

Paul J.A. Kenis

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Born: October 11, 1970 in Arcen, The Netherlands

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A. Educational Background

Radboud University, Nijmegen - The Netherlands, B.S., Chemistry, September 1993
University of Twente, Enschede - The Netherlands, Ph.D., Chemical Engineering, October 1997
Thesis Advisor: David N. Reinhoudt
Harvard University, Cambridge MA, USA, Postdoc, Dept. of Chemistry, Dec. 1997 – Aug. 2000
Advisor: George M. Whitesides

B. List of Academic Positions since Final Degree (all at UIUC)

2007-date Associate Professor, Chemical & Biomolecular Engineering
2000-2007 Assistant Professor, Chemical & Biomolecular Engineering
2000-date Affiliate Faculty, Beckman Institute for Advanced Science and Technology
2001-2007 Affiliate Faculty, Micro & Nano Technology Laboratory
2002-date Affiliate Faculty, Mechanical Science & Engineering
2003-date Associate Director, Nanoscale Science & Engineering Center (NSEC)
2005-date Affiliate Faculty, Institute for Genomic Biology
2006-date Affiliate Faculty, Mechanical Science & Engineering

C. Other Professional Employment

1997-2000 Postdoctoral Fellow, Harvard University, Cambridge MA

D. Honors, Recognitions, and Outstanding Achievements

- First ever to obtain B.S./M.Sc. in Chemistry at Univ. of Nijmegen within 4 years, 1993
- Akzo-Nobel Graduate Fellowship, 1993-1997
- NWO (=Dutch Science Foundation) conference travel fellowship: 1995, 1996, 1997
- Shell Fellowship, 1996
- Fellingma Fellowship, 1996
- TALENT Postdoctoral Fellowship, NWO, 1997 - 1998
- 3M Young Faculty Award, 2001 - 2005
- Collins Scholar, Academy for Excellence in Engineering Education, CoE, UIUC, 2001
- Excellence in Advising Award, College of Engineering, UIUC, 2002
- Excellence in Advising Award, College of Engineering, UIUC, 2003
- NSF CAREER award, 2005-2010
- Xerox Foundation Award for Faculty Research, College of Engineering, UIUC, 2006
- Excellence in Teaching Award, School of Chemical Sciences, UIUC, 2006
- Helen Corley Petit Scholar, College of Liberal Arts and Sciences, UIUC, 2007-2008
- Beckman Fellow, Center for Advanced Studies, UIUC, 2007-2008

E1. Articles in Archival Journals (published, in press, or accepted for publication)

Pdf files of most publications are available at the Kenis group website:

<http://www.scs.uiuc.edu/~pkgroup/publications.html>

As an undergraduate student at Nijmegen Radboud University (NL):

1. C.F. Martens, M.M.G. Bongers, P.J.A. Kenis, R. Czajka, M.C. Feiters, J.G.M. van der Linden, R.J.M. Nolte, "Characterization of a [4Fe-4S]-ferredoxin model based on a concave tetradentate thiol ligand system," *Chemische Berichte / Recueil*, **1997**, 130, 23-33.
2. R.J.M. Klein Gebbink, C.F. Martens, P.J.A. Kenis, R.J. Jansen, H.-I. Nolting, V. Solé, M.C. Feiters, K.D. Karlin, R.J.M. Nolte, "Structure and reactivity of copper-dioxygen complexes derived from molecular receptor ligands," *Inorg. Chem.*, **1999**, 38, 5755-5768.

As a graduate student at Twente University (NL):

3. P.J.A. Kenis, O.F.J. Noordman, J.F.J. Engbersen, N.F. Van Hulst, D.N. Reinhoudt, B.H.M. Hams, C.P.J.M. van der Vorst, "Second-order nonlinear optical active calix[4]arene polyimides suitable for frequency doubling in the UV-region," *Chem. Mater.*, **1997**, 9, 596-601.
4. P.J.A. Kenis, O.F.J. Noordman, S.Houbrechts, G. van Hummel, S. Harkema, K. Clays, J.F.J. Engbersen, A. Persoons, N.F. Van Hulst, D.N. Reinhoudt, "Second-order nonlinear optical properties of the four tetranitrotetrapropoxy calix[4]arene conformers," *J. Am Chem. Soc.*, **1998**, 120, 7875-7883.
5. P.J.A. Kenis, E.G. Kerver, B.H.M. Snellink-Ruël, G.J. van Hummel, S. Harkema, M.C. Flipse, R.H. Woudenberg, J.F.J. Engbersen, D.N. Reinhoudt, "High hyperpolarizabilities of donor- π -acceptor-functionalized calix[4]arene derivatives by pre-organization of chromophores," *Eur. Jour. Org. Chem.*, **1998**, 1089-1098.
6. H. Schönherr, P.J.A. Kenis, J.F.J. Engbersen, S. Harkema, A.J.R. L. Hulst, D.N. Reinhoudt, G.J. Vancso, "Scanning force microscopy studies on molecular packing and friction anisotropy in thin films of tetranitrotetrapropoxycalix[4]arene," *Langmuir*, **1998**, 14, 2801-2809.
7. P.J.A. Kenis, O.F.J. Noordman, H. Schönherr, E.G. Kerver, B.H. M. Snellink-Ruël, G.J. van Hummel, S. Harkema, C.P.J.M. van der Vorst, J. Hare, S.J. Picken, J.F.J. Engbersen, G.J. Vancso, N.F. van Hulst, D.N. Reinhoudt, "Supramolecular materials: Molecular packing of tetranitrocalix[4]arene in highly stable second-order NLO-active films," *Chemistry, a European Journal*, **1998**, 4, 1225-1234.

As a postdoctoral fellow at Harvard University, Cambridge MA, USA:

8. P.J.A. Kenis, R.F. Ismagilov, G.M. Whitesides, "Microfabrication inside capillaries using multiphase laminar flow patterning," *Science*, **1999**, 285, 83-85 (cover). Highlighted in *C&E News*, other places.
9. S. Takayama, J.C. McDonald, E. Ostuni, M.N. Liang, P.J.A. Kenis, R.F. Ismagilov, G.M. Whitesides, "Patterning cells and their environments using multiple laminar fluid flows in capillary networks," *Proc. Natl. Acad. Sci.*, **1999**, 96, 5545-5548.
10. T. Deng, F. Arias, R.F. Ismagilov, P.J.A. Kenis, G.M. Whitesides, "Fabrication of metallic microstructures using exposed developed silver halide-base photographic film," *Anal. Chem.*, **2000**, 72, 645-651.
11. R.F. Ismagilov, A.D. Stroock, P.J.A. Kenis, G.M. Whitesides, H.A. Stone, "Experimental and theoretical scaling laws for transverse diffusive broadening in two-phase laminar flows in microchannels," *Appl. Phys Lett.*, **2000**, 76, 2376-2378.

12. A.D. Stroock, M. Weck, D.T. Chiu, W.T.S. Huck, P.J.A. Kenis, R.F. Ismagilov, G.M. Whitesides, H.A. Stone, "Patterning of electro osmotic flow with patterned surface charges," *Phys. Rev. Lett.*, **2000**, *84*, 3314-3317.
13. P.J.A. Kenis, R.F. Ismagilov, S. Takayama, G.M. Whitesides, S. Li, H.S. White, "Microfabrication inside capillaries using fluid flow," *Acc. of Chem. Res.*, **2000**, *33*, 841-847.
14. F. Arias, P.J.A. Kenis, B. Xu, T. Deng, O.J.A. Schueller, G.M. Whitesides, Y. Sugimura, A.G. Evans, "Fabrication and characterization of microscale sandwich beams," *J. Mat. Res.*, **2001**, *16*, 597-605.
15. R.F. Ismagilov, J.M.K. Ng, P.J.A. Kenis, G.M. Whitesides, "Microfluidic arrays of fluid-fluid diffusional contacts as detection elements and combinatorial tools," *Anal. Chem.*, **2001**, *73*, 5207-5213.
16. R.F. Ismagilov, D. Rosemarin, P.J.A. Kenis, D.T. Chiu, W. Zhang, H.A. Stone, G.M. Whitesides, "Pressure-driven laminar flow in tangential microchannels: An elastomeric microfluidic switch," *Anal. Chem.*, **2001**, *73*, 4682-4687.
17. M.J. Fuerstman, P. Deschatelets, R. Kane, A. Schwartz, P.J.A. Kenis, J.M. Deutch, G.M. Whitesides, "Solving mazes using microfluidic networks," *Langmuir*, **2003**, *19*, 4714-4722.

As a faculty member at UIUC:

Pdf files of most publications are available at the Kenis group website:

<http://www.scs.uiuc.edu/~pkgroup/publications.html>

18. E.R. Choban, L.J. Markoski, A. Wieckowski, P.J.A. Kenis, "Micro-fluidic fuel cell based on laminar flow," *J. Power Sources*, **2004**, *128*, 54-60. Highlighted in:
 - a. *C & E News*: "Fuel cells minus membranes," vol. 82, p.7, 3/29/04;
 - b. *News-Gazette*: "Charged up over fuel cells," 10/26/04
19. J.S. Spendelow, G.Q. Lu, P.J.A. Kenis, A. Wieckowski, "Electrooxidation of adsorbed CO on Pt(111) and Pt(111)/Ru in alkaline media and comparison with results from acidic media," *J. Electroanal. Chem.*, **2004**, *568*, 215-224.
20. S. Jeon, J.-U. Park, R. Cirelli, S. Yang, C.E. Heitzman, P.V. Braun, P.J.A. Kenis, J.A. Rogers, "Fabricating complex three dimensional nanostructures with high resolution conformable phase masks," *PNAS*, **2004**, *101*, 12428-12433.
21. R.C. Gunawan, E.R. Choban, J.E. Conour, J. Silvestre, H.R. Gaskins, L.B. Schook, D.E. Leckband, P.J.A. Kenis, "Regiospecific control of gene expression in cells cultured on two-component counter gradients of extracellular matrix proteins," *Langmuir*, **2005**, *21*, 3061-3068.
22. J. Yeom, G.Z. Mozsgai, B.R. Flachsbart, E.R. Choban, A. Asthana, M.A. Shannon, P.J.A. Kenis, "Fabrication and characterization of a silicon-based millimeter scale, microfabricated PEM fuel cell operating with hydrogen, methanol, or formic acid as fuels," *Sensors & Actuators B*, **2005**, *107*(2), 882-991.
23. E.R. Choban, P. Waszczuk, P.J.A. Kenis, "Characterization of limiting factors of a laminar flow-based membraneless micro fuel cell," *Electrochemical & Solid State Letters*, **2005**, *8*(7), A348-A352.
24. R.S. Jayashree, J.S. Spendelow, J. Yeom, C. Rastogi, M.A. Shannon, P.J.A. Kenis, "Electrooxidation of formic acid on electrodeposited Pt and Pt/Pd catalyst structures," *Electrochimica Acta*, **2005**, *50*(24), pp. 4674-4682.
25. I.-K. Sung, Christian, M. Mitchell, D.-P. Kim, P.J.A. Kenis, "Fabrication of macroporous SiC and SiCN materials for high temperature microreactors," *Advanced Functional Materials*, **2005**, *15*, 1336-1342.

26. E.R. Choban, J.S. Spendelow, L. Gancs, A. Wieckowski, P.J.A. Kenis, "Membraneless laminar flow-based microfuel cells operating in alkaline, acidic, and acidic/alkaline media," *Electrochimica Acta*, **2005**, 50(27), 5390-5398. Highlighted in:
 - a. *Business Week (International Ed.)*: "Fixing the flow in fuel cells," 3/11/05, p. 95
 - b. *News Gazette*: "UI fuel cells promise to keep us energized, eventually," 5/1/2005
 - c. *Science News*: "Pinstripe electricity," 4/2/2005, vol. 167, p. 211
 - d. *New Scientist*: "First membrane-free alkaline fuel cell built," 3/22/2005
 - e. *Chemical Engineering Progress*: "Fuel cell takes a microfluidic route to reducing operating costs," July 2005, p.14
 - f. *Chemical Processing*: "Fuel cell design achieves basic breakthrough," June 2005, p.11
 - g. *APS News*: "Building a better fuel cell using microfluidics," May 2005, p. 2-7
 - h. *Financial Times* (German Issue)
 - i. *Deutschlandfunk*, German National Radio
27. S.N. Arafat, S. Dutta, M. Perring, M. Mitchell, P.J.A. Kenis, N.B. Bowden, "Mild methods to assemble and pattern organic monolayers on hydrogen-terminated Si(111)," *Chem. Comm.*, **2005**, 3198-3200.
28. A.L. Hauck, K.S. Swanson, P.J.A. Kenis, D.E. Leckband, H.R. Gaskins, L.B. Schook, "Twists and turns in the development and maintenance of mammalian small intestine epithelium," *Birth Defects Research (Part C)*, **2005**, 75, 58-71 (review).
29. M.W. Toepke, P.J.A. Kenis, "Single-exposure photolithography for the fabrication of multilevel microfluidics," *J. Am. Chem. Soc.*, **2005**, 127(21), 7674-7675. Highlighted in:
 - a. *Lab-on-a-Chip*: "Multilevel microfluidics," 2005, vol. 5, p. 709.
30. S.K. Yoon, C. Kane, E.R. Choban, T. Tzedakis, P.J.A. Kenis, "Laminar flow based electrochemical microreactor for efficient regeneration of nicotinamide cofactors for biocatalysis," *J. Am. Chem. Soc.*, **2005**, 127(30), 10466-10467. Highlighted in:
 - a. *Lab-on-a-Chip*: "Microfluidic cofactor regeneration," 2005, vol. 5, p. 1002-3;
 - b. *Chemical Engineering*: "Another microreactor milestone for biocatalysis," Sept. 2005, 18-20.
 - c. *www.innovations-report.com*, many other websites.
31. J.-U. Park, M.A. Meitl, S.-H. Hur, M.L. Usrey, M.S. Strano, P.J.A. Kenis, and J.A. Rogers, "In-situ deposition and patterning of single-walled carbon nanotubes by laminar flow and controlled flocculation in microfluidic channels," *Angew. Chem. Int. Ed.*, **2006**, 45, 581-585.
32. M. Perring, S. Dutta, S. Arafat, M. Mitchell, P.J.A. Kenis, N.B. Bowden, "Simple methods for the direct assembly, functionalization, and patterning of acid-terminated monolayers on Si(111)," *Langmuir*, **2005**, 21(23), 10537-10544.
33. S.K. Yoon, M. Mitchell, E.R. Choban, P. J.A. Kenis, "Reorientation of the interface between two liquids of different densities flowing laminarly through a microchannel," *Lab on a Chip*, **2005**, 5, 1259-1263.
34. S. Talreja, D.Y. Kim, A.Y. Mirarefi, C.F. Zukoski, P.J.A. Kenis, "Screening and optimization of protein crystallization conditions through gradual evaporation using a novel crystallization platform," *J. Appl. Crystallography*, **2005**, 38(6), 988-995.
35. R.S. Jayashree, L. Gancs, E.R. Choban, A. Primak, D. Natarajan, L.J. Markoski, P.J.A. Kenis, "Air-breathing laminar flow based microfluidic fuel cell," *J. Am. Chem. Soc.*, **2005**, 127(48), 16758-16759. Highlighted in:
 - a. *Nature*: "Air-breathing for energy," 2005, vol. 438, p. 399;
 - b. *Lab-on-a-Chip*: "Airbreathing microfluidic fuel cell," 2006, vol. 6, p. 16-17.
36. S. Dutta, M. Perring, S. Barrett, M. Mitchell, P.J.A. Kenis, N.B. Bowden, "Cross metathesis on olefin-terminated monolayers on Si(111)," *Langmuir*, **2006**, 22, 2146-2155.

37. R. Gunawan, J. Silvestre, H.R. Gaskins, L.B. Schook, P.J.A. Kenis, D.E. Leckband, "Cell migration and polarity on microfabricated gradients of extracellular matrix proteins," *Langmuir*, **2006**, *22*, 4250-4258.
38. R.S. Jayashree, D. Egas, D. Natarajan, J.S. Spendelow, L.J. Markoski, P.J.A. Kenis, "Air-breathing laminar flow-based direct methanol fuel cell with alkaline electrolyte," *Electrochemical & Solid State Letters*, **2006**, *9*(5), A252-256.
39. J. Yeom, R.S. Jayashree, C. Rastogi, M.A. Shannon, P.J.A. Kenis, "Passive direct formic acid microfabricated fuel cells," *J. Power Sources*, **2006**, *160*, 1058-1064.
40. G. He, V. Bhamidi, R.B.H. Tan, P.J.A. Kenis, C.F. Zukoski, "Determination of critical supersaturation from microdroplet evaporation experiments," *Crystal Growth & Design*, **2006**, *6*(5), 1175-1180.
41. J.S. Spendelow, J.D. Goodpaster, P.J.A. Kenis, A. Wieckowski, "Mechanism of CO oxidation on Pt(111) in alkaline media," *J. Phys. Chem. B.*, **2006**, *110*, 9545-9555.
42. Christian, M. Mitchell, D.-P. Kim, P.J.A. Kenis, "Ceramic microreactor for on-site hydrogen production," *J. Catalysis*, **2006**, *241*, 235-42.
43. G. He, V. Bhamidi, S.R. Wilson, R.B.H. Tan, P.J.A. Kenis, C.F. Zukoski, "Direct growth of γ glycine from neutral aqueous solutions by slow, evaporation-driven crystallization," *Crystal Growth & Design*, **2006**, *6*(8), 1746-1749.
44. Christian, M. Mitchell, P.J.A. Kenis, "Ceramic microreactors for on-site hydrogen production from high temperature steam reforming of propane," *Lab on a Chip*, **2006**, *6*, 1328-1337.
45. J.S. Spendelow, J.D. Goodpaster, P.J.A. Kenis, A. Wieckowski, "Methanol dehydrogenation and oxidation on Pt(111) in alkaline solutions," *Langmuir*, *22* (25), **2006**, 10457-10464.
46. S.K. Yoon, G. Fichtl, P.J.A. Kenis, "Active control of the depletion boundary layer in microfluidic electrochemical reactors," *Lab on a Chip*, **2006**, *6*, 1516-1524. *Featured as the inside cover*
47. M.W. Toepke, S.H. Brewer, D.M. Vu, K.D. Rector, J.E. Morgan, R.B. Gennis, P.J.A. Kenis, R.B. Dyer, "Microfluidic flow-flash: A new method for investigating protein dynamics," *Anal. Chem.*, **2006**, *79*, 122-128. Highlighted in:
Biophotonics International: as a Biophotonic Research item: "Probing proteins in a flash: Technique offers faster timescales, consumes less sample," January 2007, pages 58-60.
48. C. Gupta, G.A. Mensing, M.A. Shannon, P.J. A. Kenis, "Double transfer printing of small volumes of liquids," *Langmuir*, **2007**, *23*(5); 2906-2914.
49. S. Talreja, P.J.A. Kenis, C.F. Zukoski, "A kinetic model to simulate protein crystal growth in an evaporation-based crystallization platform," *Langmuir*, **2007**, *23*(8), 4516-4522.
50. R.S. Jayashree, M. Mitchell, D. Natarajan, L.J. Markoski, P.J.A. Kenis, "A microfluidic hydrogen fuel cell with a liquid electrolyte," *Langmuir*, **2007**, *23* (13), 6871-6874.
51. M. Perring, M. Mitchell, P.J.A. Kenis, N.B. Bowden, "Patterning by Etching at the Nanoscale (PENs) on Si(111) through the controlled etching of PDMS," *Chem. Materials*, **2007**, *19*(11), 2903-2909.
52. Christian, P.J.A. Kenis, "Fabrication of ceramic microscale structures," *J. Am. Cer. Soc.*, **2007**, *90*(9), 2779-2783.
53. G. He, R.B.H. Tan, P.J.A. Kenis, C.F. Zukoski, "Generalized phase behavior for small molecules and nanoparticles," *J. Phys. Chem.*, **2007**, *111*, 12494-12499.
54. Guangwen He, Reginald B.H. Tan, Paul J.A. Kenis, Charles F. Zukoski "Metastable States of Small Molecule Solutions", *J. Phys Chem*, **2007**, *111*(51), 14121-14129.
55. Vladimir L. Kolossov, Bryan Q. Spring, Anna Sokolowski, John E. Conour, Robert M. Clegg, Paul J. A. Kenis, H. Rex Gaskins "Engineering Redox-Sensitive Linkers for Genetically Encoded FRET-based Biosensors," *Experimental Biology and Medicine*, **2008**, *233*, 238-248.

F. Bulletins, Reports, or Conference Proceedings

1. P.J.A. Kenis, O.F.J. Noordman, B.H.M. Snellink-Ruël, J.F.J. Engbersen, N.F. van Hulst, D.N. Reinhoudt, "Molecular and macroscopic second-order nonlinear optical properties of calix[4]arenes," *ACS Proceedings, PMSE division*, **1996**, Vol. 75, pp. 317-318.
2. P.J.A. Kenis, B.H.M. Snellink-Ruël, O.F.J. Noordman, N.F. van Hulst, J.F.J. Engbersen, D.N. Reinhoudt, "Calix[4]arenes as building blocks in second order nonlinear optics," *IEEE/LEOS Proceedings*, **1996**, pp. 308-311.
3. E.R. Choban, L.J. Markoski, J. Stoltzfus, J.S. Moore, P.J.A. Kenis, "Microfluidic fuel cells that lack a polymer electrolyte membrane," *Power Sources Proceedings*, **2002**, Vol. 40, pp. 317-320.
4. E.R. Choban, P. Waszczuk, L.J. Markoski, A. Wieckowski, P.J.A. Kenis, "Membraneless fuel cell based on laminar flow," *ASME Fuel Cell Science, Engineering and Technology Proceedings*, **2003**, pp. 261-265.
5. J. Yeom, G.Z. Mozsgai, B.R. Flachsbarth, A. Asthana, P. Waszczuk, E.R. Choban, P.J.A. Kenis, M.A. Shannon, "A silicon microfabricated direct formic acid fuel cell," *ASME Fuel Cell Science, Engineering and Technology Proceedings*, **2003**, pp. 267-272.
6. J. Yeom, R.S. Jayashree, G.Z. Mozsgai, A. Asthana, E.R. Choban, M. Mitchell, P.J.A. Kenis, and M.A. Shannon, "A microscale vapor-fed formic acid fuel cell," *Solid-State Sensors and Actuators Workshop*, Hilton Head Island, SC, June **2004**, pp. 125-128.
7. R.S. Jayashree, J. Yeom, G.Z. Mozsgai, E.R. Choban, J. Spendelow, P. J.A. Kenis, M.A. Shannon, "Palladium-nanoparticles on platinum-black catalysts integrated into a microfabricated Si-based micro-fuel cell," *Solid-State Sensors and Actuators Workshop*, Hilton Head Island, SC, June **2004**, pp. 266-269.
8. M.W. Toepke, S.H. Brewer, D.M. Vu, J.E. Morgan, K. Ganesan, K.D. Rector, W.H. Woodruff, R.B. Gennis, R.B. Dyer, and P.J.A. Kenis, "Protein kinetics via UV/Vis and FTIR imaging on a chip," *Proc. μ TAS*, **2005**, Vol. 2, pp. 1464-1466.
9. S.K. Yoon, E.R. Choban, C. Kane, T. Tzedakis, P.J.A. Kenis, "Laminar flow based microreactor for efficient regeneration of nicotinamide cofactors for biocatalysis," *Proc. μ TAS*, **2005**, Vol. 2, pp. 1431-1433.
10. Christian, M. Mitchell, and P. J. A. Kenis, "Fabrication and characterization of integrated ceramic microreactors for hydrogen production," *Proc. of the 231st ACS National Meeting*, **2006**, Atlanta GA, March 26-30.
11. P.J.A. Kenis, A.D. Stroock, "Materials for micro- and nanofluidics," *MRS Bulletin*, Vol. 31, February **2006**, pp. 87-90.
12. P.J.A. Kenis, J.D. Tice, S.L. Perry, G.W. Roberts, S. Talreja, "Microfluidic chips for membrane protein crystallization," *Proc. μ TAS*, **2007**, pp. 590-592.
13. P.J.A. Kenis, R.S. Jayashree, W.-P. Zhou, M. Mitchell, K. Yoon, "Fuel and media flexible air-breathing laminar flow fuel cells," *Proc. μ TAS*, **2007**, in press.
14. F. R. Brushett, M. Mitchell, R. S. Jayashree, W-P. Zhou, and P. J. A. Kenis, "Vapor Feed Direct Methanol Fuel Cell with Flowing Electrolyte," *ECS Trans.* **11**, (1), 1419, **2007**.
15. J. S. Spendelow, J. D. Goodpaster, C. M. Johnston, P. J. A. Kenis, and A. Wieckowski, "Methanol Oxidation on Pt(111)/Ru in Alkaline Media," *ECS Trans.* **11**, (1) 1333, **2007**.

G. Abstracts and Chapters in Books

1. C.F. Martens, R.J.M. Klein Gebbink, P.J.A. Kenis, A.P.H.J. Schenning, M.C. Feiters, J.L. Ward, K.D. Karlin, R.J.M. Nolte, "Design and synthesis of model systems for dioxygen binding and

- activation in dinuclear copper systems,” in ‘*Bio-inorganic Chemistry of Copper*,’ eds. K. D. Karlin & Z. Tyeklar, Chapman and Hall (New York) **1993**, 374-381.
2. D.N. Reinhoudt, D.M. Rudkevich, W.T.S. Huck, P.J.A. Kenis, R.H. Vreekamp, “A modular approach to large functional structures,” in ‘*Modular Chemistry*,’ NATO ASI Series C: Mathematical and Physical Sciences, 499, ed. J. Michl, Kluwer academic Publishers (Dordrecht) **1997**, 575-585.
 3. C.F. Martens, R.J.M. Klein Gebbink, P.J.A. Kenis, A.P.H.J. Schenning, M.C. Feiters, K.D. Karlin, R.J.M. Nolte, “Design and synthesis of model systems for oxygen binding and activation in dinuclear copper proteins,” *J. Inorg. Biochem.*, **1992**, 47, 53.
 4. P.J.A. Kenis, O.F.J. Noordman, B.H.M. SnellinkRuel, J.F.J. Engbersen, N.F. vanHulst, D.N. Reinhoudt, “Molecular and macroscopic second order nonlinear optical properties of calix[4]arenes,” *Abstracts of Papers of the ACS*, 212: 212-PMSE, Part 2, August 25, **1996**.
 5. S.T. Brittain, P.J.A. Kenis, O.J.A. Schueller, R.J. Jackman, G.M. Whitesides, “The use of soft lithography for the fabrication of components for micro electromechanical systems (MEMS),” *Abstracts of Papers of the ACS*, 216: 043-MACR, Part 3, August 23, **1998**.
 6. R.F. Ismagilov, P.J.A. Kenis, A.D. Stroock, J.C. McDonald, H.A. Stone, G.M. Whitesides, “Fluid dynamics and chemistry on the microscale,” *Abstracts of Papers of the ACS*, 218: 247-ORGN, Part 2 August 22, **1999**.

H. Patents and Invention Disclosures

1. *Laminar Flow Patterning and Articles Made Thereby*. P. J. A. Kenis, R. F. Ismagilov, S. Takayama, G. M. Whitesides. U.S. Patent application 20030124509, licensed to Surface Logix, Watertown, MA.
2. **U.S. Patent 6,702,165**: *Fabrication of Metallic Microstructures via Exposure of Photosensitive Composition*. T. Deng, F. Arias, R.F. Ismagilov, P.J.A. Kenis, G.M. Whitesides, licensed to Surface Logix, Watertown, MA.
3. **U.S. Patent 6,843,262**: *Fluidic Switches and Method for Controlling Flow in Fluidic System*. R. F. Ismagilov, P. J. A. Kenis, G. M. Whitesides, D. Rosemarin, licensed to BioProcessors, Surface Logix, and Fluidigm.
4. *Fluidic Arrays and Method of Using*. J. Lee, R. F. Ismagilov, X. Jiang, P. J. A. Kenis, R. Ferrigno, G. M. Whitesides, US patent application 20040258571, filed February 2004.
5. **U.S. Patent 7,252,898**: *Fuel Cells Comprising Laminar Flow Induced Dynamic Conducting Interfaces, Electronic Devices Comprising Such Cells, and Methods Employing Same*, L.J. Markoski, E.R. Choban, P.J.A. Kenis, licensed to INI Power Systems, Morrisville, NC.
6. **U.S. Patent 7,205,064**: *Emulsions for Fuel Cells*. L.J. Markoski, E.R. Choban, P.J.A. Kenis, P. Waszczuk, licensed to INI Power Systems, Morrisville, NC.
7. *Platform and System for Crystal Nucleation and Growth*. D. Y. Kim, S. Talreja, P.J.A. Kenis, C.F. Zukoski, U.S. Patent Application 20050155542, filed January 2004.
8. **U.S. Patent 7,273,541**: *Microfluid Device and Synthetic Methods*. E.R. Choban, P. Waszczuk, S.K. Yoon, C. Kane, P.J.A. Kenis, T. Tzedakis.
9. *Macroporous Structures for Heterogeneous Catalyst Support*. I.-K. Sung, D.-P. Kim, P.J.A. Kenis, U.S. Patent Application 20060140843, filed December 2004.
10. *Membraneless Electrochemical Cell and Microfluidic Device without pH Constraint*. P.J.A. Kenis, A. Wieckowski, E.R. Choban, U.S. Patent Application 20060210867, filed March 2005, licensed to INI Power Systems, Morrisville, NC.
11. *Distributed electrochemical cells integrated with microelectronic structures*, W. Pelton, P.J.A. Kenis, U.S. Patent Application 20070026266, filed July 2006.

12. *System of distributed electrochemical cells integrated with microelectronic structures*, W. Pelton, P.J.A. Kenis, U.S. Patent Application 20070020496, filed July 2006.
13. *Multiplexed Sensor Arrays*, M.C. Cole, P.J.A. Kenis, U.S. Patent Application, filed 2007.

I. Lectures and Conference Presentations

(1) *Invited Lectures and Conferences*

1. *Molecular and macroscopic second order nonlinear optical properties of calix[4]arenes*, Department of Chemistry, SUNY, Stony Brook, NY, 1996.
2. *Second order nonlinear optics with calix[4]arenes; Microfabrication with soft lithography*, IBM Zurich Research Center, Rüschlikon, Switzerland, 1998.
3. *New routes to microstructures and microfluidic analysis systems: Capillaries as highly controllable microreactors*, Department of Mechanical Engineering, MIT, Cambridge, MA, 1999.
4. *Second order nonlinear optics with calix[4]arenes; and New routes to microstructures and microfluidic analysis systems: Capillaries as highly controllable microreactors*, Department of Chemistry, Texas Institute of Technology, Lubbock, TX, 1999.
5. *New routes to microstructures and microfluidic analysis systems: Capillaries as highly controllable microreactors*, Department of Chemistry, Louisiana State University, Baton Rouge, LA, 1999.
6. *New routes to microstructures and microfluidic analysis systems: Capillaries as highly controllable microreactors*, Department of Chemical Engineering, Louisiana State University, Baton Rouge, LA, 1999.
7. *New routes to microstructures and microfluidic analysis systems: Capillaries as highly controllable microreactors*, School of Chemical Engineering, Purdue University, West Lafayette, IN, 2000.
8. *New routes to microstructures and microfluidic analysis systems: Capillaries as highly controllable microreactors*, Department of Chemistry, Texas A&M University, College Station, TX, 2000.
9. *New routes to microstructures and microfluidic analysis systems: Capillaries as highly controllable microreactors*, Department of Chemistry, Cornell University, Ithaca, NY, 2000.
10. *New routes to microstructures and microfluidic analysis systems: Capillaries as highly controllable microreactors*, Department of Chemical Engineering, University of Illinois at Urbana-Champaign, IL, 2000.
11. *New routes to microstructures and microfluidic analysis systems: Capillaries as highly controllable microreactors*, School of Chemical Engineering, Georgia Institute of Technology, Atlanta, GA, 2000.
12. *New routes to microstructures and microfluidic analysis systems: Capillaries as highly controllable microreactors*, Department of Chemistry, University of Pittsburgh, Pittsburgh, PA, 2000.
13. *New routes to microstructures and microfluidic analysis systems: Capillaries as highly controllable microreactors*, Department of Chemical Engineering, Rensselaer Polytechnic Institute, Albany, NY, 2000.
14. *New routes to microstructures and microfluidic analysis systems: Capillaries as highly controllable microreactors*, Department of Chemistry, New York University, New York, NY, 2000.
15. *New routes to microstructures and microfluidic analysis systems: Capillaries as highly controllable microreactors*, Department of Chemical Engineering, University of Wisconsin - Madison, WI, 2000.
16. *New routes to microstructures and microfluidic analysis systems: Capillaries as highly controllable microreactors*, Department of Chemical Engineering, University of Colorado at Boulder, CO, 2000.
17. *Fiber-assisted microscale assembly*, DARPA Workshop on Electrot textiles, North Carolina State University, Raleigh, NC, 2000.
18. *Microreactors for fuel reforming*, Lab Automation 2001, Palm Springs CA, January 2001.
19. *Utilizing the unique properties of the microscale in microchemical systems*, Department of Theoretical and Applied Mechanics, UIUC, 2001.
20. *Microchemical systems*, Bristol-Meyers Squibb Company, New Brunswick, NJ, 2001.
21. *Integrated microchemical systems*, DARPA Workshop on Microfluidics, Washington, DC, 2001.
22. *Large scale microfluidic networks*, DARPA Workshop on Microvasculature, San Diego, CA, 2002.

23. *Microchemical systems*, General Electric, Niskayuna, NY, 2002.
24. *Microchemical systems*, 3M, Minneapolis, MN, 2002.
25. *Microscale platforms for crystallization studies*, BioChE 2003, Boulder, CO, July 2003.
26. *Membraneless fuel cells*, International Fuel Cell Meeting, Amsterdam, The Netherlands, November 2003 (keynote speaker).
27. *Membraneless fuel cells*, MRS Fall Meeting, Boston, MA, December 2003.
28. *Electrochemical microreactors: Membraneless fuel cells and cofactor regeneration for biocatalysis*, Materials Science and Engineering, UIUC, February 02, 2004.
29. *Nanotube taggants: their formulation, dispensing and use*, P.J.A. Kenis, E.G. Seebauer, M.S. Strano, DARPA Workshop on Nanoparticle Taggants, San Francisco, CA, August 2004.
30. *Membraneless fuel cells – tailoring to the (bio) fuel*, DARPA Workshop on Sustainable Micropower, Vail, CO, September 13-14, 2004.
31. *Microchemical systems for biocatalysis, combinatorial chemistry, and protein crystallization*, 3M, Minneapolis, MN, October 20, 2004.
32. *Membraneless and silicon-based microfuel cells*, Stanford University, Stanford, CA, January 26, 2005.
33. *Multistream laminar flow: from a challenge in mixing to membraneless fuel cells*, APS Meeting, Los Angeles, CA, March 22, 2005.
34. *Microscale fuel cells and fuel reformers for portable and non-portable power sources*, Ohio State University, Columbus, OH, June 1-2, 2005.
35. *3D microfluidics for self-healing*, 4th Air Force Workshop on Multifunctional Aerospace Materials and Structures, UIUC, Champaign, IL, August 8-9, 2005.
36. *Utilizing microscale phenomena: From membraneless fuel cells to microreactors for fuel reforming and cofactor regeneration*, North Carolina State University, Raleigh, NC, August 31, 2005.
37. *Fuel cells: Technologies, status, and why? Towards a hydrogen economy*, IEEE IL Chapter, Rockford, IL, September 22, 2005.
38. *Multistream laminar flow: From a challenge in mixing to membraneless fuel cells and microreactors for efficient cofactor regeneration*, Saint Louis University, St. Louis, MO, September 29-30, 2005.
39. *Fuel cells: Technologies, status, and why? Towards a hydrogen economy*, UIUC Business School, November 11, 2005.
40. *Multistream laminar flow: From a challenge in mixing to membraneless fuel cells and microreactors for efficient cofactor regeneration*, Rensselaer Polytechnic Institute (RPI), Albany, NY, November 29-30, 2005.
41. *Multistream laminar flow: From a challenge in mixing to membraneless fuel cells and microreactors for efficient cofactor regeneration*, Northwestern University, Evanston, IL, December 1, 2005.
42. *Ceramic microreactors for the production of hydrogen*, Ceramics Seminar, Department of Materials Science & Engineering, UIUC, January 26, 2006.
43. *Multistream laminar flow: From a challenge in mixing to membraneless fuel cells and microreactors for cofactor regeneration*, Sandia National Laboratory, Albuquerque, NM, February 6, 2006.
44. *Multistream laminar flow: From a challenge in mixing to membraneless fuel cells and microreactors for cofactor regeneration*, University of New Mexico, Albuquerque, NM, February 7, 2006.
45. *Multistream laminar flow: From a challenge in mixing to membraneless fuel cells and microreactors for cofactor regeneration*, Los Alamos National Lab, Los Alamos, NM, February 8, 2006.
46. *Microfluidic platforms for polymorph and crystallization condition screening*, Abbott Research Labs, North Chicago, IL, February 28, 2006.
47. *Multistream laminar flow: From a challenge in mixing to membraneless fuel cells and microreactors for efficient cofactor regeneration*, Pittcon '06, Orlando FL, March 12-16, 2006 (Special Symposium on Applications of Multistream or Patterned Laminar Flow).
48. *Integrated microfluidic networks for nanoliter combinatorial chemistry*, Annual Nanotechnology Workshop, UIUC Center for Nanoscale Science and Technology (CNST), May 5, 2006.

49. *Multistream laminar flow: From a challenge in mixing to membraneless fuel cells and microreactors for efficient cofactor regeneration*, Technical University of Delft, The Netherlands, June 12, 2006.
50. *Microscale systems for power generation: Fuel reforming and laminar flow fuel cells*, MRS Spring Meeting, San Francisco, CA, May 2007.
51. *Ceramic microreactors for reforming of hydrocarbons*, Small Fuel Cells, Miami, FL, March 2007.
52. *Microscale systems for power generation: Fuel reforming and laminar flow fuel cells*, MRS Spring Meeting, San Francisco, CA, May 2007.
53. *Microscale systems: Applications in energy and biology*, 5th International Workshop on Micro Chemical Plants, Osaka, Japan, January 2007.
54. *Microscale approaches to address challenges in energy and biology*, University of Michigan, Ann Arbor, MI, 2007.
55. *Microscale approaches to address challenges in energy and biology*, University of Minnesota, Chemical Engineering and Materials Science, Minneapolis, MN, March 2007.
56. *Microfluidic methods in screening for polymorphs of pharmaceuticals*, IWPCPS-9: Ninth International Workshop on Physical Characterization of Pharmaceutical Solids, Natick, MA, June 2007
57. *Microscale approaches to address challenges in energy and biology*, Dow Corning, Midland, MI, April 2007.
58. *Microreactors: Fundamentals & applications*, Total Research and Technology Center, La Porte, TX, August 2007.
59. *Microscale approaches to address challenges in energy and biology*, University of Twente, David Reinhoudt Retirement Symposium, September 2007.
60. *Microscale approaches to address challenges in energy and biology*, University of Toronto, Department of Mechanical Engineering, Toronto, Canada, September 2007.
61. *Microscale approaches to address challenges in energy and biology*, York University, Department of Chemistry, Toronto, Canada, September 2007.
62. *Microscale approaches to address challenges in energy and biology*, Cornell University, Chemical and Biomolecular Engineering, Ithaca, NY, October 2007.
63. *Microfluidic platforms for membrane protein crystallization*, NIH Roadmap Meeting, San Diego, CA, November 2007.
64. *Microscale approaches to address challenges in energy and biology*, Stanford University, Department of Chemical Engineering, Stanford, CA, December 2007.

(2) Contributed Lectures and Conferences (not invited)

1. P.J.A. Kenis, O.F.J. Noordman, B.H.M. SnellinkRuel, J.F.J. Engbersen, N.F. vanHulst, D.N. Reinhoudt, *Molecular and macroscopic second order nonlinear optical properties of calix[4]arenes*. 212th ACS National Meeting, Orlando, FL, August 1996.
2. P.J.A. Kenis, *Molecular and macroscopic second order nonlinear optical properties of calix[4]arenes*. SON Meeting of Organic Chemistry, Lunteren, The Netherlands, 1996.
3. P.J.A. Kenis, *Supramolecular structures for optical applications*. Max Planck Institute für Kohlenforschung, Mülheim, Germany, 1997.
4. P.J.A. Kenis, *Molecular and macroscopic second order nonlinear optical properties of calix[4]arenes*. The 8th International Conference on Organized Molecular Films (LB 8), Monterey, CA, 1997.
5. P.J.A. Kenis, *Molecular and macroscopic second order nonlinear optical properties of calix[4]arenes*. The 4th International Conference on Calixarenes, Parma, Italy, 1997.
6. S.T. Brittain, P.J.A. Kenis, O.J.A. Schueller, R.J. Jackman, G.M. Whitesides, *The use of soft lithography for the fabrication of components for micro electromechanical systems (MEMS)*. Poster at the 216th ACS National Meeting, Boston, MA, 1998.

7. R.F. Ismagilov, P.J.A. Kenis, A.D. Stroock, J.C. McDonald, H.A. Stone, G.M. Whitesides, *Fluid dynamics and chemistry on the microscale*. 218th ACS National Meeting, New Orleans, LA, August 1999.
8. P.J.A. Kenis, M.A. Shannon, E.G. Seebauer, R.I. Masel, *Microreactors for fuel reforming*. AIChE Annual Meeting, Reno, NV, 2001.
9. E.R. Choban, L.J. Markoski, J. Stoltzfus, J.S. Moore, A. Wieckowski, P.J.A. Kenis, *A microfuel cell that lacks a PEM*. AIChE Annual Meeting, Indianapolis, IN, November 2002.
10. A. Asthana, E.R. Choban, M. Mitchell, P.J.A. Kenis, *An evaporation-based, passive fuel delivery structure*. AIChE Annual Meeting, Indianapolis, IN, November 2002.
11. M. Mitchell, Christian, D.A. Dempsey, B.E. Feller, R.T. Muren, M. Wang, P.J.A. Kenis, *Microreactor for high temperature applications*. AIChE Annual Meeting, Indianapolis, IN, November 2002.
12. D.Y. Kim, P.J.A. Kenis, C.F. Zukoski, *Novel device for protein crystallization*. AIChE Annual Meeting, Indianapolis, IN, November 2002.
13. D.Y. Kim, P.J.A. Kenis, C.F. Zukoski, *Microfabricated tools for protein crystallization studies*. ACS Colloid and Surface Science Symposium, Atlanta, GA, June 2003.
14. E.R. Choban, P. Waszczuk, L.J. Markoski, A. Wieckowski, P.J.A. Kenis, *Membraneless fuel cell based on laminar flow*. ASME International Fuel Cell Meeting, Rochester, NY, April 2003.
15. I.-K. Sung, H. Wang, X. Li, M. Mitchell, P.J.A. Kenis, D.-P. Kim, *Fabrication of porous SiC-based ceramics within microchannel networks for high-temperature microreactors*. MRS Spring Meeting, San Francisco, CA, April 2003.
16. P.J.A. Kenis, *Method for independent evaluation of working/counter electrode performance in microfluidic electrochemical systems: Analysis of a membraneless micro fuel cell*, ECS Meeting, Orlando, FL, October 2003.
17. J.E. Conour, R.C. Gunawan, E.R. Choban, L.A. Rund, J.F. Zachary, H.R. Gaskins, P.J.A. Kenis, D.E. Leckband, L.B. Schook, *In vitro simulation of the intestinal Epithelial Crypt Microenvironment using microfluidic platforms*. Poster, 4th International Conference on Systems Biology, St. Louis, MO, November, 2003.
18. E.R. Choban, J.E. Conour, R.C. Gunawan, R.H. Gaskins, L.A. Rund, L.B. Schook, J.E. Zachary, D.E. Leckband, P.J.A. Kenis, *Microfluidic platforms for intestinal stem cell studies*. AIChE Annual Meeting, San Francisco, CA, November 2003.
19. E.R. Choban, P. Waszczuk, L. Markoski, A. Wieckowski, P.J.A. Kenis, *Laminar flow-based microfuel cells*. AIChE Annual Meeting, San Francisco CA, November 2003.
20. J. Yeom, G. Mozsgai, E. R. Choban, P. Waszczuk, B. Flachsbar, A. Asthana, M. Shannon, P.J.A. Kenis, *Direct formic acid silicon-based microfuel cell*. AIChE Annual Meeting, San Francisco, CA, November 2003.
21. Christian, M. Mitchell, D. A. Dempsey, I. Sung, D. P. Kim, P. J. A. Kenis, *Fabrication and characterization of microreactors for high temperature applications*. AIChE Annual Meeting, San Francisco, CA, November 2003.
22. C. F. Zukoski, P.J.A. Kenis, D. Kim, S. Talreja, *Microscale platforms for protein crystallization screening and growth*. AIChE Annual Meeting, San Francisco, CA, November 2003.
23. R.S. Jayashree, J. Yeom, G. Z. Mozsgai, E. R. Choban, J. Spindelov, M. A. Shannon, P. J. A. Kenis, *Characterization of a silicon-based formic acid microfuel cell with passive fuel delivery microstructures*. ECS Spring Meeting, San Antonio, TX, May 2004.
24. P.J.A. Kenis, S.K. Yoon, E.R. Choban, *Laminar flow based microreactor for regeneration of NADH*. ECS Spring Meeting, San Antonio, TX, May 2004.
25. P.J.A. Kenis, I. Sung, Christian, M. Mitchell, D.P. Kim, *SiC and SiCN materials for high temperature microreactors*. Poster presented at the Thermal Management Workshop, Chicago, IL, May 17-19, 2004.
26. S.K. Yoon, E.R. Choban, C. Kane, T. Tzedakis, P.J.A. Kenis, *Efficient regeneration of NADH cofactor in laminar flow based microreactors*. ECS Fall Meeting, Honolulu, HI, October 2004.

27. E.R. Choban, M. Royer, P. Waszczuk, L.J. Markoski, A. Wieckowski, P.J.A. Kenis, *Membraneless fuel cells: Their pros and cons*. ECS Fall Meeting, Honolulu, HI, October 2004.
28. R.S. Jayashree, C. Rastogi, J. Spendelow, A. Asthana, E.R. Choban, P.J.A. Kenis, J. Yeom, G.Z. Mozsgai, M.A. Shannon, *Exploration of novel MEA structures in a silicon-based formic acid microfuel cell*. ECS Fall Meeting, Honolulu, HI, October 2004.
29. P.J.A. Kenis, S.K. Yoon, E.R. Choban, M. Mitchell, and S. Ahkter, *Multistream laminar flow in microchemical systems: Understanding and control of the balance between gravity and interfacial forces*. AIChE National Meeting, Austin, TX, November 2004.
30. P.J.A. Kenis, M.W. Toepke, *Microreactors for organic chemistry*. AIChE National Meeting, Austin, TX, November 2004.
31. P.J.A. Kenis, E.R. Choban, L.J. Markoski, P. Waszczuk, A. Wieckowski, *Laminar flow-based microfuel cells: Their pros and cons*. AIChE National Meeting, Austin, TX, November 2004.
32. P.J.A. Kenis, I. Sung, Christian, M. Mitchell, D. P. Kim, *Fabrication and characterization of integrated ceramic microreactors for the production of hydrogen*. AIChE National Meeting, Austin, TX, November 2004.
33. P.J.A. Kenis, S.K. Yoon, E.R. Choban, C. Kane, and T. Tzedakis, *Laminar flow based microreactor: an attractive method for cofactor regeneration*. AIChE National Meeting, Austin, TX, November 2004.
34. P.J.A. Kenis, Christian, M. Mitchell, D.P. Kim, I. Sung, *Fabrication and characterization of integrated ceramic microreactors for high-temperature hydrogen production*. AIChE/IMRET National Meeting, Atlanta, GA, April 2005.
35. P.J.A. Kenis, S.K. Yoon, *Engineering of depletion boundary layers in electrochemical microreactors; application to membraneless fuel cells and cofactor regeneration*. AIChE/IMRET National Meeting, Atlanta, GA, April 2005.
36. L. Markoski, A. Primak, P.J.A. Kenis, *Improved performance of direct methanol laminar flow fuel cells*. Spring ECS Meeting, Quebec City, Quebec, Canada, May 2005.
37. R. Jayashree, P.J.A. Kenis, J. Spendelow, J. Yeom, M.A. Shannon, C. Rastogi, *Electrodeposited Pt and Pd-containing catalyst structures for direct formic acid micro fuel cells*. Spring ECS Meeting, Quebec City, Quebec, Canada, May 2005.
38. P.J.A. Kenis, J.S. Ranga, C. Rastogi, J. Yeom, M.A. Shannon, *Study of passive liquid and vapor feed formic acid micro fuel cells*. Spring ECS Meeting, Quebec City, Quebec, Canada, May 2005.
39. J.S. Spendelow, C. Johnston, P.J.A. Kenis, A. Wieckowski, *The role of surface structure in CO electrooxidation on Pt(111) and Pt(111)/Ru in alkaline solutions*. Spring ECS Meeting, Quebec City, Quebec, Canada, May 2005.
40. P.J.A. Kenis, E.R. Choban, L. Gancs, J.S. Spendelow, A. Wieckowski, *Laminar flow-based micro fuel cells: opportunities for alkaline and mixed-media fuel cell catalysis*. Spring ECS Meeting, Quebec City, Quebec, Canada, May 2005.
41. P.J.A. Kenis, E.R. Choban, L. Gancs, R.S. Jayashree, M. Mitchell, J.S. Spendelow, S.-K. Yoon, *Laminar flow-based biofuel cells: independent tailoring of the pH at the cathode and anode to enhance the activity and stability of both enzymes*. 230th ACS National Meeting, Washington, DC, August 2005.
42. D.E. Leckband, J. Silvestre, R.C. Gunawan, P.J.A. Kenis, *Cell migration on patterned gradients of extracellular matrix proteins*. 230th ACS National Meeting, Washington, DC, August 2005.
43. J. Spendelow, J. Goodpaster, P.J.A. Kenis, A. Wieckowski, *Methanol oxidation on Pt(111) and Pt(111)/Ru in alkaline electrolytes*. 208th ECS meeting, Los Angeles, CA, October 2005.
44. M.W. Toepke, S.H. Brewer, D.M. Vu, J.E. Morgan, K. Ganesan, K.D. Reactor, W.H. Woodruff, R.B. Gennis, R.B. Dyer, P.J.A. Kenis, *Protein kinetics via UV/V is and FTIR imaging on chip*. Micro-Total Analytical Systems, Boston, MA, October 2005.
45. S.K. Yoon, E.R. Choban, C. Kane, T. Tzedakis, P.J.A. Kenis, *Laminar flow based microreactor for efficient regeneration of nicotinamide cofactors for biocatalysis*. Poster presented at the Micro-Total Analytical Systems, Boston, MA, October 2005.

46. R.S. Jayashree, E.R. Choban, S.-K. Yoon, A. Primak, D. Natarajan, L.J. Markoski, P.J.A. Kenis, *Addressing cathode limitations in laminar flow based micro fuel cells*. AIChE National Meeting, Cincinnati, OH, November 2005.
47. S.-K. Yoon, C. Kane, E.R. Choban, T. Tzedakis, P.J.A. Kenis, *Laminar flow based microreactor for efficient regeneration of nicotinamide cofactors for biocatalysis*. AIChE National Meeting, Cincinnati, OH, November 2005.
48. V. Bhamidi, G. He, P.J.A. Kenis, C.F. Zukoski, *Polymorph screening using microfluidics*. AIChE National Meeting, Cincinnati, OH, November 2005.
49. S. Talreja, C.F. Zukoski, P.J.A. Kenis, *Determination of protein crystallization kinetics using a regulated evaporation method*. AIChE National Meeting, Cincinnati, OH, November 2005.
50. M.W. Toepke, S.H. Brewer, J.E. Morgan, D.M. Vu, K. Ganesan, K.D. Rector, W.H. Woodruff, R.B. Gennis, R.B. Dyer, P.J.A. Kenis, *Protein kinetics via spectroscopic imaging on a microfluidic chip*. AIChE National Meeting, Cincinnati, OH, November 2005.
51. G. He, V. Bhamidi, R.B.H. Tan, P.J.A. Kenis, C.F. Zukoski, *Estimation of critical supersaturation using a microdroplet evaporation technique*. AIChE National Meeting, Cincinnati, OH, November 2005.
52. M.C. Cole, P.J.A. Kenis, *Integrated electrical sensor arrays in microfluidic networks*. AIChE National Meeting, Cincinnati, OH, November 2005.
53. M.W. Toepke, I.D. Block, V. Nesterenko, C.J. Choi, B. Schudel, B.T. Cunningham, P.J. Hergenrother, P.J.A. Kenis, *Microfluidics for combinatorial synthesis and screening on chip*. AIChE National Meeting, Cincinnati, OH, November 2005.
54. S.K. Yoon, M. Mitchell, R.S. Jayashree, P.J.A. Kenis, *Laminar flow-based biofuel cells: Independent control of pH at the anode and cathode for optimal electrode activity*. AIChE National Meeting, Cincinnati, OH, November 2005.
55. S.K. Yoon, G. Fichtl, P.J.A. Kenis, *Engineering of mass transfer boundary layers in laminar flow-based microreactors*. AIChE National Meeting, Cincinnati, OH, November 2005.
56. P.J.A. Kenis, M. Mitchell, Christian, *Fabrication and characterization of integrated ceramic microreactors for hydrogen production*. 231st ACS National Meeting, Atlanta, GA, March 26-30, 2006.
57. P.J.A. Kenis, Christian, M. Mitchell, *Development of integrated ceramic microreactors for production of hydrogen*. AIChE Spring National Meeting, Orlando, FL, April 23-27, 2006.
58. P.J.A. Kenis, S.K. Yoon, *Laminar flow based electrochemical microreactor*. AIChE Spring National Meeting, Orlando, FL, April 23-27, 2006.
59. P.J.A. Kenis, R.S. Jayashree, D. Egas, D. Natarajan, J.S. Spendelow, L.J. Markoski, *Air-breathing laminar flow fuel cells operating in alkaline or acidic media*. AIChE Spring National Meeting, Orlando, FL, April 23-27, 2006.
60. D. Natarajan, A. Primak, P.J.A. Kenis, L.J. Markoski, *Air-breathing multichannel laminar flow fuel cells*. ECS Spring Meeting, Denver, CO, May 2006.
61. S.K. Yoon, M. Mitchell, R.S. Jayashree, S.D. Minter, P.J.A. Kenis, *Laminar flow based biofuel cells*. ECS Spring Meeting, Denver, CO, May 2006.
62. R.S. Jayashree, D. Egas, D. Natarajan, J.S. Spendelow, L.J. Markoski, P.J.A. Kenis, *Fuel and media flexible air-breathing laminar flow fuel cells*. ECS Spring Meeting, Denver, CO, May 2006.
63. M.C. Cole, P.J.A. Kenis, *Integrated electrical sensor arrays in microfluidic networks*. ECS Fall Meeting, Cancun, Mexico, November 2006.
64. J.S. Spendelow, J. Goodpaster, P.J.A. Kenis, A. Wieckowski, *The different roles of defects in CO oxidation, methanol oxidation, and oxygen reduction on Pt(111) in alkaline solutions*. ECS Fall Meeting, Cancun, Mexico, November 2006.
65. B.R. Schudel and P.J.A. Kenis, *Controlling microfluidic arrays for combinatorial chemistry using multi-functional valves*. AIChE National Meeting, San Francisco, CA, November 2006.
66. P.J.A. Kenis, *Mixing in the formulation of screens for drug leads or crystallization conditions in microfluidic systems*. AIChE National Meeting, San Francisco, CA, November 2006.

67. V. Bhamidi, G. He, R.B.H. Tan, P.J.A. Kenis, C.F. Zukoski, *Critical supersaturation in solution crystallization as a function of equilibrium cluster size distribution*. AIChE National Meeting, San Francisco, CA, November 2006.
68. V. Bhamidi, G. He, R.B.H. Tan, P.J.A. Kenis, C.F. Zukoski, *Affecting polymorph selectivity in a reproducible nucleation environment generated using a microfluidic device*. AIChE National Meeting, San Francisco, CA, November 2006.
69. G. He, R.B.H. Tan, P.J.A. Kenis, C.F. Zukoski, *Characterizing intermolecular interactions from self-diffusion coefficients to locate conditions for spherical crystallization*. AIChE National Meeting, San Francisco, CA, November 2006.
70. P.J.A. Kenis, J. Tice, S.L. Perry, *Microfluidic platforms for protein crystallization screening*. AIChE National Meeting, San Francisco, CA, November 2006.
71. C. Gupta, M.A. Shannon, P.J.A. Kenis, *Surface-to-surface transfer printing of liquid inks*. AIChE National Meeting, San Francisco, CA, November 2006.
72. P.J.A. Kenis, *Microfluidic fuel cells*. AIChE National Meeting, San Francisco, CA, Nov 2006.
73. J. Silvestre, P.J.A. Kenis, D.E. Leckband, *Regulation of breast cancer migration through integrin-cadherin synergies*. AIChE National Meeting, San Francisco, CA, November 13-17, 2006.
74. P.J.A. Kenis, *Study of Ru/SiC monoliths for the production of hydrogen: Ammonia decomposition and propane steam reforming*. AIChE National Meeting, San Francisco, CA, November 2006.
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