPTICAL SOL-GEL COATINGS - ELLIPSOMETRY OF FILM FORMATION, Journal De Physique 49 (1988) 1017-1025.

217. D.P. Gallegos, D.M. Smith, C.J. Brinker, AN NMR TECHNIQUE FOR THE ANALYSIS OF PORE STRUCTURE - APPLICATION TO MESOPORES AND MICROPORES, Journal of Colloid and Interface Science 124 (1988) 186-198.

218. C.J. Brinker, R.J. Kirkpatrick, D.R. Tallant, B.C. Bunker, B. Montez, NMR CONFIRMATION OF STRAINED DEFECTS IN AMORPHOUS SILICA, Journal of Non-Crystalline Solids 99 (1988) 418-428.

219. C.J. Brinker, B.C. Bunker, D.R. Tallant, K.J. Ward, R.J. Kirkpatrick, STRUCTURE OF SOL GEL-DERIVED INORGANIC POLYMERS - SILICATES AND BORATES .2, Acs Symposium Series 360 (1988) 314-332.

220. C.J. Brinker, HYDROLYSIS AND CONDENSATION OF SILICATES - EFFECTS ON STRUCTURE, Journal of Non-Crystalline Solids 100 (1988) 31-50.

221. R.A. Weimer, P.M. Lenahan, T.A. Marchione, C.J. Brinker, ELECTRONIC-PROPERTIES OF SOL-GEL-DERIVED OXIDES ON SILICON, Applied Physics Letters 51 (1987) 1179-1181.

222. D.L. Griscom, C.J. Brinker, C.S. Ashley, ELECTRON-SPIN-RESONANCE STUDIES OF IRRADIATED O-17-ENRICHED SOL-GEL SILICAS - ORGANIC IMPURITY EFFECTS AND THE STRUCTURE OF THE NONBRIDGING-OXYGEN HOLE CENTER, Journal of Non-Crystalline Solids 92 (1987) 295-301.

223. G.W. Scherer, C.J. Brinker, E.P. Roth, STRUCTURAL RELAXATION IN GEL-DERIVED GLASSES, Journal of Non-Crystalline Solids 82 (1986) 191-197.

224. R.B. Pettit, C.J. Brinker, USE OF SOL-GEL THIN-FILMS IN SOLAR-ENERGY APPLICATIONS, Solar Energy Materials 14 (1986) 269-287.

225. C.J. Brinker, D.R. Tallant, E.P. Roth, C.S. Ashley, SOL-GEL TRANSITION IN SIMPLE SILICATES .3. STRUCTURAL STUDIES DURING DENSIFICATION, Journal of Non-Crystalline Solids 82 (1986) 117-126.

226. C.J. Brinker, G.W. Scherer, DEHYDRATION OF GELS AND GLASSES IN THE SYSTEMS B2O3-SIO2 AND ZRO2-SIO2 PREPARED BY THE SOL-GEL PROCESS FROM METAL ALKOXIDES - COMMENT, Journal of the American Ceramic Society 69 (1986) C12-C14.

227. C.J. Brinker, B.C. Bunker, D.R. Tallant, K.J. Ward, CHEMICAL-REACTIVITY AND THE STRUCTURE OF GELS, Journal De Chimie Physique Et De Physico-Chimie Biologique 83 (1986) 851-858.

228. G.W. Scherer, C.J. Brinker, E.P. Roth, SOL-]GEL-]GLASS .3. VISCOUS SINTERING, Journal of Non-Crystalline Solids 72 (1985) 369-389.

229. R.B. Pettit, C.J. Brinker, C.S. Ashley, SOL-GEL DOUBLE-LAYER ANTIREFLECTION COATINGS FOR SILICON SOLAR-CELLS, Solar Cells 15 (1985) 267-278.

230. C.J. Brinker, G.W. Scherer, E.P. Roth, SOL-]GEL-]GLASS .2. PHYSICAL AND STRUCTURAL EVOLUTION DURING CONSTANT HEATING RATE EXPERIMENTS, Journal of Non-Crystalline Solids 72 (1985) 345-368.

231. C.J. Brinker, G.W. Scherer, SOL-]GEL-]GLASS .1. GELATION AND GEL STRUCTURE, Journal of Non-Crystalline Solids 70 (1985) 301-322.

232. C.J. Brinker, E.P. Roth, G.W. Scherer, D.R. Tallant, STRUCTURAL EVOLUTION DURING THE GEL TO GLASS CONVERSION, Journal of Non-Crystalline Solids 71 (1985) 171-185.

233. C.J. Brinker, K.D. Keefer, D.W. Schaefer, R.A. Assink, B.D. Kay, C.S. Ashley, SOL-GEL TRANSITION IN SIMPLE SILICATES .2, Journal of Non-Crystalline Solids 63 (1984) 45-59.

234. C.J. Brinker, D.M. Haaland, R.E. Loehman, OXYNITRIDE GLASSES PREPARED FROM GELS AND MELTS, Journal of Non-Crystalline Solids 56 (1983) 179-184.

235. C.J. Brinker, D.M. Haaland, OXYNITRIDE GLASS-FORMATION FROM GELS, Journal of the American Ceramic Society 66 (1983) 758-765.

236. R.B. Pettit, C.J. Brinker, SOL-GEL PROTECTIVE COATINGS FOR BLACK CHROME SOLAR SELECTIVE FILMS, Proceedings of the Society of Photo-Optical Instrumentation Engineers 324 (1982) 176-183.

237. C.J. Brinker, K.D. Keefer, D.W. Schaefer, C.S. Ashley, SOL-GEL TRANSITION IN SIMPLE SILICATES, Journal of Non-Crystalline Solids 48 (1982) 47-64.

238. C.J. Brinker, FORMATION OF OXYNITRIDE GLASSES BY AMMONOLYSIS OF GELS, Journal of the American Ceramic Society 65 (1982) C4-C5.

239. D.K. Ottesen, C.J. Brinker, IR STUDY OF THE GEL-TO-GLASS CONVERSION, American Ceramic Society Bulletin 60 (1981) 364-365.

240. J.J. Mecholsky, C.J. Brinker, MEASUREMENT OF CRACK-GROWTH RESISTANCE AT GLASS-CERAMIC-METAL INTERFACES, American Ceramic Society Bulletin 60 (1981) 373-373.

241. L.C. Klein, C.J. Brinker, CRYSTALLIZATION IN MIXED ALKALI SILICATE AND BOROSILICATE GLASSES IN CONTACT WITH MOLTEN SODIUM, American Ceramic Society Bulletin 60 (1981) 354-354.

242. C.J. Brinker, S.P. Mukherjee, COMPARISONS OF SOL-GEL-DERIVED THIN-FILMS WITH MONOLITHS IN A MULTICOMPONENT SILICATE GLASS SYSTEM, Thin Solid Films 77 (1981) 141-148.

243. C.J. Brinker, S.P. Mukherjee, CONVERSION OF MONOLITHIC GELS TO GLASSES IN A MULTICOMPONENT SILICATE GLASS SYSTEM, Journal of Materials Science 16 (1981) 1980-1988.

244. C.J. Brinker, L.C. Klein, BEHAVIOR OF SILICATE AND BOROSILICATE GLASSES IN CONTACT WITH METALLIC SODIUM .2. BOROSILICATE GLASSES, Physics and Chemistry of Glasses 22 (1981) 22-28.

245. C.J. Brinker, M.S. Harrington, SOL-GEL DERIVED ANTIREFLECTIVE COATINGS FOR SILICON, Solar Energy Materials 5 (1981) 159-172.

246. C.J. Brinker, C.S. Ashley, S.T. Reed, MICROWAVE EFFECTS ON SOL-GELS, American Ceramic Society Bulletin 60 (1981) 364-364.

247. C.J. Brinker, GEL-TO-GLASS CONVERSION IN THE BOROSILICATE GLASS SYSTEM, American Ceramic Society Bulletin 60 (1981) 364-364.

248. S.P. Mukherjee, C.J. Brinker, MULTICOMPONENT SILICATE GLASS COATINGS BY THE SOL-GEL PROCESS, American Ceramic Society Bulletin 59 (1980) 331-331.

249. J.J. Mecholsky, C.J. Brinker, R.J. Sanford, V.J. Parks, FRACTURE-MECHANICS ANALYSIS OF A GLASS CERAMIC-TO-METAL SEAL, American Ceramic Society Bulletin 59 (1980) 822-822.

250. C.J. Brinker, J.J. Mecholsky, INFLUENCE OF MICROSTRUCTURE ON FRACTURE OF PHASE-SEPARATED GLASSES, American Ceramic Society Bulletin 59 (1980) 352-352.

251. C.J. Brinker, L.C. Klein, Behavior of Silicate and Borosilicate Glasses in Contact with Metallic Sodium .1. Sodium SIicate Glasses, Physics and Chemistry of Glasses 21 (1980) 141-145.

252. B.K. Speronello, C.J. Brinker, W.R. Ott, Lead silicate--potassium carbonate solid--solid reaction kinetics, Thermochimica Acta 6 (1973) 85-94.

O. Research Support

ACTIVE SUPPORT (Total Award amount)

1R01GM098736-01 (Jakobsson, UIUC; Brinker, UNM; Maloy UCSD), 9/1/2011 – 5/31/2015
NIH EUREKA , $447K (0.05 cal-mo)
Development of Functional Protocells and Virus-Like Particles for Drug Resistant Bacteria
We plan to develop lipid coated inorganic nanoparticles (termed functional nanoparticles) and engineered virus-like particles (VLPs) as carriers to deliver antisense nucleic acids into drug-resistant bacteria cells as a novel way to treat bacterial infections.

LLS 7010-14 SCOR (Carroll NYU; Willman UNM), 10/1/2013 – 9/30/2018
Lymphoma Leukemia Society , $176,131 (0.06 sum-mo)
Project 4: Targeted Nanotherapeutics for ALL Therapy
Silica nanoparticles have recently received FDA approval for targeted molecular imaging in cancer; these studies will lay the foundation for FDA-reviewed IND-directed toxicology studies.

5 U01 CA151792-03 (Willman, Brinker/UNM), 9/1/2010 – 8/31/2015
NCI NIH, $1.2M, (0.6 cal-mo)
Peptide-directed Protocells and Virus-Like Particles – new nanoparticle platforms for targeted delivery of multicomponent cargos
This project will develop nanoparticle platforms to target delivery of a variety of different cargos to cancer cells.

1U19ES019528-01 (A. Nel, UCLA; Brinker UNM PI), 9/24/2010 – 4/30/2015
NIEHS/UCLA, $453K, (0.25 cal-mo)
Center for Nanobiology and Predictive Toxicology
This Center will study how properties of engineered nanoparticles may lead to lung health effects by creating harmful interactions in cells and tissues that will come into contact with these materials.

165609 (Brinker, SNL), 10/1/2012 – 9/30/2015
Sandia National Labs – LDRD (3.0 cal-mo)
The Engineering and Understanding of Nanoparticle/Cellular Interactions
The goal of this project is to design and fabricate next generation protocells that overcome multiple

grand challenges of current nanocarrier platforms with respect to cargo capacity and diversity, circulation time, controlled release, targeting and cell-specific toxicity, and safety.

1198779 (Brinker, UNM), 2/1/2012 – 12/20/2015
Sandia National Labs – LDRD, $190,429 (1.5 sum-mo)
New Biotic-Abiotic Materials and Interfaces
Direct research toward the creation of a new reductionist synthetic platform integrating protoells and molecular networks in which to conduct biochemical assays with subcellular structures and environments that recapitulate those of living systems.

KC0203010/93223 (P. Clem, SNL), 10/1/2013 – 9/30/2014
DOE BES/Division of Materials Sci & Engr, $350,000 (1.0 cal-mo)
Molecular Nanocomposites
The goal of this project is to use molecular self-assembly in conjuction with atomic layer deposition to create nanocomposite materials and bio/nano interfaces for applications in energy.

0830117 (Nel, UCLA: Brinker UNM PI), 9/1/2009 – 8/31/2018
NSF ERC, EPA, $425K, (0.05 cal-mo)
Center for Environmental Implications of Nanotechnology (CEIN) Systematically Varied Physicochemical Properties of Nanoparticles
The goal of this project is to develop a broad-based model of predictive toxicology premised on the quantitative structure-activity relationships and nanomaterial injury mechanisms at the biological level.

9550-1-14-066 (Brinker, UNM), 2/1/2014 – 1/31/2017
Air Force Office of Scientific Research, $600K (0.5 cal-mo)
Biocompatible and Biomimetic Self-Assembly of Functional Nanostructures
Based largely on new classes of biotic/abiotic materials discovered and developed within the AFOSR program, we will (1) continue to study cellular immobilization within engineered 3D matrices, (2) to explore newly discovered silica cell replication, and (3) develop the protocell as a new platform for synthetic biology.

DE-FG02-02ER15368 (Brinker, UNM), 11/15/2012 – 11/14/2016
DOE/BES (NSET) $540K, (0.25 cal-mo)
Catalytic and Transport Behaviors of Model Porous and Composite Nanostructures (Renewal)
The goal of this project is the design, synthesis and understanding of model self-assembled materials with controlled nanocomposite architectures for studies in catalysis and transport in model reactive separation systems.

NSF 12-269 (Datye, UNM), 4/15/2013 – 4/14/2016
NSF, $93,569 (0.0 cal-mo)
REU Site: Research Experience for Undergraduates in NSMSE
This continuation project will continue to provide mentoring and education in the applications of Nanoscience and Microsystems to materials science problems.

CB-SEED-25 (Carnes, SNL), 9/1/2013 – 3/31/2015
Defense Threat Reduction Agency**,** $500K (0 cal-mo)
Mesoporous Alum Nanoparticles as a Universal Platform for Antigen Adsorption, Presentation, and Delivery
We propose to synthesize high surface-area mesoporous alum nanoparticles (MANPs) that facilitate facile adsorption and presentation of antigens isolated from Category A and B biothreat agents.

SNL) DTRA JSTO-CBD NATV (Brinker, SNL), 9/1/2013 – 8/30/2015
Defense Threat Reduction Agency, $2.3M (0.1 cal-mo)
Development of a Mesoporous Silica Nanoparticle-Supported Lipid Bilayer Platform for Targeted, Triggered, Sustained, and Systemic Delivery of Antibiotics
We propose to develop mesoporous silica nanoparticle-supported lipid as a flexible, modular platform for targeted, triggered, sustained, and systemic delivery of a variety of FDA-approved antibiotics to cells, tissues, and organs infected with Gram-negative, facultative intracellular pathogens

NSF 13-518 INSPIRE (Y. Wang, UCSD; Brinker UNM PI), 9/1/2013 – 8/31/2018
NSF, $325,000 (0.1 cal-mo)
Protocells as a Platform for Bottom-up Synthetic Biology
We propose to develop a proof-of-concept bottom-up cell utilizing the protocell - a single cell entity that will serve as a nanoscale machine capable of perceiving external environmental cues and guiding the regulation of signaling transduction and gene/protein production inside the cells.

Lutsgarden Foundation (Brinker, UNM) 8/1/2014 – 12/31/2015
Fred Hutchinson Cancer Center, Seattle, WA, $150K, (0.1 cal)
Rapid in-situ Generation of Pancreatic Tumor Specific T-Cells using DNA nanocarriers
Pore surface chemistries will be modified with cationic or orther ligands to enhance loading of customized cargos identified by FHCC.

Sponsored Research Agreement (Brinker, UNM) 8/1/2014 – 2/1/2016
Oncothyreon, Inc., $402K (0.1 cal-mo)
Protocell and Mesoporous Silica Nanoparticles for Cancer Therapeutics
The first phase of an anticipated multi-phase, multi-year project in collaboration with Alpine Biosciences will further develop our highly biocompatible and versatile nanoparticle platform technology, capable of delivering a broad range of cargo to specific target cells of different lineages in vivo.

PENDING

DOE DE-FOA-0001010, EFRC (Cox, UCD; Brinker, UNM) est 7/1/14-6/30/17
DOE EFRC, $98,169 (0.05 cal-mo)
BESANE – Biologically Enabled Self Assembly for Novel Energy
We propose to create engineered porous scaffolds within which we can incorporate biomolecular machinery and upon which we can support synthetic or native membranes. These artificial cellular contracts will be used to transduce or harvest energy.

NSF BMAT (Pyle UCLA, Brinker UNM) est 7/1/14-6/30/17
NSF, $64,000 (0.05 cal-mo)
Creating Silica Based Encapsulant Architectures for Modulating Cell Fate
We propose to extend strategies for synthesis of 3D cellular composite constructs to understand and enhance stem cell survival, expansion, and differentiation.

NSF 15-517 RII Track -2 FEC (Pratt Tulane; Brinker UNM)) est 10/1/15 – 9/30/19
NSF, $1.285M
Advanced Nanoporous Materials at the Nexus of Water, Energy, and Food Technologies
Person-Months Per Year Committed to the Project: Cal: Acad: Sumr: 0.23

National Institutes of Health 4/1/2015 – 3/31/2020
NIH, $1.814M

Integrative Cancer Nanoscience and Microsystems (NSMS) Training Center (renewal)
Person-Months Per Year Committed to the Project: Cal: 0.0 Acad: Sumr:

National Institutes of Health (Pasqualini, UNM) 9/1/2015 – 8/31/2020
NIH, $13M
New Mexico Nanomaterials Center for Targeted Cancer Therapy and Imaging
Person-Months Per Year Committed to the Project: Cal: 0.1 Acad: Sumr: