Stephen M. Contakes

Chemistry Department, Westmont College
955 La Paz Road
Santa Barbara, CA 93108 USA

phone: (626)-676-5084 (cell)
fax: (805)-565-7066
e-mail: scontakes@westmont.edu

Experience

Faculty member, Westmont College, 2007-present.
Associate Professor (2015-present); Assistant Professor (2007-2015)

- *Teaching: Teaching:* Developed and taught numerous courses successfully as evidenced by exemplary ACS standard exam course averages) and positive student evaluations of instructor teaching effectiveness:
  - *Courses taught:*
    - CHM 4 Chemistry, Culture, & Society
    - CHM 5 General Chemistry I
    - CHM 6 General Chemistry II
    - CHM 104 Advanced Inorganic Chemistry
    - CHM 113 (BIO 113) Biochemistry
    - CHM 113L (BIO 113L) Biochemistry Lab
    - CHM 121 Introductory Analytical Chemistry
    - CHM 121L Introductory Analytical Chemistry Lab
    - CHM 122 Advanced Analytical Chemistry with lab
    - CHM 130 (PHY 160) Physical Chemistry I (Classical & Statistical Thermodynamics)
    - CHM 131 Physical Chemistry I Lab
    - CHM 133 Physical Chemistry II Lab
    - CHM 195 Senior Seminar
  - *Course development:* Updated the Physical Chemistry II, Introductory analytical chemistry, and Biochemistry labs to better reflect current trends in these fields. Restructured the Chemistry, Culture, and Society & Senior Seminar Courses to better reflect the current state of Science & Religion and History & Philosophy of Science scholarship. Added significant instrumental methods, writing, and oral presentation instruction to the analytical & physical chemistry courses. Currently developing labs for materials chemistry and nanotechnology instruction.
- *Scientific Scholarship:* Conducted research on the design and preparation of small-molecule, nanomolecular, and protein-based catalysts.
  - Published three papers & obtained one external grant, an additional patent and four manuscripts are in the pipeline, two of which will not require additional laboratory work
  - Supervised 40 research students, including three major honors theses & 21 unique summer researchers
  - Set-up a biochemical research facility and expanded departmental small-molecule synthesis and characterization capabilities. This involved acquiring and commissioning thirteen new laboratory instruments and other major pieces of equipment including a FPLC, glove box, electrochemical analyzer, & solvent purification system and providing design and consultancy support for the remodel of our computer room into a biochemical research lab.
  - Conducted pedagogical research leading to the development of one paper, five new labs & the adaptation of twenty experiments used elsewhere for use with Westmont courses & facilities
- *Science & Religion and Humanities Scholarship:* Developed methods to systematically integrate contemporary science & religion scholarship in the chemistry curriculum.
  - Published four papers, two magazine articles, ten dictionary entries, and a book review, with an additional book chapter in the final stages of editing.
  - Delivered eighteen conference, four institutional, and four public talks
  - Developed a 2000+ item “Chemistry & Religion” online Zotero bibliographic database
  - Organized and chaired two American Scientific Affiliation national conference sessions
  - Co-organized the 2013 - 2017 Southern California Christians in Science Winter Conferences
  - Participant, Bridging the Two Cultures of Science and the Humanities Oxford Interdisciplinary Seminar in Science and Religion, 2015-2016
  - Co-wrote a successful International Society for Science and Religion Library grant
  - Provided materials and consultant services to CCCU chemistry faculty

- *Service:* Served the department & college in several capacities, most notably:
  - Institutional
    - Chair, Quantitative Literacy ILO assessment team, 2015-16
    - Chair, Professional Development committee, 2011-12
    - Secretary, Professional Development committee, 2010 – 11
    - Member, Faculty Personnel Committee, 2016-present
    - Member, General Education Committee, 2014-16
    - Member, Information Literacy ILO Assessment Team, 2014-15
    - Member, Critical Thinking Assessment Team, 2013-2014
    - Member, Diversity committee, 2012-13
    - Member, Economics & Business search committee, 2012 – 14
    - Member, David K. Winter Servant Leadership Awards Selection Committee, 2013
    - Member, Library search committee, 2012
    - Member, Focus day planning committee, 2012
    - Member, HHMI proposal development and writing committee, 2011
    - Member, Chemistry department search committees, 2008, 2009, 2010-11, and 2013-15.
    - Member, Computer Technology Advisory committee, 2008 – 2010
  - Departmental:
    - Chair, summer 2017-present.
    - Helped acquire, maintain, & repair departmental instrumentation and other equipment
    - Invited speakers for departmental and campus-wide symposia
    - Developed promotional materials and assisted with recruitment efforts
    - Served as advisor to the Westmont Chemistry Club, fall 2007 – present
    - Hosted Friday evening dinners for student researchers during the 2008 - 2017 summer research seasons
    - Co-organized departmental chapels, 2007-2010
  - Ad Hoc
    - Advisor, Westmont College Chemistry Club 2007-present.
    - Advisor, Westmont College Science & Religion Club, 2015-present.
    - Panelist, Prospective student Preview Days Panel, 2016
    - Panelist, Faith Journeys and Turning Points, Westmont College First Year Retreat, 2012
    - Panelist, Teaching at Westmont session for new faculty orientation, 2011

Visitor, California Institute of Technology, August 2006-2009: Undertook collaborative research in protein engineering. Past duties also included consulting on the development of molecular wires for probing the active sites of the enzymes methyl-CoM reductase, cytochrome P450BM3, and lipoxygenases.

Assistant Professor of Chemistry, Azusa Pacific University, August 2006-May 2007:
Courses taught:

- Introductory chemistry
- Organic and Biochemistry
- Organic & Biochemistry lab
- Biochemistry I
- Biochemistry I lab
- Biochemistry II
- Biochemistry II lab

Consultant, OhmX Corporation, June 2005- May 2007: Provided technical expertise related to the development of protein biosensors.

Postdoctoral Scholar, California Institute of Technology, June 2001- August, 2006:
Bioinorganic and biophysical chemistry research under Prof. Harry B. Gray

- Designed & Prepared Ru and Re diimine molecular wires that reversibly and selectively bind copper amine oxidases and cytochrome P450cam
- Photogenerated topaquinone radicals in copper amine oxidase using Re diimine molecular wires
- Three publications and five presentations at professional meetings
- Mentored three undergraduate researchers

Consultant, Jet Propulsion Laboratory, July 2005 – June 2006: Advised Dr. Adrian Ponce and his group on the design of synthetic receptor sites for spore detection.

Research Mentor, California Institute of Technology Freshman Summer Institute Program, August - September, 2005: Taught two incoming Caltech freshmen research methods & techniques.

Research Assistant, University of Illinois. January 1996 – May 2001:
Conducted research in synthetic organometallic chemistry under Prof. T. B. Rauchfuss:

- Prepared four new classes of organometallic cyanide clusters and three new coordination networks
- Characterized the structures of numerous organometallic cyanide clusters and polymers using X-ray crystallography, NMR, IR, and MS
- Synthesized & characterized the 1st model complex for the all-Fe hydrogenase active site cofactor
- Prepared and characterized π-complexes of Cp^*Ru^{2+} with phthalocyanines
- Eleven publications and six presentations at professional meetings

Teaching Assistant, University of Illinois. August 1996 - May 1997, January - December 1999:

- Teaching assistant, *General Chemistry*. Lectured, held review sessions, wrote & gave quizzes.
- Teaching assistant, *Industrial Inorganic Chemistry*. Provided organizational & administrative assistance.
- Head Teaching Assistant, *General Chemistry Lab*. Prepared course materials, wrote exams, and tested experiments.

Summer Researcher, Sandia National Labs. May - August 1995, May - August 1994:
Conducted original research in sol-gel science under Dr. C.J. Brinker:

- Published two articles on the effect of preparation conditions on the properties of sol-gel derived thin films, powders, gels, and membranes
- Developed a molecular imprinting method for controlling pore sizes in silica thin films
- Measured stresses in dip-coated thin films as a function of solvent partial pressure during drying

Education

***Postdoctoral*:** California Institute of Technology, June 2001- August 2007.
Advisor: Harry B. Gray

Ph.D.: University of Illinois at Urbana-Champaign, October 2001.
Thesis Title: Synthesis and Characterization of Novel Organometallic Phthalocyanines and Cyanometallates
Thesis Advisor: Thomas B. Rauchfuss
GPA: 4.00/4.00

B.S. Chemistry: *Lehigh University, May, 1995*
B.S. Chemical Engineering: *Lehigh University, May, 1995*
Both with Highest Honors. GPA: 3.99/4.00

Technical Skills

Chemical and Biochemical Synthesis

- Expert in synthesis and manipulation of air sensitive compounds using Schlenk manifolds, glove boxes, and high vacuum systems.
- Proficient in the maintenance and use of solvent purification systems
- Proficient at performing chromatographic separations by flash chromatography, HPLC, and FPLC
- Proficient at engineering, expressing, and purifying proteins

Spectroscopy and Crystallography

- Proficient with the use and modification of a pulsed laser system for nanosecond time-resolved emission and absorption spectroscopy
- Proficient in the use of *SHELX* and *PLATON* for the solution and refinement of crystallographic data

- Proficient with the use and basic maintenance of instruments for NMR, IR, UV-vis, Fluorimetry, ESI-MS, and AA spectroscopy
- Proficient in the use of and basic maintenance of HPLC, GC, and GC-MS instruments
- Experienced in the use of CD, EPR, XPS, SEM, and TGA analysis techniques

Selected Software

- General: MS Word, Excel, and PowerPoint; EndNote; Photoshop, Acrobat Professional
- Chemical: ChemDraw, SciFinder Scholar; HyperChem, Chem3D Ultra; CambridgeSoft E-notebook, ACD Labs NMR Processor; ShelX; Oscail X, Olex2; Mercury

Professional Affiliations

American Chemical Society
American Scientific Affiliation
Tau Beta Pi
Sigma Xi
Omicron Delta Kappa

Selected Honors

Fellow of the American Scientific Affiliation, 2017
Bruce and Adaline Bare Outstanding Teacher Award in Natural and Behavioral Sciences, 2013
National Institutes of Health Postdoctoral Fellow, 2002 – 2004
T.*S*. Piper Award in Inorganic Chemistry, 2000
National Science Foundation Predoctoral Fellow, 1995 – 1998
Barry Goldwater Scholar, 1994 -1995

Recent Professional Service Activities

Professional review work: *2015-present:* Editorial board member for *Perspectives on Science and Christian Faith*. 2007-*present:* Ad hoc reviewer for Petroleum Research Fund, National Science Foundation, National Center for Case Study Teaching in Science, Oxford University Press, the *Journal of Chemical Education*, *Hyle*, Pearson Higher Education, Holt-Rinehart, and Winston**.**

American Chemical Society Los Padres Local Section Service*, 2007-present:* National Chemistry Olympiad Coordinator, 2011-present, Executive committee member, 2011-2013; Education committee chair, 2012. National Chemistry week chair; 2010-2011, 2013; Earth day coordinator, 2011-2012; National Chemistry Week outreach event leader, 2007-9, 2012.

American Scientific Affiliation, *2009-present:* Helped organize and moderate several sessions for the 2012 and 2013 national meeting technical programs. Served the *Southern California Christians in Science Local Section* in several leadership capacities, including secretary (2009-present) and webmaster (2009-2010). Helped organize local meetings in Southern California and the Santa Barbara area, most notably the 2013 - 2017 Winter Day Conferences at which I also served as program chair (2013-16) or co-chair (2017).

Summer Undergraduate Research Fellow Mentor, 2002-2005: Directed three undergraduate student research projects. This involved mentoring students in project design, proposal writing, lab techniques, data analysis, and technical communication.

Scientific Articles (* denotes undergraduate coauthors)

1. Contakes, S.M. "Contakes, S. M., Misconduct at the Lab? A Performance Task Case Study for Teaching Data Analysis and Critical Thinking. *Journal of Chemical Education* **2015**, *93* (2), 314–317. <http://pubs.acs.org/doi/abs/10.1021/acs.jchemed.5b00478>

2. Brautigam, B., Herholdt, C., Farnsworth, W., Brudi, E., Eric, M.D., Wu, G. & Contakes, S. “Crystal structure of an unknown solvate of {2,2’-[ethane-1,2-diylbis(nitrilomethanylylidene)]-diphenolato-κ^4O,N,N’,O}(N-ferrocenylisonicotinamide-κN^1)cobalt(II): a CoII–salen complex that forms hydrogen-bonded dimers *Acta Cryst. E*, **2015**, *71*, 1100-1104. doi:10.1107/S2056989015014723.

3. Patterson, E.; Brautigam, B.; Farnsworth, W.; McDonald, E.; Wu, G.; Contakes, S., *N*-ferrocenyl isonicotinamide, a redox-active 1D hydrogen-bonded chain structure capable of supporting a mixed-valent redox state. *Inorganic Chemistry Communications* **2015,** *51* (0), 36-39.

4. Contakes, S. M.; Cable, M. L.; Kirby, J. P.; Ponce, A. P. “Principles for Engineering Molecular Receptor Sites” in *Bottom-Up Nanofabrication: Supramolecules, Self-Assemblies, and Organized Films,* Ariga, K. Ed., Academic Publishers, **2009**, vol. 4, 355-386.

5. Langley, D. B.; Brown, D. E.; Cheruzel, L. E.; Contakes, S. M.; Duff, A. P.; Hilmer, K. M.; Dooley, D. M.; Gray, H. B.; Guss, J. M.; Freeman, H. C. “Enantiomer-Specific Binding of Ruthenium(II) Molecular Wires by the Amine Oxidase of *Arthrobacter globiformis*” *J. Am. Chem. Soc.* , **2008**, *130(25)*, 8069-78.

6. Contakes, S.M.; Nguyen, Y-H L.; ;Udit, A. K.; Gray, H. B. “Conjugates of heme-thiolate enzymes with Photoactive Metal-diimine wires” in *Structure & Bonding: Photofunctional Transition Metal Complexes)*, Yam, W.W. Ed., Springer-Verlag, **2007***,* 177-204.

7. Udit, A. K.; Contakes, S.M.; Gray, H. B. “P450 electron-transfer reactions” *Met. Ions Life Sci.* A. Sigel, H. Sigel, R.K.O. Sigel, Eds.; John Wiley & Sons, **2007**, vol. 3, 157-185.

8. Contakes, S. M.; Juda, G. A.; Langley, D. B.; Halpern-Manners, N. W.*; Duff, A. P.; Dunn, A. R.; Gray, H. B.; Dooley, D. M.; Guss, J. M.; Freeman, H. C. “Reversible inhibition of copper amine oxidase activity by channel-blocking ruthenium(II) and rhenium(I) molecular wires”, *Proc. National Aced. Sci. USA* **2005**, *102(38)*, 13451-6.

9. Contakes, S. M.; Klausmeyer, K. K.; Rauchfuss, T. B.; Carmona, D.; Lamat, M. P.; Oro, L. A. “Cyanide compounds. Tricyanometalate building blocks and organometallic cyanide cages.” *Inorganic Syntheses*, **2004**, *34*, 166-171. (invited contribution)

10. Contakes, S. M.; Dunn, A. R.; Morales, N.; Winkler, J. R.; Gray, H. B., Substrate-tethered probes for investigating the active site of myeloperoxidase. *Journal of Inorganic Biochemistry* **2003,** *96* (1), 120.

11. Contakes, S. M.; Kuhlman, M. L., Ramesh, M., Wilson, S. R., Rauchfuss, T. B. “Systematic assembly of the double molecular boxes: {Cs[CpCo(CN)$_3$]$_4$[Cp*Ru]$_3$} as a tridentate ligand” *Proc. National Aced. Sci. USA*, **2002**, *99*, 4889-4893 (invited contribution, supramolecular chemistry and self-assembly special feature, and cover article).

12. Contakes, S. M.; Hsu, S. C. N.; Rauchfuss, T. B.; Wilson, S. R. “Preparative and structural studies on the carbonyl cyanides of iron, manganese, and ruthenium: Fundamentals relevant to the Hydrogenases” *Inorg. Chem.*, **2002**, *41(6)*, 1670-1678.

13. Rauchfuss, T. B.; Contakes, S. M.; Hsu, S. C. N.; Reynolds, M. A.; Wilson, S. R. “The influence of cyanide on the carbonylation of iron(II): synthesis of Fe-SR-CN-CO centers related to the Hydrogenase active sites“ *J. Am. Chem. Soc*. **2001**; *123(28)*; 6933-6934.

14. Contakes, S. M.; Rauchfuss, T. B. “Alkali metal-templated assembly of the tetrahedral cyanometallate cages [M$\subset$Mo$_4$(μ-CN)$_6$(CO)$_{12}$]$^{5-}$ (M = Li, Na)”, *Chem. Commun.*,**2001**, 553-554.

15. Contakes, S. M.; Beatty, S. T.; Dailey, K. K.; Rauchfuss, T. B.; Fenske, D. "Π- complexes of phthalocyanines and metallophthalocyanines” *Organometallics*, **2000**; *19*, 4767-4774.

16. Contakes, S. M.; Rauchfuss, T. B. "{K$\subset$[Mo(CO)$_3$]$_6$(CN)$_9$}$^{8-}$: A trigonal-prismatic cyanometallate cage" *Angew. Chem. Int. Ed. Engl.* **2000**, *39*, 1984-1986.

17. Contakes, S. M.; Klausmeyer, K. K.; Rauchfuss, T. B. "Coordination solids derived from $Cp^*M(CN)_3^-$ (M = Rh, IR)" *Inorg. Chem.* **2000**, *39*, 2069-2075.
18. Schmidt, M.; Contakes, S. M.; Rauchfuss, T. B. "First generation synthetic analogues of all-Fe hydrogenases: synthesis and oxidation of $Fe_2(SR)_2(CO)_4(CN)_2^{2-}$" *J. Am. Chem. Soc.* **1999**, *121*, 9736-9737.
19. Contakes, S. M.; Schmidt, M.; Rauchfuss, T. B. "Synthesis of organometallic solids by protonation of $Cp^*M(CN)_3^{n-}$ (M = Rh, Ir, Ru)" *Chem. Commun.* **1999**, 1183.
20. Contakes, S. M.; Klausmeyer, K. K.; Milberg, R. M.; Wilson, S. R.; Rauchfuss, T. B. "The seven-component assembly of the bowl-shaped cages $Cp^*_7Rh_7(CN)_{12}^{2+}$ and $Cp^*_7Rh_3Ir_4^{2+}$" *Organometallics* **1998**, *17*, 3633-3655.
21. Samuel, J.; Hurd, A. J.; van Swol, F.; Fink, L.; Douglas, J.; Brinker, C. J.; Contakes, S. "Preparation of microporous films with sub-nanometer pores and their characterization using stress and FTIR measurements" *Mater. Res. Soc. Symp. Proc.* **1996**, *431*, 185-190.
22. Brinker, C. J.; Wallace, S.; Raman, N. K.; Sehgal, R.; Samuel, J.; Contakes, S. M. "Sol-gel processing of amorphous nanoporous silicas: thin film and bulk" *Access Nanoporous Mater.*, [Proc. Symp.] **1995**, 123-139.

Scientific Presentations at Professional Meetings (* denotes undergraduate coauthors)

1. Brautigam, B.*; Patterson, E.*; Farnsworth, W.*; McDonald, E.*, Wu, G.; Contakes, S. M. "Synthesis and Characterization of *N*-ferrocenyl isonicotinamide and Its Reaction with Co(salen)" 12th Southern California Conference for Undergraduate Research, California State University - Channel Islands, November 17, 2012.
2. Johnson, G.*; Kuwahara, J.*; Reinstra, A.*; Haas, M.; Sparks, T.*; Grossmann, E.*; Marks, J.*; Contakes, S.M.* "Synthesis and Photophysical Characterization of Ruthenium-functionalized PAMAM Dendrimers" 12th Southern California Conference for Undergraduate Research, California State University - Channel Islands, November 17, 2012.
3. Haas, M.*; Kuwahara, J.; Contakes, S.M. "Characterization and Separation of Photoactive Ru-modified Dendrimers" 10th Southern California Conference for Undergraduate Research, Pepperidine University, November 20, 2010.
4. Kuwahara, J.*; Haas, M.; Contakes, S.M. "Synthesis of Ruthenium-Modified PAMAM dendrimers" 10th Southern California Conference for Undergraduate Research, Pepperidine University, November 20, 2010.
5. Bernau, L.*; Haas, M.; Contakes, S.M. "Synthesis and Characterization of the Photoactive Ligand $[Ru(bpy)_2(5\text{-pyCONHphen})]^{2+}$" 10th Southern California Conference for Undergraduate Research, Pepperidine University, November 20, 2010.
6. Contakes, S. M.; Juda, G.; Halpern-Manners, N.*; Dunn, A. R.; Dooley, D. M.; Gray, H. B. "Probing the active site of copper amine oxidase with nanosecond electron tunneling wires" 229th ACS National Meeting, San Diego, CA, United States, March 13-17, 2005.
7. Halpern-Manners, N.*; Contakes, S. M.; Udit, A. K.; Di Bilio, A. J.; Gray, H. B.; Winkler, J. R. "Photooxidation of cytochrome P450cam using nanosecond electron tunneling wires." 229th ACS National Meeting, San Diego, CA, United States, March 13-17, 2005.
8. Contakes, S. M.; Dunn, A. R.; Morales, N. F.*; Halpern-Manners, N.*; Peng, K.*; Winkler, J. R.; Gray, H. B. "Substrate-tethered Probes for Investigating the Active Site of Myeloperoxidase" 11th International Conference on Bioinorganic Chemistry, Caines, Australia, July 19-23, 2003.
9. Gray, H. B.; Dunn, A. R.; Belliston, W.; Leigh, B. S.; Contakes, S. M.; Winkler, J. R. "Electron-tunneling wires for heme enzymes." 225th ACS National Meeting, New Orleans, LA, United States, March 23-27, 2003.

10. Contakes, S. M.; Dunn, A. R.; Dmochowski, I. J.; Winkler, J.R.; Gray, H.B. "Probing the Active Site of Myeloperoxidase using Sensitizer-tethered Substrates" 10th International Conference on Bioinorganic Chemistry, Florence, Italy, August 26-31, 2001.
11. Rauchfuss, T. B.; Contakes, S. M.; Kuhlman, M. L. "Multimetallic ensembles based on tricyanometallates." 222nd ACS National Meeting, Chicago, IL, United States, August 26-30, 2001.
12. Hsu, S. C. N.; Contakes, S. M.; Rauchfuss, T. B. "Synthesis, structure, and chemistry of *cis*- and *trans*-$[Fe(CN)_4(CO)_2]^{2-}$, *fac*-$[Mn(CO)_3(CN)_3]^{2-}$ and related species." 222nd ACS National Meeting, Chicago, IL, United States, August 26-30, 2001.
13. Schmidt, M. A.; Contakes, S. M.; Rauchfuss, T. B. "Synthetic analogs of the iron hydrogenase: A link between biological and organometallic iron-sulfur chemistry." 218th ACS National Meeting, New Orleans, Aug. 22-26, 1999.
14. Contakes, S. M.; Klausmeyer, K. K.; Rauchfuss, T. B. "Synthesis of linear polymers, sheets, and 3-D networks based on linked organometallic cyanometallates." 217th ACS National Meeting, Anaheim, Calif., March 21-25, 1999.
15. Schmidt, M. A.; Contakes, S. M.; Klausmeyer, K. K.; Moreland, A. C.; Rauchfuss, T. B. "Half sandwich cyanometallate chemistry" 217th ACS National Meeting, Anaheim, Calif., March 21-25, 1999.
16. Contakes, S. M.; Rauchfuss, T. B.; Klausmeyer, K. K. "Novel organometallic derivatives of phthalocyanines and cyanometallates." 215th ACS National Meeting, Dallas, March 29-April 2, 1998.

Invited Academic Talks

1. "Making Assemblies and Moving Electrons." University of La Verne, La Verna, CA, November 11, 2015.

Science & Religion and Philosophy of Chemistry Journal Articles and Book Chapters(* denotes undergraduate coauthors)

1. Contakes, S.M. "Wisdom in and for Chemistry" in *Where Wisdom Might Be Found*, Meadors, E. P. (ed.), Wipf and Stock, forthcoming 2018.
2. Contakes, S. M.; Jashinsky, T. "Broader Impacts and Ethical Responsibility in Military Research: The Case of Napalm" *Hyle - International Journal for Philosophy of Chemistry*, **2016**, *22(1)*, 31-53. http://www.hyle.org/journal/issues/22-1/contakes.pdf
3. Contakes, S.M.; Chen, A.; Duke, R.; Thrush, A.C.; Vosburg, D.; Wickman, L. "Breaking Barriers, Ministering in Relationships, and Exemplifying the Gospel: Tips for Using Science-Faith Dialogue as an Opportunity to Promote Discipleship and Strengthen Local Churches" *God and Nature*, summer **2015**.< http://godandnature.asa3.org/essay-breaking-barriers-ministering-in-relationships-and-exemplifying-the-gospel-tips-for-using-science-faith-dialogue-as-an-opportunity-to-promote-discipleship-and-strengthen-local-churches-by-stephen-contakes-et-al.html>
4. Miller, Kylie; Contakes, Stephen M. "Crystallographer, Quaker, Pacifist, & Trailblazing Woman of Science: Kathleen Lonsdale's Christian Life Lived Experimentally" *God and Nature*, summer **2014**. <http://godandnature.asa3.org/essay-crystallographer-quaker-pacifist--trailblazing-woman-of-science-kathleen-lonsdalersquos-christian-life-lived-experimentallyrdquo-by-kylie-miller-and-stephen-m-contakes.html>
5. Contakes, S. M. "Logical Pitfalls and Communication Gaps: Frequent Lines of Argument that Dead End the Origins Conversation" *Perspectives on Science and Christian Faith*, **2014**, *66(3)*, 174-178.

6. Contakes, S.M.; Johnson, G.* “Suggestions for Thinking and Talking About Science and Religion from the Soviet Resonance Controversy, a Chemical Counterpoint to Lysenkoism” *Perspectives on Science and Christian Faith*, **2013**, *65(4)*, 1 – 14.
7. Contakes, S.M.; Kyle, C.* “Josiah Parsons Cooke Jr.: Epistemology in the Service of Science, Pedagogy, and Natural Theology” *Hyle - International Journal for Philosophy of Chemistry*, **2011**, *17(1)*, 1-23.

Encyclopedia Entries & Popular book chapters

1. In *30 Second Chemistry*, Tro, Nivaldo J. (ed.) Ivy Press, 2017 (forthcoming October 2017).
    - Between Small and Large – Cluster chemistry
    - Biological Barriers and Long-Term Energy – Lipids
    - Make it Go – Catalysis and Transition Metal Catalysts
    - Materials – Materials science; cement, glass
    - The Biological Blueprint – Nucleic Acids
    - The Uniqueness Principle – The uniqueness of 2nd row elements
    - The Workhorses of Living Things – Proteins

2. In *The Zondervan Dictionary of Christianity and Science*, Paul Copan, Tremper Longman III, Christopher L. Reese, Michael Strauss (eds.) Zondervan, 2017.
    - Alchemy
    - Atomism
    - Behe, Michael
    - Draper, John
    - Ethics in Science
    - Faraday, Michael
    - Origin of Life
    - Peacocke, Arthur
    - Polyani, Michael
    - Schaefer, Henry F.

Science and Religion Book Reviews

1. Contakes, Stephen M. “Review of Noah J. Efron, A Chosen Calling: Jews in Science in the Twentieth Century” *Perspectives on Science and Christian Faith*, **2015**, *67(1)*, 59-60.

Science, Religion, and the Liberal Arts Professional Conference Papers and Presentations (* denotes undergraduate coauthors)

1. Contakes, Stephen M. "Better Things for Better Christian Living Through Chemistry? Thoughts and Questions About Chemistry’s Role in Science & Religion Dialogue” Presentation at the 5th Southern California Christians in Science Winter Conference, California Baptist University, Riverside, CA, April 8, 2017.
2. Contakes, Stephen M. “Better Things for Better Christian Living through [al]chemistry? Reflections on Christianity’s Encounter with Matter Theory & Alchemy in the 13th Century” Bridging the Two Cultures of Science and the Humanities, Center for Scholarship and Christianity in Oxford, Oxford OX2 6QB, United Kingdom, July 18, 2016.
3. Contakes, Stephen M. "Might it be Helpful to think of Science-Faith Dialogue as Reading and Appropriating the Text of God’s Two Books in a Particular Social Context? Some thoughts on Aristotelian Matter Theory in the 13th Century” Presentation at the 4th Southern California

Christians in Science Winter Conference, Fuller Theological Seminary, Pasadena, CA, February 27, 2016.

4. Fetters, Kirk*; Mahler, Matthew; Maragliano, Rachel; Bui, Hien; Contakes, Stephen "Westmont College's Science and Faith Club" 4th Southern California Christians in Science Winter Conference, Fuller Theological Seminary, Pasadena, CA, February 27, 2016.
5. Contakes, S.M. "Reinforcing the Triviuum, Reimagining the Quadrivium, and Promoting the Good Life for All: Why the Sciences and Humanities Need Each Other in the Liberal Arts" 14th Annual Conference on the Liberal Arts, February 26-28, 2015.
6. Contakes, S.M.; Lee, M.Y. "How did the Early Church Address Seemingly Hostile Ideas about the Nature of Material Reality? The Fathers on Atoms" 3rd Southern California Christians in Science Winter Conference, Azusa, CA, February 7, 2015.
7. Contakes, S.M. "Suggestions for Engaging the New Atheists from the Life of Wilhelm Ostwald, Early Physical Chemistry's 'New Atheist'" 2nd Southern California Christians in Science Winter Conference, Azusa, CA, January 25, 2014.
8. Miller, Kylie* ; Contakes, Stephen M. "Crystallographer, Quaker, Pacifist, & Trailblazing Woman of Science: Kathleen Lonsdale's Christian Life Lived Experimentally" 2nd Southern California Christians in Science Winter Conference, Azusa, CA, January 25, 2014.
9. Contakes, S. M. "Lessons from Atomic-Molecular Theory: The Faith-Science Controversy that Never Was" 68th Annual Meeting of the American Scientific Affiliation, Belmont University, Nashville, TN, July 19-22, 2013.
10. Contakes, S. M.; Jashinsky, T.* "Chemistry, Social Responsibility, and Modern Warfare" 12th Annual Conference on the Liberal Arts, Westmont College, Santa Barbara, CA, February 21-23, 2013.
11. Johnson, G.*; Contakes, S.M. "Lessons for Thinking and Talking about Science and Religion from the Chelintsev Affair, a Chemical Counterpart to Lysenkoism" 1st Southern California Christians in Science Winter Conference, Azusa, CA, January 12, 2013.
12. Contakes, S. M. "Fritz Haber, Chemistry, Guns, Gas, & Butter: Questions, Methods, and Dialogue at the Interface between Chemical Technology & Christian Responsibility" 1st Southern California Christians in Science Winter Conference, Azusa, CA, January 12, 2013.
13. Contakes, S. M. "Exploring the New Atheists with Wilhelm Ostwald: Early Physical Chemistry's 'New Atheist'"" 67th Annual Meeting of the American Scientific Affiliation, San Diego, CA, July 20-23, 2012.
14. "Panel Discussion on Local Chapter Management: A Brief Tutorial" 67th Annual Meeting of the American Scientific Affiliation, San Diego, CA, July 20-23, 2012.
15. Kyle, C.*, Contakes, S.M. "Nineteenth Century Epistemology of Science in Defense of Religious Knowledge" Philosophy among the Disciplines: Society of Christian Philosophers Mountain Pacific Regional Conference, January 13-14, 2012.
16. Contakes, S. M. "Chemistry as a Source of Wisdom: The Chemistry Curriculum as a Tool for Exploring Faith-Science Dialogue" 66th Annual Meeting of the American Scientific Affiliation, Naperville, IL, July 29-August 1, 2011.
17. Contakes, S. M. "Exploring Foundational Faith-Science Issues through Chemistry" Pedagogy of Faith in the Science Classroom, Indiana Wesleyan University, Marion, IN, June 27-29, 2011.
18. "Panel Discussion on 'How Far is Too Far? The Limits of Scholarship at a Confessional School'" The Path of Discovery: Science, Theology, and the Academy Christian Scholars Conference 2011, Pepperdine University, Malibu, CA, June 16 – 18, 2011.

Faith and Learning Service Articles

1. Contakes, Stephen M. “Science and Faith in the Curriculum at the 2012 ASA Meeting in San Diego” American Scientific Affiliation Newsletter, October 2012.
2. “The Spiritual Discipline of Service and what it Means to Me” Armington News, September 2012.

Science and Religion Public Talks and Presentations

1. “Playing with the Synthetic and the Natural: Towards a Christian Perspective on the use of Synthetic Chemicals in Industrialized Society” Trinity Lutheran Church, Santa Barbara, CA, April 24, 2016.
2. “What Can We Learn from Atomic Theory, the Faith-Science Controversy that Never Was” Southern California Christians in Science meeting, North Hollywood, March, 24, 2012.
3. Panelist, *Faraday Institute for Science and Religion Test of Faith Tour Event*, North Hollywood, CA, October 15, 2011.
4. “In What Sense Design? Biochemistry, Metabolism, and Life’s Origin” Azusa Pacific University Common Day of Learning, 2007.

Institutional Talks and Presentations

1. Contakes, S. M. 2016. “Why No Chemical Missions? The Chemical Enterprise and Christian Calling” Chemistry Department Chapel, Westmont College, November 2, 2016.
2. Taylor, Jim; Contakes, Stephen; VanderMey, Randy; Wilson, Jane “Brown Bag Conversation on Critical Thinking" Westmont College, February 24, 2015.
3. Taylor, Jim; VanderMey, Randy; Contakes, Stephen; Kelly, Savannah; Nazarenko, Tatiana “Approaches to Rigor and Relevance in Teaching and Learning Higher Order Thinking" Westmont College Faculty Forum, February 15, 2013.
4. Panelist, “Panel Review of Michael Ruse’s *Can a Darwinian Be a Christian?* and Denis Alexander’s *Creation or Evolution: Do we have to Choose?*” Westmont College, January 11, 2013.
5. Panelist, *Hosting Students in Our Homes*, Westmont College Staff Forum, November 29, 2012.
6. Faculty Devotional, “Messages from Missionaries for the Middle of the Semester”, Westmont College Faculty Meeting, October 2012.
7. Panelist, *Faith Journeys and Turning Points*, Westmont College First Year Retreat, September 2012.
8. Panelist, Teaching at Westmont session for new faculty orientation, August 2011.

Workshops

1. Taylor, Jim; VanderMey, Randy; Contakes, Stephen; Kelly, Savannah; Nazarenko, Tatiana “Rigor and Relevance in Teaching and Learning Higher Order Thinking" Westmont College, March 1, 2012.

Funded Grants and Program Application Acceptances

1. Oxford Interdisciplinary Seminars in Science and Religion (2015-2016) “Atoms, Alchemy, and the Chemical Arts in Christian Thought and Practice: Preliminary Inquiries Relevant to the Development of a Framework for Thinking About Chemistry and the Christian Faith” Oxford-Templeton Bridging the Two Cultures of Science and the Humanities Program 2015-16.
2. ISSR library grant (2011). This grant, co-written with Westmont Librarian Claudia Scott, provided the Westmont library with ~250 volumes in the field of science and religion.

3. ACS-Petroleum Research Fund, Type G Starter Grant (2008-2012) “Bio-inspired Two-site Bimetallic Hydrocarbon Activation Catalysts” ACS-PRF 47420-GB3, $50,000.

Non-presenting Conference, Continuing Education, and Planning Workshop Attendance

1. CcWCS workshop on Materials Chemistry and Nanotechnology, Southwestern College, San Diego, CA, June 25-30, 2017.
2. CCCU “Bridging the Two Cultures of Science and Religion” Writing Retreat, Cedar Springs Christian Retreat Center, Sumas, WA, June 20-24, 2017.
3. Liberal Arts for a Fragile Planet, Fifteenth Annual Conversation on the Liberal Arts, Gaede Institute, Westmont College, Santa Barbara, CA, March 23-25, 2017.
4. SCIO Visiting Scholar in Science and Religion, Bridging the Two Cultures of Science and the Humanities, Oxford Interdisciplinary Seminar in Science and Religion, 2015-2016.
5. MOOCing the Liberal Arts? Technology and Relationship in Liberal Arts Education, Thirteenth Annual Conversation on the Liberal Arts, Gaede Institute, Westmont College, Santa Barbara, CA, February 13-15, 2014.
6. CAT (Critical Thinking Assessment Test) “Train the Trainer” Workshop, Washington, DC, November 18-19, 2013.
7. From Christian Scholarship to Christian Pedagogy: A New Conversation in Christian Higher Education, Westmont College May Faculty Faith-Learning Workshop with James K. Smith, May 20-24, 2013.
8. Collegiate Learning Assessment Performance *task* Academy, San Francisco, CA, October 6-7, 2012.
9. Writing Across the Curriculum Workshops with Sarah Skripsky and Cheri Larsen-Hoeckley, Westmont College, Santa Barbara, CA, February 4 and June 13-14, 2012.
10. The Old Testament, Westmont College May Faculty Faith-Learning Workshop with Tremper Longman III, Westmont College, Santa Barbara, CA, May 21-25, 2012.
11. The Gendered Liberal Arts? Femininity, Masculinity, and the Future of Education. Eleventh Annual Conversation on the Liberal Arts, Gaede Institute, Westmont College, Santa Barbara, CA, February 24-25, 2012.
12. What Works in STEM Education? A Southern California Project Kaleidoscope (PKAL) Regional Network Conference, Pomona College, Claremont, CA, January 21, 2012.
13. The Art of Managing Difficult Conversations in the Classroom Workshop with Hilda Hernández-Gravelle, Westmont College, Santa Barbara, CA, November 12, 2011.
14. Responding to Student Writing Workshop with Sarah Skripsky and Cheri-Larsen Hoeckley, Westmont College, Santa Barbara, CA, November 2, 2011.
15. Science and Scripture: Interpreting the Information, American Scientific Affiliation Workshop with John Walton, Kevin Van Hoozer, Del Ratsch, and Denis Lamoureux, Naperville, IL, July 29-August 1, 2011.
16. Westmont College May Faculty Faith-Learning Workshop with Dallas Willard, Westmont College, Santa Barbara, CA, May 23-27, 2011.
17. Council on Undergraduate Research (CUR) Dialogues Conference, Washington, DC, February 24-26, 2011.
18. The New Testament for Today's Christian Educator, Westmont College May Faculty Faith-Learning Workshop with Robert Gundry, Westmont College, Santa Barbara, CA, May 17-21, 2010.

19. The Liberal Education of Students of Faith. Ninth Annual Conversation on the Liberal Arts, Gaede Institute, Westmont College, Santa Barbara, CA, February 26-27, 2010.
20. Theological Hermeneutics in the Disciplines, Westmont College May Faculty Faith-Learning Workshop with Kevin Van Hoozer, Westmont College, Santa Barbara, CA, May 14-20, 2008.

Professional References

(1) Department Chair

Dr. Michael Everest
Professor of Chemistry
Westmont College
955 La Paz Rd.
Santa Barbara, CA 93108
E-mail: meverest@westmont.edu
Phone: (805) 565-6850
Fax: (805) 565-7066

(2) Departmental Colleagues

Dr. Nivaldo J. Tro, Professor of Chemistry
E-mail: nivatro@gmail.com or tro@westmont.edu
Phone: (805) 565-6238

Dr. Kristi Lazar Cantrell, Associate Professor of Chemistry
E-mail: lazar@westmont.edu
Phone: (805) 565-6175

Dr. Amanda Silberstein, Assistant Professor of Chemistry
E-mail: asilberstein@westmont.edu
Phone: 805 565-7061

Carrie Hill, Instructor of Chemistry
E-mail: cstein@westmont.edu
Phone: (805) 565-6208

Dr. David F. Marten, Emeritus Professor of Chemistry
E-mail: marten@westmont.edu

(3) Postdoctoral Advisor

Harry B. Gray
Arnold O. Beckman Professor of Chemistry and
Founding Director of the Beckman Institute
139-74 Beckman Institute
California Institute of Technology
Pasadena, CA 91107
E-mail: hgcm@its.caltech.edu
Phone: (626) 395-6500
Fax: (626) 449-4159

(4) Doctoral Advisor

Thomas B. Rauchfuss
Larry Faulkner Professor of Chemsitry
School of Chemical Sciences
University of Illinois
A328 Chemical & Life Sciences Lab
600 South Mathews Avenue
Urbana, IL 61801
E-mail: rauchfuz@uiuc.edu
Phone: (217) 333-7355
Fax: (217) 333-2685