

C. Jeffrey Brinker
Distinguished and Regent's Professor
Department of Chemical & Biological Engineering
University of New Mexico
1 University of New Mexico, Albuquerque, NM 87131

Laboratory Fellow, Sandia National Laboratories
1515 Eubank SE, Albuquerque, NM 87185
E-mail: cjbrink@sandia.gov

(a) Professional Preparation

Rutgers University	New Brunswick, New Jersey	Ceramic Science	B.S. 1972
Rutgers University	New Brunswick, New Jersey	Ceramic Science	M.S. 1975
Rutgers University	New Brunswick, New Jersey	Ceramic Science	Ph.D. 1978

(b) Appointments

University of New Mexico	Distinguished Professor, Chemical and Biological Engineering and Molecular Genetics and Microbiology and Member of UNM Comprehensive Cancer Center	2008 - present
University of New Mexico	Regent's Professor, Chemical and Biological Engineering and Molecular Genetics and Microbiology	2006 - present
Sandia National Laboratories	Laboratory Fellow	2003 – present
Sandia National Laboratories/Los Alamos National Laboratory	Distinguished Affiliate Scientist	2002 – present
Center for Integrated Nanotechnologies (CINT)		
University of New Mexico	Prof., Chemistry and Chemical and Nuclear Engineering	1999 – 2006
Sandia National Laboratories	Sr. Scientist, Chemical Synthesis and Nanomaterials	1999 – 2003
University of New Mexico	Distinguished National Laboratory Professor, Chemistry and Chemical and Nuclear Engineering	1991 – 1999
Sandia National Laboratories	Direct Fabrication Department	1991 – 1998
Sandia National Laboratories	Chemistry and Ceramics Department	1979 – 1991

(c) Publications (Undergraduate co-authors are underlined)

(i) Five Most Related Publications

- Yaqin Fu; Ying-Bing Jiang; Darren Dunphy; Haifeng Xiong; Eric Coker; Stan Chou; Hongxia Zhang; Juan M Vanegas; Jonas G Croissant; Joseph L Cecchi; Susan B Rempe; C Jeffrey Brinker.: Ultra-thin enzymatic liquid membrane for CO₂ separation and capture. *Nature communications* 2018, 990. <https://doi.org/10.1038/s41467-018-03285-x>
- Chen, Z.; Jiang, Y. B.; Dunphy, D. R.; Adams, D. P.; Hodges, C.; Liu, N. G.; Zhang, N.; Xomeritakis, G.; Jin, X. Z.; Aluru, N. R.; Gaik, S. J.; Hillhouse, H. W.; Brinker, C. J.: DNA translocation through an array of kinked nanopores. *Nature Materials* **2010**, 9, 667-675. <http://doi: 10.1038/nmat2805>.
- Jiang, Y.-B.; Xomeritakis, G.; Chen, Z.; Dunphy, D.; Kissel, D. J.; Cecchi, J. L.; Brinker, C. J.: Sub-10 nm Thick Microporous Membranes Made by Plasma-Defined Atomic Layer Deposition of a Bridged Silsesquioxane Precursor. *J. Am. Chem. Soc.* 2007, 129, 15446-15447. <http://doi: 10.1021/ja0773756>.
- 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.

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. [http:// doi:10.1038/38699](http://doi:10.1038/38699).

(ii) Five Other Significant Publications

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. [http:// doi:10.1038/18410](http://doi:10.1038/18410).

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 with commentary: Irvine, D. J., One nanoparticle, one kill. *Nature Materials News & Views* 2011, 10, 342).

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. [http:// doi:10.1038/35011026](http://doi:10.1038/35011026).

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. [http:// doi:10.1038/28354](http://doi:10.1038/28354).

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. [http:// doi: 10.1126/science.1095140](http://doi:10.1126/science.1095140).

(d) Synergistic Activities

- Launched first major symposium series encouraging interdisciplinary collaboration between materials scientists and chemists (MRS Better Ceramics Through Chemistry I - VI).
- Co-authored Sol-Gel Science - the most highly cited textbook on chemical processing of nano-scale inorganic materials.
- Served as member of Presidential Committee of Advisors in Science and Technology (PECAST) sub-committee and NSF blue ribbon panel that projected critical research directions for the next ten years of the National Nanotechnology Initiative. Served as member of the Board of Directors of the Materials Research Society. Served as mentor for the first five years of the UNM STEP program intended to engage under-represented groups in science and engineering. Served as mentor for 10 years of the UNM REU program in nano science and Microsystems. Served as co-chair of the international meeting on hybrid and multifunctional materials I -IV. Member of the US National Academy of Engineering and the American Academy of Arts and Sciences.
- Initiated UNM's NSF EPSCoR nanoscience initiative to promote state-wide collaborations amongst academic institutions and the national labs; promoted K-12 programs in nanoscience discovery and recruitment of Hispanic students into advanced degree programs.
- Forty eight issued U.S. patents and 5 R&D100 Awards, demonstrating translation of scientific discoveries into technology; participated in creating three start-up companies based on super hydrophobic films, atomic layer deposition, and nano particle therapeutic technologies, and mentored winners of UNM Anderson School Business Plan competition based on protocell nanocarrier technology; Elected to the National Academy of Inventors in 2015.

