Matthew Yates

Curriculum vitae

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Professional Experience

University of Rochester — **Rochester, NY**
Department of Chemical Engineering
Professor — *2013–present*
Scientist at the Laboratory for Laser Energetics — *2002–present*
Department Chair — *2009–2018*
Associate Professor — *2006–2012*
Assistant Professor — *2001–2006*

Max-Planck Institute — **Potsdam, Germany**
Postdoctoral Fellow, Colloids and Interfaces — *2001–2003*
Postdoctoral Advisor: Dr. Frank Caruso

Los Alamos National Laboratory — **Los Alamos, NM**
Postdoctoral Fellow, Chemistry Division — *1999–2001*
Postdoctoral Advisor: Dr. T. Mark McCleskey

Education

University of Texas — **Austin, TX**
Ph.D., Chemical Engineering — *1994–1999*
Doctoral Advisor: Prof. Keith P. Johnston

Tulane University — **New Orleans, LA**
B.S., Chemical Engineering — *1990–1994*
Undergraduate Thesis Advisor: Prof. Kyriakos D. Papadopoulos

Honors and Awards

NSF International Research Fellowship: Max-Planck Institute, Potsdam — *2001–2003*

Director's Fellowship: Los Alamos National Laboratory — *1999–2001*

Harold Levey Alumni Award: Tulane University — *1999*

Endowed Presidential Scholarship: Society of Plastics Engineers — *1996*

Research Interests

Advanced Materials, Fine Particles, Crystallization, Thin Films, Membranes, Coatings, Colloidal Assembly, Microencapsulation, Supercritical Fluids

Teaching Interests

Thermodynamics, Reactor Design, Materials Science, Colloid and Surface Science, Nanotechnology, Energy and the Environment

University and Departmental Service

Chemical Engineering Department Chair	*2009–2018*
University Strategic Planning Committee on Energy	*2007*
University Administrative Committee	*2006–2009*
Director of the Chemical Engineering Graduate Program	*2004–2006*
University Graduate Studies Committee	*2004–2009*
Organizer of Chemical Engineering Departmental Seminar Series	*2002–2004*

Publications

Journal Articles

[1] Chen, Q., Jia, C., Li, Y., Xu, J., Guan, B., and Yates, M. Z., "alpha-Calcium Sulfate Hemihydrate Nanorods Synthesis: A Method for Nanoparticle Preparation by Mesocrystallization," *Langmuir*, 33(9), 2362–2369, **2017**, http://dx.doi.org/10.1021/acs.langmuir.7b00013.

[2] Zhang, X., Chaimayo, W., Yang, C., Yao, J., Miller, B. L., and Yates, M. Z., "Silver-hydroxyapatite composite coatings with enhanced antimicrobial activities through heat treatment," *Surface & Coatings Technology*, 325, 39–45, **2017**, http://dx.doi.org/10.1016/j.surfcoat.2017.06.013.

[3] Fu, C., Zhang, X., Savino, K., Gabrys, P., Gao, Y., Chaimayo, W., Miller, B. L., and Yates, M. Z., "Antimicrobial silver-hydroxyapatite composite coatings through two-stage electrochemical synthesis," *Surface & Coatings Technology*, 301, 13–19, **2016**, http://dx.doi.org/10.1016/j.surfcoat.2016.03.010.

[4] Fu, C., Savino, K., Gabrys, P., Zeng, A., Guan, B., Olvera, D., Wang, C., Song, B., Awad, H., Gao, Y., and Yates, M. Z., "Hydroxyapatite thin films with giant electrical polarization," *Chemistry of Materials*, 27(4), 1164–1171, **2015**, http://dx.doi.org/10.1021/cm503364s.

[5] Fu, C., Song, B., Wan, C., Savino, K., Wang, Y., Zhang, X., and Yates, M. Z., "Electrochemical growth of composite hydroxyapatite coatings for controlled release," *Surface & Coatings Technology*, 276, 618–625, **2015**, http://dx.doi.org/10.1016/j.surfcoat.2015.06.007.

[6] Savino, K. and Yates, M. Z., "Thermal stability of electrochemical-hydrothermal hydroxyap-

atite coatings," *Ceramics International*, 41(7), 8568–8577, **2015**, http://dx.doi.org/10.1016/j.ceramint.2015.03.065.

[7] Tsai, H.-Y., Lee, A., Peng, W., and Yates, M. Z., "Synthesis of poly(n-isopropylacrylamide) particles for metal affinity binding of peptides," *Colloids and Surfaces B-Biointerfaces*, 114, 104–110, **2014**, http://dx.doi.org/10.1016/j.colsurfb.2013.09.060.

[8] Tsai, H.-Y., Vats, K., Yates, M. Z., and Benoit, D. S. W., "Two-dimensional patterns of poly(n-isopropylacrylamide) microgels to spatially control fibroblast adhesion and temperature-responsive detachment," *Langmuir*, 29(39), 12183–12193, **2013**, http://dx.doi.org/10.1021/la400971g.

[9] Fu, H., Guan, B., Jiang, G., Yates, M. Z., and Wu, Z., "Effect of supersaturation on competitive nucleation of $CaSO_4$ phases in a concentrated $CaCl_2$ solution," *Crystal Growth & Design*, 12(3), 1388–1394, **2012**, http://dx.doi.org/10.1021/cg201493w.

[10] Kong, B., Guan, B., Yates, M. Z., and Wu, Z., "Control of alpha-calcium sulfate hemihydrate morphology using reverse microemulsions," *Langmuir*, 28(40), 14137–14142, **2012**, http://dx.doi.org/10.1021/la302459z.

[11] Wei, X., Fu, C., Savino, K., and Yates, M. Z., "Carbonated hydroxyapatite coatings with aligned crystal domains," *Crystal Growth & Design*, 12(7), 3474–3480, **2012**, http://dx.doi.org/10.1021/cg201685x.

[12] Wei, X., Fu, C., Savino, K., and Yates, M. Z., "Fully dense yttrium-substituted hydroxyapatite coatings with aligned crystal domains," *Crystal Growth & Design*, 12(1), 217–223, **2012**, http://dx.doi.org/10.1021/cg200943s.

[13] Wei, X. and Yates, M. Z., "Yttrium-doped hydroxyapatite membranes with high proton conductivity," *Chemistry of Materials*, 24(10), 1738–1743, **2012**, http://dx.doi.org/10.1021/cm203355h.

[14] Liu, D., Savino, K., and Yates, M. Z., "Coating of hydroxyapatite films on metal substrates by seeded hydrothermal deposition," *Surface & Coatings Technology*, 205(16), 3975–3986, **2011**, http://dx.doi.org/10.1016/j.surfcoat.2011.02.008.

[15] Lee, A., Tsai, H.-Y., and Yates, M. Z., "Steric stabilization of thermally responsive n-isopropylacrylamide particles by poly(vinyl alcohol)," *Langmuir*, 26(23), 18055–18060, **2010**, http://dx.doi.org/10.1021/la1039128.

[16] Wei, X. and Yates, M. Z., "Control of Nafion®/poly(vinylidene fluoride-co-hexafluoropropylene) composite membrane microstructure to improve performance in direct methanol fuel cells," *Journal of the Electrochemical Society*, 157(4), B522–B528, **2010**, http://dx.doi.org/10.1149/1.3305806.

[17] Wei, X. and Yates, M. Z., "Nafion®/polystyrene-b-poly(ethylene-ran-butylene)-b-polystyrene composite membranes with electric field-aligned domains for improved direct methanol fuel

cell performance," *Journal of Power Sources*, 195(3), 736–743, **2010**, http://dx.doi.org/10.1016/j.jpowsour.2009.08.027.

[18] Liu, D., Savino, K., and Yates, M. Z., "Microstructural engineering of hydroxyapatite membranes to enhance proton conductivity," *Advanced Functional Materials*, 19(24), 3941–3947, **2009**, http://dx.doi.org/10.1002/adfm.200900318.

[19] Liu, D. and Yates, M. Z., "Electric field processing to control the structure of poly(vinylidene fluoride) composite proton conducting membranes," *Journal of Membrane Science*, 326(2), 539–548, **2009**, http://dx.doi.org/10.1016/j.memsci.2008.10.031.

[20] Yin, W. and Yates, M. Z., "Encapsulation and sustained release from biodegradable microcapsules made by emulsification/freeze drying and spray/freeze drying," *Journal of Colloid and Interface Science*, 336(1), 155–161, **2009**, http://dx.doi.org/10.1016/j.jcis.2009.03.065.

[21] Liu, D. and Yates, M. Z., "Tailoring the structure of S-PEEK/PDMS proton conductive membranes through applied electric fields," *Journal of Membrane Science*, 322(1), 256–264, **2008**, http://dx.doi.org/10.1016/j.memsci.2008.05.059.

[22] Yin, W. and Yates, M. Z., "Effect of interfacial free energy on the formation of polymer microcapsules by emulsification/freeze-drying," *Langmuir*, 24(3), 701–708, **2008**, http://dx.doi.org/10.1021/la7022693.

[23] Liu, D. and Yates, M. Z., "Fabrication of size-tunable TiO_2 tubes using rod-shaped calcite templates," *Langmuir*, 23(20), 10333–10341, **2007**, http://dx.doi.org/10.1021/la701335j.

[24] Yin, W., Dong, Z., Chen, X., Finn, N., and Yates, M. Z., "Hydrophobic ion pairing to enhance encapsulation of water-soluble additives into CO_2-swollen polymer microparticles," *Journal of Supercritical Fluids*, 41(2), 293–298, **2007**, http://dx.doi.org/10.1016/j.supflu.2006.09.009.

[25] Yin, W., Liu, H., Yates, M. Z., Du, H., Jiang, F., Guo, L., and Krauss, T. D., "Fluorescent quantum dot-polymer nanocomposite particles by emulsiflcation/solvent evaporation," *Chemistry of Materials*, 19(12), 2930–2936, **2007**, http://dx.doi.org/10.1021/cm070214g.

[26] Huang, Y. J. and Yates, M. Z., "Copper etching by water-in-oil microemulsions," *Colloids and Surfaces A-Physicochemical and Engineering Aspects*, 281(1-3), 215–220, **2006**, http://dx.doi.org/10.1016/j.colsurfa.2006.02.041.

[27] Lin, J.-C. and Yates, M. Z., "Growth of oriented molecular sieve thin films from aligned seed layers," *Chemistry of Materials*, 18(17), 4137–4141, **2006**, http://dx.doi.org/10.1021/cm060154z.

[28] Liu, D. X. and Yates, M. Z., "Formation of rod-shaped calcite crystals by microemulsion-based synthesis," *Langmuir*, 22(13), 5566–5569, **2006**, http://dx.doi.org/10.1021/la060612i.

[29] Baker, G. A., Campbell, M. L., Yates, M. Z., and McCleskey, T. M., "Carbon dioxide emulsion assisted loading of polymer microspheres toward sustained release materials," *Langmuir*, 21(9), 3730–3732, **2005**, http://dx.doi.org/10.1021/la047146m.

[30] Lin, J. C. and Yates, M. Z., "Altering the crystal morphology of Silicalite-1 through microemulsion-based synthesis," *Langmuir*, 21(6), 2117–2120, **2005**, http://dx.doi.org/10.1021/la0473456.

[31] Liu, H., Finn, N., and Yates, M. Z., "Encapsulation and sustained release of a model drug, indomethacin, using CO_2-based microencapsulation," *Langmuir*, 21(1), 379–385, **2005**, http://dx.doi.org/10.1021/la047934b.

[32] Lin, J. C., Dipre, J. T., and Yates, M. Z., "Novel aluminum phosphate-5 crystal morphologies synthesized by microwave heating of a water-in-oil microemulsion," *Langmuir*, 20(4), 1039–1042, **2004**, http://dx.doi.org/10.1021/la0359631.

[33] Lin, J. C., Yates, M. Z., Petkoska, A. T., and Jacobs, S., "Electric-field-driven assembly of oriented molecular-sieve films," *Advanced Materials*, 16(21), 1944–1948, **2004**, http://dx.doi.org/10.1002/adma.200400424.

[34] Lin, J. C., Dipre, J. T., and Yates, M. Z., "Microemulsion-directed synthesis of molecular sieve fibers," *Chemistry of Materials*, 15(14), 2764–2773, **2003**, http://dx.doi.org/10.1021/cm0341437.

[35] Liu, H. W. and Yates, M. Z., "Dual function surfactants for carbon dioxide based microencapsulation," *Langmuir*, 19(4), 1106–1113, **2003**, http://dx.doi.org/10.1021/la026614u.

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[37] Yates, M. Z., Ott, K. C., Birnbaum, E. R., and McCleskey, T. M., "Hydrothermal synthesis of molecular sieve fibers: Using microemulsions to control crystal morphology," *Angewandte Chemie-International Edition*, 41(3), 476–478, **2002**, http://dx.doi.org/10.1002/1521-3773(20020201)41:3<476::AID-ANIE476>3.0.CO;2-S.

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[39] Shim, J. J., Yates, M. Z., and Johnston, K. P., "Latexes formed by rapid expansion of polymer/CO_2 suspensions into water. 1. Hydrophilic surfactant in supercritical CO_2," *Industrial & Engineering Chemistry Research*, 40(2), 536–543, **2001**, http://dx.doi.org/10.1021/ie000718n.

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[41] Calvo, L., Holmes, J. D., Yates, M. Z., and Johnston, K. P., "Steric stabilization of inorganic suspensions in carbon dioxide," *Journal of Supercritical Fluids*, 16(3), 247–260, **2000**, http://dx.doi.org/10.1016/S0896-8446(99)00036-4.

[42] Li, G., Yates, M. Z., Johnston, K. P., and Howdle, S. M., "In-situ investigation on the mechanism of dispersion polymerization in supercritical carbon dioxide," *Macromolecules*, 33(11), 4008–4014, **2000**, http://dx.doi.org/10.1021/ma9921504.

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[46] Sengupta, T., Yates, M., and Papadopoulos, K. D., "Metal complexation with surface-active Kemp's triacid," *Colloids and Surfaces a-Physicochemical and Engineering Aspects*, 148(3), 259–270, **1999**, http://dx.doi.org/10.1016/S0927-7757(98)00714-6.

[47] Shim, J. J., Yates, M. Z., and Johnston, K. P., "Polymer coatings by rapid expansion of suspensions in supercritical carbon dioxide," *Industrial & Engineering Chemistry Research*, 38(10), 3655–3662, **1999**, http://dx.doi.org/10.1021/ie990039g.

[48] Yates, M. Z., Li, G., Shim, J. J., Maniar, S., Johnston, K. P., Lim, K. T., and Webber, S., "Ambidextrous surfactants for water-dispersible polymer powders from dispersion polymerization in supercritical CO_2," *Macromolecules*, 32(4), 1018–1026, **1999**, http://dx.doi.org/10.1021/ma981457k.

[49] Canelas, D. A., Betts, D. E., DeSimone, J. M., Yates, M. Z., and Johnston, K. P., "Poly(vinyl acetate) and poly(vinyl acetate-co-ethylene) latexes via dispersion polymerizations in carbon dioxide," *Macromolecules*, 31(20), 6794–6805, **1998**, http://dx.doi.org/10.1021/ma980596z.

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[52] O'Neill, M. L., Yates, M. Z., Johnston, K. P., Smith, C. D., and Wilkinson, S. P., "Dispersion polymerization in supercritical CO_2 with siloxane-based macromonomer. 2. The particle formation regime," *Macromolecules*, 31(9), 2848–2856, **1998**, http://dx.doi.org/10.1021/ma971315a.

[53] Mawson, S., Yates, M. Z., ONeill, M. L., and Johnston, K. P., "Stabilized polymer microparticles by precipitation with a compressed fluid antisolvent .2. Poly(propylene oxide)- and poly(butylene

oxide)-based copolymers," *Langmuir*, 13(6), 1519–1528, **1997**, http://dx.doi.org/10.1021/la961017r.

[54] ONeill, M. L., Yates, M. Z., Harrison, K. L., Johnston, K. P., Canelas, D. A., Betts, D. E., DeSimone, J. M., and Wilkinson, S. P., "Emulsion stabilization and flocculation in CO_2 .1. Turbidimetry and tensiometry," *Macromolecules*, 30(17), 5050–5059, **1997**, http://dx.doi.org/10.1021/ma9616930.

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Books

[1] Johnston, K. P., da Rocha, S. R. P., Lee, C. T., Li, G., and Yates, M. Z., "Colloid and interface science for carbon dioxide-based pharmaceutical processes," in: *Supercritical Fluid Technology for Drug Development*, edited by York, P., Kimpella, U. B., and Shekunov, B. Y. (Marcel Dekker: New York), **2004**.

[2] Johnston, K. P., da Rocha, S. R. P., Holmes, J. D., Jacobson, G. B., Lee, C. T., and Yates, M. Z., "Interfacial phenomena with carbon dioxide-soluble surfactants," in: *Green Chemistry Using Liquid and Supercritical Carbon Dioxide*, edited by DeSimone, J. M. and Tumas, W. (Oxford University Press), **2003**.

[3] Johnston, K. P., Holmes, J., Jacobson, G., Lee, T., Li, G., and Yates, M. Z., "Reactions and synthesis in microemulsions and emulsions in carbon dioxide," in: *Reactions and Synthesis in Surfactant Systems*, edited by Texter, J. (Marcel Dekker: New York), **2001**.

[4] Johnston, K. P., Jacobson, G. B., Lee, C. T., Meredith, C., Da Rocha, S. R. P., Yates, M. Z., and DeGrazia, T. W., J.; Randolph, "Microemulsions, emulsions, and latexes in supercritical fluids," in: *Chemical Synthesis in Supercritical Fluids*, edited by Jessop, P. and Leitner, W. (Wiley-VCH Publishers: Weinheim), **1999**.

Patents

[1] Yates, M. Z., Savino, K., Gabrys, P., and Fu, C., "Polarized hydroxyapatite films and methods of making and using same," Number: WO2015138387, **2015**.

[2] Yates, M. Z. and Liu, D., "Ion-conducting ceramic apparatus, method, fabrication, and applications," Number: U.S. 8,129,072, **2012**.

[3] Yates, M. Z. and Liu, D., "Ion/proton-conducting apparatus and method," Number: U.S. 7,943,269, **2011**.

[4] Tumas, W., Ott, K. C., McCleskey, T. M., Yates, M. Z., and Birnbaum, E. R., "Microporous crystals and synthesis schemes," Number: U.S. 6,949,238, **2005**.

[5] Yates, M. Z. and J-C., L., "Microporous crystals and methods of making thereof," Number: WO2004070784, **2004**.

[6] McCleskey, T. M. and Yates, M. Z., "Incorporation of additives into polymers," Number: U.S. 6,599,962, **2003**.

Presentations

Invited Presentations

[1] Yates, M. Z., "Carbon dioxide as a clean solvent for microencapsulation," *Green Chemistry Conference, Zhejiang University of Technology*, Hangzhou, China, **2013**.

[2] Yates, M. Z., "Hydroxyapatite coatings with enhanced proton conductivity," *Institute for Advanced Studies, Hong Kong University of Science and Technology*, Hong Kong, **2013**.

[3] Yates, M. Z., "Hydroxyapatite coatings with enhanced proton conductivity," *Department of Chemical Engineering, Zhejiang University*, Hangzhou, China, **2013**.

[4] Yates, M. Z., "Hydroxyapatite coatings with enhanced proton conductivity," *Department of Chemical Engineering, SUNY-Buffalo*, Buffalo, NY, **2013**.

[5] Yates, M. Z., "Novel polymer and hydrogel particles for microencapsulation," *Northwest University*, Xi'an, China, **2013**.

[6] Yates, M. Z., "Surface crystallization to optimize nanostructure of proton conductors in hydrogen membrane fuel cells," *NSF CMMI Research and Innovation Conference*, Boston, MA, **2012**.

[7] Yates, M. Z., "Surface crystallization to optimize nanostructure of proton conductors in hydrogen membrane fuel cells," *NSF CMMI Research and Innovation Conference*, Atlanta, GA, **2011**.

[8] Yates, M. Z., "Novel hydrogel nanoparticles as carriers for proteins and peptides," *Particles 2010 - Medical/Biochemical Diagnostic, Pharmaceutical, and Drug Delivery Applications of Particle Technology*, Orlando, FL, **2010**.

[9] Yates, M. Z., "Synthesis of novel fuel cell membranes with aligned proton conducting pathways," *Alfred University*, Alfred, NY, **2009**.

[10] Yates, M. Z., "Synthesis of novel fuel cell membranes with aligned proton conducting pathways," *Case Western Reserve University*, Cleveland, OH, **2009**.

[11] Yates, M. Z., "Colloidal engineering and assembly," *Georgia Institute of Technology, Department of Chemical Engineering*, Atlanta, GA, **2007**.

[12] Yates, M. Z., "Nanoengineering materials for drug delivery, sensing, and fuel cell membranes," *Yeungnam University*, Daegu, Korea, **2007**.

[13] Yates, M. Z., "Colloidal engineering and assembly," *Tulane University, Department of Chemical Engineering*, New Orleans, LA, **2006**.

[14] Yates, M. Z., "Colloidal engineering and assembly," *University of Texas, Department of Chemical Engineering*, Austin, TX, **2006**.

[15] Yates, M. Z., "Microencapsulation through hybrid aqueous/supercritical carbon dioxide processing of polymer colloids," *Particles 2006 - Medical/Biochemical Diagnostic, Pharmaceutical, and Drug Delivery Applications of Particle Technology*, Orlando, FL, **2006**.

[16] Yates, "Electric field driven formation of thin films of aligned rod shaped particles," *79th ACS Colloid and Surface Science Symposium*, Potsdam, NY, **2005**.

[17] Yates, M., "Microencapsulation of pharmaceuticals using compressed carbon dioxide swelling of biodegradable colloids," *79th ACS Colloid and Surface Science Symposium*, Potsdam, NY, **2005**.

[18] Yates, M. Z., "Colloidal engineering and assembly," *University of Cincinnati, Department of Chemical and Materials Engineering*, Cincinnati, OH, **2005**.

[19] Yates, M. Z., "Colloidal engineering and assembly: New materials for optoelectronics, controlled release, and membranes," *Kodak Research and Development*, Rochester, NY, **2004**.

[20] Yates, M. Z., Liu, H., Bonino, C., Du, K., and Krauss, T. D., "Encapsulation of quantum dots into polymer microspheres," *Northeast Regional ACS Meeting*, Rochester, NY, **2004**.

[21] Yates, M. Z., "Synthesis and assembly of optically functional particles," *Optoelectronic Applications of Quantum Dots and Nanoparticles*, Grasmere, England, **2003**.

[22] Yates, M. Z. and Liu, H., "Colored and fluorescent polymer particles via carbon dioxide assisted microencapsulation," *Particles 2003: Imaging, Marking, and Printing Applications of Particle Technology*, Toronto, Canada, **2003**.

[23] Yates, M. Z. and Liu, H., "Development of a carbon dioxide based microencapsulation process," *Equifase 2002 Conference*, Iguassu Falls, Brazil, **2002**.

[24] Yates, M. Z. and Liu, H., "Development of a carbon dioxide based microencapsulation technique," *Particles 2002: Medical/Biochemical Diagnostic, Pharmaceutical, and Drug Delivery Applications of Particle Technology*, Orlando, FL, **2002**.

Conference Presentations (Presenter listed as first author)

[1] Yates, M. Z., Zhang, X., Chaimayo, W., and Miller, B., "Giant electret polarization in electrochemically deposited hydroxyapatite ceramic coatings," *AIChE Annual Meeting*, Minneapolis, MN, **2017**.

[2] Yates, M. Z., Tsai, S., and Lee, A., "Reversible peptide binding to temperature responsive hydrogel particles," *4th International Conference on Smart Materials, Structures, and Systems*, Montecatini Terme, Italy, **2012**.

[3] Yates, M. Z., Lee, A., Tsai, S., and Pao, E., "Steric stabilization and bio-functionalization of thermally-responsive colloidal hydrogels," *AIChE Annual Meeting*, Salt Lake City, UT, **2010**.

[4] Yates, M. Z., Liu, D., Wei, X., and Savino, K., "Microstructural engineering of apatite membranes to enhance proton conductivity," *5th Forum on New Materials*, Montecatini Terme, Italy, **2010**.

[5] Yates, M. Z., Wei, X., Savino, K., and Liu, D., "Hydrogen membrane fuel cells using apatite ceramic proton conductors," *AIChE Annual Meeting*, Salt Lake City, UT, **2010**.

[6] Yates, M. Z., Wei, X., Savino, K., and Liu, D., "Microstructural engineering of apatite membranes to enhance proton conductivity," *AIChE Annual Meeting*, Salt Lake City, UT, **2010**.

[7] Liu, D., Fink, D., and Yates, M. Z., "Novel proton conducting ceramic thin films for intermediate temperature hydrogen membrane fuel cells," *AIChE Annual Meeting*, Philadelphia, PA, **2008**.

[8] Yates, M. Z. and Liu, D., "Hydrogen membrane fuel cells with nanoengineered proton-conducting layer," *AIChE Annual Meeting*, Philadelphia, PA, **2008**.

[9] Yates, M. Z., Wei, X., and Liu, D., "Improved performance of composite proton conducting membranes in fuel cells through electric field control of membrane structure," *AIChE Annual Meeting*, Philadelphia, PA, **2008**.

[10] Yin, W. and Yates, M. Z., "Biodegradable microcapsules via emulsification/freeze drying," *AIChE Annual Meeting*, Philadelphia, PA, **2008**.

[11] Yates, M. Z., Liu, D., and Wei, X., "Tailoring the structure of composite proton conducting membranes through applied electric fields," *AIChE Annual Meeting*, Salt Lake City, UT, **2007**.

[12] Yates, M. Z., Liu, D., Wei, X., and Kim, Y.-G., "Tailoring the structure of composite proton conducting membranes through applied electric fields," *ACS Annual Meeting*, Boston, MA, **2007**.

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