Laurance G. Beauvais
Curriculum Vitae

Education

2002 Ph.D., Chemistry, University of California, Berkeley
Thesis: *Toward Functional Coordination Solids: Synthesis of Porous Cluster- and Transition Metal-Cyanide Frameworks*
Advisor: Professor Jeffrey R. Long

1994 B.S., Chemistry, University of Houston
Thesis: *Synthesis of the High Temperature Superconductors:* $HgBa_2CaCu_2O_{6+\delta}$ *and* $HgBa_2Ca_2Cu_3O_{8+\delta}$
Advisor: Professor C. W. Paul Chu

Awards and Honors

2007–2008 SDSU 2007–2008 Mortar Board Award for Outstanding Faculty and Staff
2002–2005 National Cancer Institute Cancer Training Grant Postdoctoral Trainee

Positions Held in Teaching & Research

2013 – *Assistant Professor of Chemistry*, Point Loma Nazarene University

2006 – 2013 *Assistant Professor of Chemistry*, San Diego State University

2002–2006 *Postdoctoral associate*, Massachusetts Institute of Technology
Mentor: Professor Stephen J. Lippard

1997–2002 *Graduate research & teaching assistant*, University of California, Berkeley
Advisor: Professor Jeffrey R. Long

1994–1996 *Graduate research & teaching assistant*, University of California, Berkeley
Advisors: Professors Darleane C. Hoffman and Angelica Stacy

1992–1994 *Undergraduate research assistant*, University of Houston
Advisor: C. W. Paul Chu

Research Areas

Inorganic, materials, and bioinorganic chemistry; metal-organic frameworks; materials for gas storage and separation; heterogeneous catalysis; functional solids

Grants (Principle investigator is L. Beauvais in all cases)

Awarded
SDSU University Grants Program, $9998, 1/1/2008 – 6/30/2009
Blasker Science & Technology Grants Progam, The San Diego Foundation, $51,365, 7/1/09 – 6/30/12.
von Liebig Center: Southern California Energy Technology Acceleration Program, $40,000, 7/1/12 – 6/30/13
PLNU Research and Special Project Grant, 2014 and 2015
PLNU Wesleyan Center Scholar Award, 2014, $3,000

Classes Taught at PLNU

CHE 151. General Chemistry Tutorial

CHE 152. General Chemistry I

CHE 152L. General Chemistry I Lab

CHE 153. General Chemistry II

CHE153L. General Chemistry II Lab

CHE 467. Advanced Inorganic Chemistry Lab

CHE 468. Advanced Inorganic Chemistry II

Classes Taught at SDSU

CHEM 200/202. General Chemistry I

CHEM 201. General Chemistry II (lab coordinator)

CHEM 596. Introduction to Materials Chemistry

CHEM 520B. Inorganic Chemistry II

CHEM 790/791/795. Graduate Seminar

Teaching Experience at UCSD Extension

Downstream Processing of Fuels. (co-taught)

Invited Presentations

- Texas A&M, Department of Chemistry, December 5, 2005
- University of California, Irvine, Department of Chemistry, December 8, 2005
- San Diego State University, Department of Chemistry, December 19, 2005
- University of California, San Diego, Department of Chemistry, February 9, 2007
- Instituto Tecnológico de Tijuana, Department of Chemistry, June 15, 2007
- Pomona College, October 16, 2012

Publications

(1) Schumacher, W. T.; Mathews, M. J.; Larson, S. A.; Lemmon, C. E.; Campbell, K. A.; Crabb, B. T.; Chicoine, B. J.-A.; Beauvais, L. G.; Perry, M. C. "Organocatalysis by site-isolated N-heterocyclic carbenes doped into the UIO-67 framework." *Polyhedron* **2016**, *114*, 422-427.

(2) Servati-Gargari, M.; Mahmoudi, G.; Batten, S. R.; Stilinović, V.; Butler, D.; Beauvais, L.; Kassel, W. S.; Dougherty, W. G.; VanDerveer, D. "Control of Interpenetration in Two-Dimensional Metal–Organic Frameworks by Modification of Hydrogen Bonding Capability of the Organic Bridging Subunits." *Cryst. Growth Des.* **2015**, 1336-1343.

(3) Smythe, N. C.; Butler, D. P.; Moore, C. E.; McGowan, W. R.; Rheingold, A. L.; Beauvais, L. G. "A heterobimetallic metal–organic framework with tunable reactive metal sites: synthesis, characterization, and reactivity." *Dalton Trans.* **2012**, *41*, 7855-7858.

(4) Newcomb, M.; Lansakara-P., D. S. P.; Kim, H.-Y.; Esala, R.; Chandrasena, P.; Lippard, S. J.; Beauvais, L. G.; Murray, L. J.; Izzo, V.; Hollenberg, P. F.; Coon, M. J. "Products from the Enzyme-Catalyzed Oxidations of Norcarenes." *J. Org. Chem.* **2007**, *72*, 1128–1133.

(5) Newcomb, M.; Esala, R.; Chandrasena, P.; Lansakara-P., D. S. P.; Kim, H.-Y.; Lippard, S. J.; Beauvais, L. G.; Murray, L. J.; Izzo, V.; Hollenberg, P. F.; Coon, M. J. "Desaturase Reactions Complicate the Use of

Norcarane as a Mechanistic Probe. Unraveling the Mixture of Twenty-Plus Products Formed in Enzyme-Catalyzed Oxidations of Norcarane." *J. Org. Chem.* **2007**, *72*, 1121–1127.

(6) Beauvais, L. G.; Long, J. R. "Synthesis and Characterization of Prussian Blue Analogues Incorporating the Edge-Bridged Octahedral $[Zr_6BCl_{12}]^{2+}$ Cluster Core." *Inorg. Chem.* **2006**, *45*, 236–243.

(7) Beauvais, L. G.; Lippard, S. J. "Reactions of the Diiron(IV) Intermediate Q in Soluble Methane Monooxygenase with Fluoromethanes." *Biochem. Biophys. Res. Commun.* **2005**, *338*, 262–266.

(8) Beauvais, L. G.; Lippard, S. J. "Reactions of the Peroxo Intermediate of Soluble Methane Monooxygenase Hydroxylase with Ether Substrates." *J. Am. Chem. Soc.* **2005**, *127*, 7370–7378.

(9) Beauvais, L. G.; Long, J. R. "$Co_3[Co(CN)_5]_2$: A Microporous Magnet with an Ordering Temperature of 38 K." *J. Am. Chem. Soc.* **2002**, *124*, 12096–12097.

(10) Beauvais, L. G.; Long, J. R. "Cyanide-Limited Complexation of Molybdenum(III): Synthesis of Octahedral $[Mo(CN)_6]^{3-}$ and Cyano-Bridged $[Mo_2(CN)_{11}]^{5-}$." *J. Am. Chem. Soc.* **2002**, *124*, 2110–2111.

(11) Bennett, M. V.; Beauvais, L. G.; Shores, M. P.; Long, J. R. "Expanded Prussian Blue Analogues Incorporating $[Re_6Se_8(CN)_6]^{3-/4-}$ Clusters: Adjusting Porosity via Charge Balance." *J. Am. Chem. Soc.* **2001**, *123*, 8022–8032.

(12) Wierczinski, B.; Gregorich, K. E.; Kadkhodayan, B.; Lee, D. M.; Beauvais, L. G.; Hendricks, M. B.; Kacher, C. D.; Lane, M. R.; Keeney-Shaughnessy, D. A.; Stoyer, N. J.; Strellis, D. A.; Sylwester, E. R.; Wilk, P. A.; Hoffman, D. C.; Malmbeck, R.; Skarnemark, G.; Alstad, J.; Omtvedt, J. P.; Eberhardt, K.; Mendel, M.; Nahler, A.; Trautmann, N. "First Chemical On-Line Separation and Detection of a Subsecond α-Decaying Nuclide, ^{224}Pa." *J. Radioanal. Nucl. Chem.* **2001**, *247*, 57–60.

(13) Bennett, M. V.; Shores, M. P.; Beauvais, L. G.; Long, J. R. "Expansion of the Porous Solid $Na_2Zn_3[Fe(CN)_6]_2 \cdot 9H_2O$: Enhanced Ion-Exchange Capacity in $Na_2Zn_3[Re_6Se_8(CN)_6]_2 \cdot 24H_2O$." *J. Am. Chem. Soc.* **2000**, *122*, 6664–6668.

(14) Beauvais, L. G.; Shores, M. P.; Long, J. R. "Cyano-Bridged Re_6Q_8 (Q = S, Se) Cluster-Cobalt(II) Framework Materials: Versatile Solid Chemical Sensors." *J. Am. Chem. Soc.* **2000**, *122*, 2763–2772.

(15) Shores, M. P.; Beauvais, L. G.; Long, J. R. "$[Cd_2(H_2O)_4][Re_6S_8(CN)_6] \cdot 14H_2O$: A Cyano-Bridged Cluster-Cluster Framework Solid with Accessible Cubelike Cavities." *Inorg. Chem.* **1999**, *38*, 1648–1649.

(16) Shores, M. P.; Beauvais, L. G.; Long, J. R. "Cluster-Expanded Prussian Blue Analogues." *J. Am. Chem. Soc.* **1999**, *121*, 775–779.

(17) Beauvais, L. G.; Shores, M. P.; Long, J. R. "Cyano-Bridged Re_6Q_8 (Q = S, Se) Cluster-Metal Framework Solids: A New Class of Porous Materials." *Chem. Mater.* **1998**, *10*, 3783–3786.

(18) Eggert, J. H.; Hu, J. Z.; Mao, H. K.; Beauvais, L.; Meng, R. L.; Chu, C. W. "Compressibility of the $HgBa_2Ca_{n-1}Cu_nO_{n+2+\delta}$ (n = 1, 2, 3) High Temperature Superconductors." *Phys. Rev. B* **1994**, *49*, 15299–15304.

(19) Xue, Y. Y.; Huang, Z. J.; Qui, X. D.; Beauvais, L.; Zhang, X. N.; Sun, Y. Y.; Meng, R.; Chu, C. W. "Pb-Doping Effects in $Hg_{1-x}Pb_xBa_2Ca_2Cu_3O_{8+\delta}$." *Mod. Phys. Lett. B* **1993**, *7*, 1833–1842.

(20) Meng, R. L.; Beauvais, L.; Zhang, X. N.; Huang, Z. J.; Sun, Y. Y.; Xue, Y. Y.; Chu, C. W. "Synthesis of the High-Temperature Superconductors $HgBa_2CaCu_2O_{6+\delta}$ and $HgBa_2Ca_2Cu_3O_{8+\delta}$." *Physica C* **1993**, *216*, 21–28.

(21) Gao, L,; Huang, J. Z.; Meng, R. L.; Lin, G.; Chen, F.; Beauvais, L.; Sun, Y. Y.; Xue, Y. Y.; Chu, C. W. "Study of Superconductivity in the Hg-Ba-Ca-Cu-O System." *Physica C* **1993**, *213*, 261–265.

Presentations at Scientific Meetings (since 2008)

(1) Smythe, N.;[†] McGowan, W.;[‡] Cunningham, J.;[§] Butler, D.;[‡] Galyan, I.;[§] Beauvais, L. G. Strategies for the Preparation of Microporous Solids Containing Coordinatively Unsaturated Metal Centers. 2008 Inorganic Chemistry Gordon Conference, June 2008, Salve Regina University, Providence, RI.

(2) Beauvais, L. G.; Smythe, N.;[†] Butler, D. P.;[‡] McGowan, W.;[‡] Abeykoon, B.;[‡] Hawkes, D.[§] Porphyrin metal-organic frameworks: Exploiting metal-binding preferences to tune functionality. Oral presentation at the American Chemical Society Spring 2010 National Meeting, San Francisco, CA.

(3) Beauvais, L. G.; Butler, D. P.;[‡] Smythe, N.;[†] McGowan, W.;[‡] Abeykoon, B.;[‡] Hawkes, D.;[§] Garcia, J.;[§] Honaker, L.;[§] Rosentrater, B.[§] Synthesis and characterization of porphyrin metal-organic frameworks containing exposed metal sites. Oral presentation at the American Chemical Society Spring 2011 National Meeting, Anaheim, CA.

(4) Beauvais, L. G.; Butler, D. P.;[‡] Smythe, N.;[†] McGowan, W.;[‡] Abeykoon, B.;[‡] Hawkes, D.;[§] Honaker, L.;[§] Rosentrater, B.[§] Tunable bimetallic metal-organic frameworks constructed from porphyrin building blocks. Poster presentation at the 2011 Nanoporous Materials & their Applications Gordon Research Conference, Holderness School, Holderness, NH.

(5) Beauvais, L. G.; Butler, D. P.;[‡] Smythe, N.;[†] McGowan, W.;[‡] Abeykoon, B.;[‡] Synthesis and characterization of heterobimetallic metal-organic frameworks. Poster presentation at the 2012 Inorganic Chemistry Gordon Research Conference, University of New England, Biddeford, ME.

Students academic standing is indicated as follows, postdoctoral associate ([†]), graduate student ([‡]), and undergraduate student ([§]).

Research Mentoring

Undergraduate Students (at PLNU)
Brent Chicoine ‘15 (Biology-Chemistry)
Madeleine Matthews ‘16 (Biology-Chemistry)
William Schumacher ‘16 (Chemistry)
Kärin Campbell ’17 (Chemistry)
Brendan Crabb ’17 (Physics)

Graduate Students (at SDSU)
Derek Butler, Ph.D. student graduated 2013, postdoc at Monsanto
Michael Heberlin, MS student
William McGowan, MS student, graduated 12/2012
Bryan Abeykoon, MS student, graduated 12/2011

Postdoctoral Associates (at SDSU)
Dr. Nathan Smythe, Ph.D. MIT 2006 (9/2006–10/2008), now a staff scientist at Los Alamos National Lab

Other Professional Activities

Member:
American Chemical Society

Peer review for the following journals and grant agencies
Catalysis Science and Technology
Chemical Communications
Chemical Science
Chemical Society Reviews
CrystEngComm
Dalton Transactions
Journal of the American Chemical Society
National Science Foundation
ACS Petroleum Research Foundation
U.S. Civilian Research and Development Foundation, Cooperative Grants Program

Book reviews of chemistry texts for Oxford Press, McGraw-Hill, & Wiley