

CURRICULUM VITAE for ALEXANDRE (Alex) F. T. YOKOCHI

A. EDUCATION AND EMPLOYMENT INFORMATION

A1. Education

1997 Ph.D. in Chemistry, Texas A&M University, College Station, TX
1992 M.S. in Chemistry, Southern Illinois University at Carbondale, IL
1990 B.S. in Chemistry with Math Minor, Southern Illinois University at Carbondale, IL

A2. Professional Experience

2004 - Present Assistant Professor
School of Chemical, Biological and Environmental Engineering
(CBEE)
Oregon State University, Corvallis, OR

2000 - 2004 Research Professor
Department of Chemistry
Oregon State University, Corvallis, OR

1998 - 2004 Director of the Crystallographic Laboratories
Department of Chemistry
Oregon State University, Corvallis, OR

1992 – 1997 Graduate Research Assistant
Department of Chemistry
Texas A&M University, College Station, TX

B. TEACHING, ADVISING AND OTHER ASSIGNMENTS

B1. Instructional Summary

B1.1. Credit Courses

Course Number	Course Title	Term/Year	Contact Hours/week	Enrollment
CHE 414 WIC	Senior Lab 1 – Unit Operations	W 2005	25	40
CHE 415	Senior Lab 2 – Senior Projects	Sp 2005	12	40
CHE417/517	Instrumental Analysis in Chemical, Biological and Environmental Engineering New Course Dev.	Sp 2005	6	5
ENGR 350	Sustainable Engineering	F 2005	3	25
CHE 414 WIC	Senior Lab 1 – Unit Operations	W 2006	25	43
CHE 415	Senior Lab 2 – Senior Projects	Sp 2006	12	43
CHE417/517	Instrumental Analysis in Chemical, Biological and Environmental Engineering	Sp 2006	6	11
CHE 414 (WIC)	Senior Lab 1 – Unit Operations Major Course Overhaul	F 2006	21	52
ENGR 350	Sustainable Engineering	F 2006	3	36
CHE 415	Senior Lab 2 – Unit Operations Major Course Overhaul	W 2007	19	38
ENGR 221	The Science, Engineering and Societal Impacts of Nanotechnology New Course Dev.	W 2007	4	26

CHE 416	Senior Lab 3 – Senior Projects New Course Dev.	Sp 2007	9	38
CHE417/517	Instrumental Analysis in Chemical, Biological and Environmental Engineering	Sp 2007	6	19
ENGR 350	Sustainable Engineering	F 2007	3	42
CHE 415	Senior Lab 2 – Unit Operations	W 2008	19	38
ENGR 221	The Science, Engineering and Societal Impacts of Nanotechnology	W 2008	4	47
CHE417/517	Instrumental Analysis in Chemical, Biological and Environmental Engineering	Sp 2008	8	37
ENGR 350	Sustainable Engineering	F 2008	4	56
CHE499/599	Solar Energy Technologies New Course Dev.	W 2009	4	9
CHE417/517	Instrumental Analysis in Chemical, Biological and Environmental Engineering	Sp 2009	8	45
ENGR350	Sustainable Engineering	F 2009	4	102
CHE499/599	Conventional and Alternative Energy Technologies New Course Dev.	W2010	4	15
CHE417/517	Instrumental Analysis in Chemical, Biological and Environmental Engineering	Sp 2008	8	42
ENGR350	Sustainable Engineering	F 2010	4	113

CHE499/599	Conventional and Alternative Energy Technologies	W2010	4	33
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B.1.2. Non-Credit Courses and Workshops

1. ASEE Chemical Engineering summer school, Pullman, WA, July 27th – Aug. 3rd 2007. (Participant/Panelist)
2. NSF Sustainable Engineering Workshop 2, University of Texas at Austin, TX, July 18th - 20th 2007. (Participant/Panelist)
3. Structure Solution from Powder Data, workshop held at ACA2002 annual meeting. (Program Chair)
4. Real Space Pair Distribution Function Methods, workshop held at ACA2001 annual meeting. (Participant/Panelist)
5. SHELX for Twins and Macromolecular Structures, workshop held at ACA 2000 annual meeting. (Participant)

B.1.3. Course and Curriculum Development

CHE414/415/416 – Chemical Engineering Laboratory (Re-inventing the OSU CHE Senior Capstone sequence): This course series has evolved from a “Unit Operations Course” to a “Career Preparation Course”, of which studying several unit operations and doing a project are parts of a whole. The course continues to emphasize engineering, writing, reporting, and presentation skills, and has been expanded to three quarters from its original two. The course also includes formal classroom instruction to supplement certain deficiencies I found in the students’ previous educational experiences, such as a lack of understanding of the processing of large data sets. New course activities intended to fill in some of those gaps between what we can teach in our curriculum and what every CHE major should know include guest speakers (OSU faculty members and outside speakers). For example, this year Dr. Milo Koretsky graciously acceded the request to lead the students through an exercise on experimental design, process optimization, large data set analysis and process control based on his “Virtual CVD” educational software tool. In future years, when most students can be expected to have had prior experience with these topics, due to the fact that Milo will start offering his data set analysis course again, attention may turn to covering other deficiencies of the students’ backgrounds such as revisions of fundamental concepts (e.g., electrochemistry, fundamental organic and inorganic chemistry, quantum theory and band theory of solids).

CHE417/517 – Analytical Instrumentation in Chemical, Biological and Environmental Engineering (New Course): In order to strengthen the technical capability of Chemical Engineering graduates on the fundamental field of chemical characterization of systems, I have developed this course to be a broad survey of the chemical analytical techniques available, with an emphasis on the operational principles behind the methods – designed to help identify when and how to apply the different variants of each method to problems in the field – and on the application of the methods to quantification of a specific measurement.

ENGR350 – Sustainable Engineering: This course's focus is to present the students with an overview of the various sustainability issues we are likely to be faced with in our lifetimes. The course is taken by students of all disciplines at OSU, well beyond the expected load of engineering students. It has had students seeking degrees in English, Health and Human Performance, Forestry, etc. I have therefore attempted to widen the breadth of the topics presented by, for example, giving an adequate high level but technically accurate description of renewable energy technologies currently available. One of my contributions to the rejuvenation of the course was to revisit the contents of the reading materials assigned to the students and include materials culled from the recent literature from journals such as *Science* or *Nature*. I will also endeavor to develop a class activity centering on the application of life cycle analysis tools freely available online.

ENGR221 – The Science, Engineering and Societal Impact of Nanotechnology (New Course): I created ENGR221, a new multi-disciplinary course at OSU, to fulfill the need to educate our engineering graduates on issues related to the emerging fields of nanotechnologies. I specifically designed it to be adequate for students in all engineering majors at OSU. The course emphasizes the multidisciplinary nature of the field and gives examples of material/device performance enhancements derived from the inclusion of nanostructured matter and describes current techniques for the manufacture of such materials/devices. The course also presents the scant current knowledge of the toxicological and environmental effects of nanostructured matter and takes advantage of the scarcity of this impact knowledge to help students evaluate an issue in an ethical framework.

CHE 499/599 (CAT-II under review as CHE451/551) – Solar Technologies (New Course): In response to student requests I created this course focusing on technologies used to efficiently capture solar energy for human use. The course covers the use of both solar photovoltaic (PV) and solar thermal approaches to energy conversion. Materials included an overview of renewable energy technologies and the role of solar energy in that mix, an in-depth coverage of the operational principles of PV starting from a careful review of semiconductor physics through the use of power electronics devices to upconvert the low voltage output to grid levels, and a similar analysis of solar thermal designs, departing from an analysis of heat flux in a flat plate thermal collector through the operation of organic Rankine cycles. Also examined were the topics of energy storage both in electrical power and heat forms and the economics of solar energy.

CHE 499/599 (CAT-II to be submitted for CHE450/550) – Conventional and Alternative Energy Systems (New Course): To support the development of a new Energy Engineering Management major in the College of Engineering as well as in response to student requests, a new course examining the power generation upon which our technical/industrial social system is based will be created for winter term 2010. The course will examine both current approaches based on fossil fuels (coal/gas/petroleum) as well as potential alternatives (conventional hydroelectric, nuclear, wind, hydrokinetic, solar) leading to reduced levels of environmental impact.

B.1.4. Graduate and Undergraduate Students and Postdoctoral Trainees

B.1.4.1. Graduate Advisees - Completed

Student	Degree	Research Topic	Completed
<u>1.</u> Jake Armstrong	M.Eng.	Performing the Bunsen Reaction in an Ionic Liquid	2006
<u>2.</u> Stephanie Ross	M.Eng.	Control of Black Liquor Pyrolysis at a Paper Mill	2007
<u>3.</u> Eilleen Hebert Co-advisor with Goran Jovanovic (CBEE)	M.S.	Oxidative Desulfurization of Dibenzothiophene With <i>tert</i> -Butyl Hydroperoxide in a Photochemically Activated Microreactor	2007
<u>4.</u> Abishek Raj	Visiting Researcher	Preparation of Metallic Nanoparticles Through Chemical Reduction of Precursor Salt Solutions	2007
<u>5.</u> Ms. Rocio Murillo	Visiting Researcher	Photo-Fenton Oxidation of Organic Dyes in Microchemical System	2008
<u>6.</u> Andrew Traverso	B.S. Honors	Separation of Butanol From Fermentation Broth Through Salting Out Approach	2008
<u>7.</u> Omar Bamaga	Post-Doc	Direct Osmosis as Sea Water Pretreatment Approach For Membrane Desalination Processes	2008
<u>8.</u> Robert Kimmell	M.S.	Synthesis and Characterization of Magnetic Nanoparticles In Flow Through Microreactor	2009
<u>9.</u> David Dickson	M.S. (Mat. Sci.)	Influence of Processing Parameters on Diffusion of Divalent Nickel in Wet Silica Sol-Gel Monoliths	2010
<u>10.</u> Charles York Co-advisor with Annette von Jouanne (EECS)	M.S. (E.E.)	Modelling and Experimental Verification of Electric and Magnetic Fields Generated by Undersea Power Transmission Cables	2010
<u>11.</u> Jake Jones Co-advisor with Goran Jovanovic (CBEE)	M.S.	Photochemically activated oxidation of thiophene in a microreactor	2010
<u>12.</u> Kevin Caple	M.S.	Corona discharge activation of chemical reactions	2010

B.1.4.2. Graduate Advisees - Current

Student	Degree	Research Topic	Expected Completion
<u>1.</u> Nick AuYeung	Ph.D.	Improved Approaches For The Thermochemical Hydrogen Production From Water	2011
<u>2.</u> Matthew Delaney	M.S.	Biofouling prevention technologies applicable to ocean energy	2011
<u>3.</u> Nathan Coussens	M.S.	Synthesis of nanoparticles to track engineered nanomaterials in the environment and for magnetic nanocomposite material synthesis	2011
<u>4.</u> Nathan Knapp	M.S.	Modeling of Membrane Reactors for Thermochemical Processes	2011
<u>5.</u> Alex Bistrika	Ph.D.	Electrochemical Energy Storage Technologies	2012
<u>6.</u> Kevin Caple	Ph.D.	Corona discharge activation of chemical reactions	2013
<u>7.</u> Malachi Bunn	Ph.D.	Thermochemical Production of Hydrogen From Water	2013
<u>8.</u> Ken Rhinefrank Co-advisor with Annette von Jouanne (EECS)	Ph.D.	Investigation of materials and design issues associated with the creation of a magnetic screw drive for linear to rotary motion conversion applied to wave energy conversion	2011
<u>9.</u> Eunice Naswali Co-advisor with Annette von Jouanne (EECS)	M.S.	Supercapacitor Energy Storage to Support Renewable Energy Integration in the Grid	2011
<u>10.</u> Charles York Co-advisor with Annette von Jouanne (EECS)	Ph.D. (E.E.)	Modelling and Experimental Verification of Electric and Magnetic Fields Generated by Undersea Power Transmission Cables	2013

B.1.4.3. Graduate Thesis or Project Committee Member

Completed

1. Ayako Nakagawa, M.S. Chemical Engineering
2. Zuan ("John") Yen, M.S. EECS
3. Vinh Nguyen, M.S. CBEE
4. Eric Anderson, M.S. CBEE
5. Justin Ong, M.S., CBEE
6. Ean Amon, Ph.D. EECS
7. David Dickson, Ph.D. Bioresource Engineering

Current

8. Lalita Attanatho, Ph.D. Chemical Engineering
9. Sean McArthur, Ph.D. EECS
10. Charles York, Ph.D. EECS
11. Joy Kumar Das, M.S., CBEE
12. David Naviaux, M.S., EECS
13. Wei Wang, Ph.D., CBEE

B.1.4.4. Graduate Council Representative

1. Christopher Francy, M.S. NEHRP
2. R. Brian Jackson, M.S. Nuclear Engineering
3. R. Brian Jackson, Ph.D. Nuclear Engineering
4. Christof Graber, M.S. Mechanical Engineering
5. Valeriya Byhcova, Ph. D. Chemistry
6. Luke Fisher, M.S. Mechanical Engineering
7. Weekit Sirisaksoontorn, Ph.D. Chemistry
8. Kyle Sander, M.S. BEE
9. Jennifer Roth, M.S. Physics
10. Annette Richard, Ph.D. Chemistry
11. Kyoungyim Lee, Ph.D., Chemistry

B.1.5. Team or Collaborative Efforts

None

B.1.6. International Teaching

None

B.2. Student and Participant/Client Evaluation

Course Number	Term/Year	Enrolled	Type of Course	Question 1 (Usefulness of Course)	Question 2 (Instructor Contribution to Course)
CHE 414	W 2005	40	Required	4.9	4.1
CHE 415	Sp 2005	40	Required	5.0	4.2
CHE 417	Sp 2005	5	Elective	5.0	4.2
ENGR 350	F 2005	25	Elective	4.6	5.1
CHE 414	W 2006	43	Required	4.8	4.5
CHE 415	Sp 2006	43	Required	4.8	4.5
CHE 417	Sp 2006	11	Elective	4.8	4.8
CHE 414	F 2006	52	Required	4.9	4.4
ENGR 350	F 2006	36	Elective	4.8	5.1
CHE 415	W 2007	38	Required	4.8	5.0
ENGR 221	W 2007	26	Elective	4.7	5.1
CHE 416	Sp 2007	38	Required	4.8	4.5
CHE 417	Sp 2007	19	Elective	4.8	5.0
ENGR 350	F2007	42	Elective	5.0	5.8
ENGR221	W2008	47	Elective	4.7	5.1
CHE417	Sp 2008	37	Required	4.4	4.4
ENGR350	F2008	56	Elective	4.4	4.9
CHE499/599 "Solar Technologies"	W2009	9	Elective	5.3	5.9
CHE417	Sp2009	43	Required	4.2	4.6
CHE517	Sp2009	2	Elective	5.5	5.5
ENGR350	F2009	106	Elective	4.3	5.0
CHE499 "Conventional and Alternative Energy..."	W2010	12	Elective	4.5	4.8
CHE599 "Conventional and Alternative Energy..."	W2010	1	Elective	5.0	6.0
CHE417	S2010	36	Required	4.1	4.5
CHE517	S2010	6	Elective	5.5	5.9
ENGR350	F2010	113	Elective	4.8	5.2
CHE499	W2011	31	Elective		
CHE599	W2011	3	Elective		

B.3. Peer Teaching Evaluations

B.4. Advising

Current faculty advisor for 27 undergraduate students, aiding in the planning of their academic curriculum. I meet with the students at least once every term to discuss progress in their education, including performance in classes and evaluation of challenges.

Also have advised several senior project teams in CBEE with project development and implementation. In this activity, I meet with the students every week to assess progress of the project, identify significant issues and discuss possible approaches towards solving problems identified.

B.5. Other Assignments

None

C. SCHOLARSHIP AND CREATIVE ACTIVITY

C.1. Refereed Work

C1.1. Refereed Journal Publications (total = 47, h-index = 13)

1. T.K.A. Brekken, A. Yokochi, A. von Jouanne, J. Yen, H. Hapke, D. Halamay "Optimal energy storage sizing and control for wind power applications" *IEEE Trans. Sustainable Energy* **2011**, 2, 69.
2. Kesinger, N.G.; Langsdorf, B.L.; Yokochi, A.F.; Miranda, C.L.; Stevens, J.F. "Formation of a Vitamin C Conjugate of Acrolein and Its Paraoxonase-Mediated Conversion into 5,6,7,8-Tetrahydroxy-4-oxooctanal" *Chem. Res. Toxicol* **2010**, 23, 836-844.
3. S. Grazulis, D. Chateigner, R.T. Downs, A.F.T. Yokochi, M. Quirós, L. Lutterotti, E. Manakova, J. Butkus, P. Moeck, A. Le Bail "Crystallography Open Database - an open-access collection of crystal structures" *J. Appl. Crystallogr.* **2009**, 42, 726-729.
4. M. Gutierrez, E. H. Andrianasolo, W. K. Shin, D. E. Goeger, A. Yokochi, J. Schemies, M. Jung, D. France, S. Cornell-Kennon, E. Lee, W. H. Gerwick "Structural and Synthetic Investigations of Tanikolide Dimer, a SIRT2 Selective Inhibitor, and Tanikolide seco-Acid from the Madagascar Marine Cyanobacterium *Lyngbya Majuscula*" *J. Org. Chem.* **2009**, 74, 5267–5275
5. M. Koretsky, A. Yokochi, S. Kimura "A Nanotechnology Process Option in Chemical Engineering" *Chem. Engin. Educ.* **2009**, 43, 000
6. O.A. Bamaga, A. Yokochi, E.G. Beaudry "Application of forward osmosis in pretreatment of seawater for small reverse osmosis desalination units" *Desalination Water Treatment* **2009**, 5, 183–191.
7. A. Muhtaroglu, A. Yokochi, A. von Jouanne, "A Sustainable Power Architecture for Mobile Computing Systems", *J. Power Sources* **2008**, 178, 467–475.
8. A. Muhtaroglu, A. Yokochi, A. von Jouanne, "Integration of Thermoelectrics and Photovoltaics as Auxiliary Power Sources in Mobile Computing Applications", *J. Power Sources* **2008**, 177, 239–246.
9. A. Muhtaroglu, A. Yokochi, A. von Jouanne, "Hybrid thermoelectric conversion for enhanced efficiency in mobile platforms" *J. Micromech. Microeng.* **2007**, 17, 1767–1772. (Also chosen for the On-Line Special Issue of the Journal of Micromechanics and Microengineering)
10. Park, C.-H. ; Kykyneshi, R.; Yokochi, A.; Tate, J.; Keszler, D. A. "Structure and physical properties of BaCuTeF" *J. Solid State Chem.* **2007**, 180, 1672-1677.
11. Sabry, O. M. M.; Andrews, S.; McPhail, K. L.; Goeger, D. E.; Yokochi, A.; LePage, K. T.; Murray, T. F.; Gerwick, W. H. "Neurotoxic Meroditerpenoids from the Tropical Marine Brown Alga *Styopodium Flabelliforme*" *J. Nat. Prod.* **2005**, 68, 1022-1030.
12. von Jouanne, A.; Wallace, A.; Husain, I; Yokochi, A "Gone with the Wind: Innovative Hydrogen/Fuel Cell Electric Vehicle Infrastructure Based on Renewable Energy Sources" *IEEE Industry Applications Magazine/Journal* **July/Aug. 2005**. **Prize Paper Award.**

13. Lincoln, Christopher M.; White, James D.; Yokochi, Alexandre F. T. "Stereochemistry of contiguous cyclopropane formation from cascade cyclization of a skipped dienyl homoallyl triflate". *Chem. Commun.* **2004**, 2846-2847.
14. Li, J.; Yokochi, A. F. T.; Sleight, A. W. "Oxygen intercalation compounds of two polymorphs of CuScO_2 ". *Solid State Sci.* **2004**, 6, 831-839.
15. Bourland, T. C.; Carter, R. G.; Yokochi, A. F. T. "Vanadium-catalyzed selenide oxidation with in situ [2,3] sigmatropic rearrangement (SOS reaction): Scope and asymmetric applications". *Org. Biomol. Chem.* **2004**, 2, 1315-1329
16. Zhang, W.; Carter, R. G.; Yokochi, A. F. T. "Unified Synthesis of C_{19} - C_{26} Subunits of Amphidinolides B_1 , B_2 and B_3 by Exploiting Unexpected Stereochemical Differences in Crimmins' and Evans' Aldol Reactions". *J. Org. Chem.* **2004**, 69, 2569-2572.
17. Yokochi, Alex F. T.; Gard, Gary G.; Winter, Richard. "Pentafluorothiopropanoic acid". *Acta Crystallogr., Sect. E: Struct. Rep. Online* **2002**, E57, o99-o101.
18. Marquez, Brian L.; Watts, Karl Shawn; Yokochi, Alexandre; Roberts, Mary Ann; Verdier-Pinard, Pascal; Jimenez, Jorge I.; Hamel, Ernest; Scheuer, Paul J.; Gerwick, William H. "Structure and Absolute Stereochemistry of Hectochlorin, a Potent Stimulator of Actin Assembly". *J. Nat. Prod.* **2002**, 65, 866-871.
19. Li, J.; Yokochi, A.; Amos, T. G.; Sleight, A. W. "Strong Negative Thermal Expansion along the O-Cu-O Linkage in CuScO_2 ". *Chem. Mater.* **2002**, 14, 2602-2606.
20. Xun, X.; Uma, S.; Yokochi, A.; Sleight, A.W. "Synthesis and Structure of New BiMn_2MO_6 Compounds Where $\text{M} = \text{P}, \text{As}, \text{or V}$ " *J. Solid State Chem.* **2002**, 167, 245-248.
21. Xun, X.; Yokochi, A.; Sleight, A. W. "Synthesis and Structure of BiMnVO_5 and BiMnAsO_5 " *J. Solid State Chem.* **2002**, 168, 224-228.
22. Bliesner, R.; Uma, S.; Yokochi, A.; Sleight, A. W. Reply to "Comment on 'Structure of $\text{NaBi}_3\text{V}_2\text{O}_{10}$ and Implications for Ionic Conductivity'". *Chem. Mater.* **2002**, 14, 1440.
23. Gable, K. P.; Chuawong, P.; Yokochi, A. F. T. Thermal Stability of Tris(3,5-dimethylpyrazolyl)hydridoboratorhenium(V)(oxo)-(1,2-dithiolate) and -(1,2-monothiodiolate) Complexes and DFT Studies of C-S Bond Cleavage. *Organomet.* **2002**, 21, 929-933.
24. Bliesner, R.; Uma, S.; Yokochi, A.; Sleight, A. W. "Structure of $\text{NaBi}_3\text{V}_2\text{O}_{10}$ and Implications for Ionic Conductivity" *Chem. Mater.* **2001**, 13, 3825-3826.
25. Blakemore, Paul R.; Kim, Sung-Kee; Schulze, Volker K.; White, James D.; Yokochi, Alexandre F. T. "Asymmetric synthesis of (+)-loline, a pyrrolizidine alkaloid from rye grass and tall fescue" *J. Chem. Soc., Perkin Trans. 1* **2001**, 1831-1847.
26. Nagarajan, R.; Duan, N.; Jayaraj, M. K.; Li, J.; Vanaja, K. A.; Yokochi, A.; Draeseke, A.; Tate, J.; Sleight, A. W. "p-Type conductivity in the delafossite structure" *Int. J. Inorg. Mater.* **2001**, 3, 265-270.
27. Yokochi, Alex F. T.; White, James D.; Sturtz, George. "Vulgarone B" *Acta Crystallogr., Sect. E: Struct. Rep. Online* **2001**, E57, o99-o101.

28. White, James D.; Blakemore, Paul R.; Korf, Eric A.; Yokochi, Alexandre F. T.. Transannular Nitrene Cycloaddition. "A Stereocontrolled Entry to the Spirocyclic Core of Pinnaic Acid" *Organic Letters* **2001**, 3, 413-415.
29. Uma, S.; Kodialam, S.; Yokochi, A.; Khosrovani, N.; Subramanian, M. A.; Sleight, A. W. "Structure and Properties of $Tl_2Nb_2O_{6+x}$ Phases with the Pyrochlore Structure" *J. Solid State Chem.* **2000**, 155, 225-228.
30. Chen, H.-L.; Yokochi, A. "X-ray diffractometric study of microcrystallite size of naturally colored cottons" *J. Appl. Polym. Sci.* **2000**, 76, 1466-1471.
31. Yokochi, A. "Crystallographic instrumentation, edited by L. A. Aslanov, G. V. Fetisov, and J. A. K. Howard" *Mater. Res. Bull.* **1999**, 34, 2117.
32. Cotton, F. A.; Stiriba, S.-E.; Yokochi, A. "Selectivity in alkynylation: the reaction between $Ru_2(LL)_4Cl$ and $Me_3SnC.tplbond.CR$ ($LL = 2$ -anilinopyridine, 2-chloro- and 2-bromo-oxypyridine). *J. Organomet. Chem.* **2000**, 595, 300-302.
33. Amos, T. G.; Yokochi, A.; Sleight, A. W. "Phase transition and negative thermal expansion in tetragonal $NbOPO_4$ " *J. Solid State Chem.* **1998**, 141, 303-307.
34. Forster, P. M.; Yokochi, A.; Sleight, A. W. "Enhanced negative thermal expansion in $Lu_2W_3O_{12}$ " *J. Solid State Chem.* **1998**, 140, 157-158.
35. White, J. D.; Hrniciar, P.; Yokochi, A. F. T. "Tandem Ring-Closing Metathesis Transannular Cyclization as a Route to Hydroxylated Pyrrolizidines. Asymmetric Synthesis of (+)-Australine" *J. Am. Chem. Soc.* **1998**, 120, 7359-7360.
36. White, J. D.; Amedio, J. C., Jr.; Hrniciar, P.; Lee, N. C.; Ohira, S.; Yokochi, A. F. T. "Asymmetric synthesis of dimethyl swazinecate and structural confirmation of its present parent alkaloid (-)-swazine. [Erratum to document cited in CA128:270759]" *Chem. Commun. (Cambridge)* **1998**, 1237.
37. Cotton, F. A.; Yokochi, A. "Three reactions of Ru_2^{5+} compounds of the paddlewheel type that lead to cleavage of the Ru-Ru bond" *Inorg. Chim. Acta* **1998**, 275-276, 557-561.
38. Cotton, F. A.; Lu, J.; Yokochi, A. "Syntheses and structures of some Ru_2^{5+} complexes containing weakly coordinating anions as axial ligands" *Inorg. Chim. Acta* **1998**, 275-276, 447-452.
39. Cotton, F. A.; Yokochi, A. "Changes in molecular geometry caused by oxidation in Ru_2 paddlewheel complexes: from Ru_2^{4+} to Ru_2^{5+} " *Polyhedron* **1998**, 17, 959-963.
40. Cotton, F. A.; Yokochi, A. "Synthesis and Characterization of the Series of Compounds $Ru_2(O_2CMe)_x(admp)_{4-x}Cl$ ($Hadmp = 2$ -Amino-4,6-dimethylpyridine, $x = 3, 2, 1, 0$)" *Inorg. Chem.* **1998**, 37, 2723-2728.
41. Gable, K. P.; Zhuravlev, F. A.; Yokochi, A. F. T. "Catalytic deoxygenation of epoxides with $(Cp^*ReO)_2(\mu-O)_2$ and catalyst deactivation" *Chem. Commun. (Cambridge)* **1998**, 799-800.
42. White, J. D.; Amedio, J. C., Jr.; Hrniciar, P.; Lee, N. C.; Ohira, S.; Yokochi, A. F. T. "Asymmetric synthesis of dimethyl swazinecate and structural confirmation of its parent alkaloid (-)-swazine" *Chem. Commun. (Cambridge)* **1998**, 603-604.
43. Cotton, F. A.; Yokochi, A.; Siwajek, M. J.; Walton, R. A. "Structural Characterization of Dirhenium(II) Complexes of the Type $Re_2Cl_4(\mu-PP)(PR_3)_2$, Where PP Represents

a Bridging Phosphine of the Type $R_2PCH_2PR_2$ or R_2PNHPR_2 " *Inorg. Chem.* **1998**, *37*, 372-375.

44. Cotton, F. A.; Yokochi, A. "The Apparent Flexibility of Bonds in Paddlewheel-Type Compounds" *Inorg. Chem.* **1997**, *36*, 2461-2462.
45. Cotton, F. A.; Yokochi, A. "Synthesis, Structure, and Magnetic Properties of New Ru_2^{6+} Compounds" *Inorg. Chem.* **1997**, *36*, 567-570.
46. Cotton, F. A.; Kuehn, F. E.; Yokochi, A. "Synthesis and structure of trans-[di(μ -acetato)dichlorodi(μ -bis(diphenylphosphino)methylamine)dimolybdenum(II)] and the structure of bis(diphenylphosphino)methylamine" *Inorg. Chim. Acta* **1996**, *252*, 251-256.
47. Cotton, F. A.; Kim, Y.; Yokochi, A. "Regioisomerism displayed by the 6-chloro-2-oxopyridinate complexes of Ru_2^{4+} and Ru_2^{5+} " *Inorg. Chim. Acta* **1995**, *236*, 55-61.

C.1.2. Publications Currently Under Review

48. N. AuYeung, A. Yokochi, "Fast kinetics of the Bunsen Reaction in Ionic Liquid Media", communication submitted to the Journal of the American Chemical Society 2010
49. N. AuYeung, A. Yokochi, "A New Proposed Sulfur-Sulfur Thermochemical Cycle for the Production of Hydrogen From Water", submitted to the journal Science 2010

C.2. Professional Meetings, Symposia, and Conferences

C.2.1. Presentations at Professional Meetings, Symposia, and Conferences

1. A. Yokochi, N. AuYeung, "Reaction Engineering of a Novel Sulfur-Sulfur Thermochemical Water-Splitting Cycle", 2010 Annual Meeting of the AIChE.
2. J. A. Nason, A.F.T. Yokochi, N.J. Coussens, D.P. Stankus "Synthesis of Labeled TiO_2 Nanoparticles as a Tool for Examining the Environmental Transport and Fate of Engineered Nanoparticles", 2010 Annual Meeting of the AIChE.
3. A. Yokochi, K. Caple, G. Jovanovic "Activation of Chemical Reactions in Microstructured Reactors: Employing Corona Discharge" 2010 Annual Meeting of the AIChE.
4. A.F.T. Yokochi, A. Bistrika, H.-Y. Han, T. Brekken, A. von Jouanne "Sizing of Electrical Energy Storage for Large Scale Renewable Energy Penetration in the Grid and Implementation of a Lab Scale Grid for Experimental Validation" 2010 Annual Meeting of the AIChE.
5. A.F.T. Yokochi, A. Bistrika, H.-Y. Han, T. Brekken, A. von Jouanne "Energy Storage to Support Wind Power Generation" 2010 BEST FEST Poster Presentation, September 2010.
6. A. Yokochi, N. AuYeung, "A Proposed New Sulfur-Sulfur Thermochemical Cycle For The Production of Hydrogen From Water", 2009 Annual Meeting of the AIChE.

7. A. Yokochi, J. Nason, N. AuYeung, R. Kimmell, K. Caple "Synthesis of Labelled Nanoparticles to evaluate the Distribution and Fate of Engineered Nanomaterials in the Environment", 2009 Annual Meeting of the AIChE.
8. J. Jones, A. Yokochi, G. Jovanovic "Modeling of the Photochemically Activated Oxidation of Dibenzothiophene by tert-Butyl Hydroperoxide in a Microreactor Using COMSOL" 2009 Annual COMSOL User's Meeting.
9. A. Bistrika, C. Lalla, Z. Yen, H. Hapke, D. Halamay, T.K.A. Brekken, A. von Jouanne, A. Yokochi "Energy Storage to Support Wind Power Generation" 2009 Meeting of the Electrical Energy Storage Association, October 2009.
10. N. Coussens, A. Yokochi, J. Nason, N. AuYeung, "Synthesis of Labelled Nanoparticles to evaluate the Distribution and Fate of Engineered Nanomaterials in the Environment", Sixth Annual Micro Nano Breakthrough Conference, 2009.
11. A. Yokochi, T.K.A. Brekken, A. von Jouanne "Energy Storage to Support Wind Power Generation" 2009 BEST FEST Oral Presentation, September 2009.
12. A. Bistrika, C. Lalla, Z. Yen, H. Hapke, D. Halamay, T.K.A. Brekken, A. von Jouanne, A. Yokochi "Energy Storage to Support Wind Power Generation" 2009 BEST FEST Poster, September 2009.
13. A. Yokochi, A. von Jouanne, T.K. Brekken "Energy Storage to Support Wind Power Generation" *2009 Meeting of the Northwest Environmental Business Council, April 2009*
14. A. Yokochi, N. AuYeung, "Initial studies of the feasibility of performing the Bunsen reaction in a low vapor pressure liquid medium" *2008 Meeting of the AIChE*.
15. A. Yokochi, E. Hebert, J. Parker, G. Jovanovic "Photochemical oxidation of thiophenic molecules with peroxides in a microreactor as part of an oxidative fuel desulfurization system" *2008 Meeting of the AIChE*.
16. A. Yokochi, E. Hebert, J. Parker, G. Jovanovic "Photochemical oxidation of thiophenic molecules with peroxides in a microreactor as part of an oxidative fuel desulfurization system" *Fifth Annual Micro Nano Breakthrough Conference, 2008*.
17. R. Kimmell, A. Yokochi, P. Dhagat, A. Jander "Preparation and Characterization of Magnetic Nanocomposite Materials" *Fifth Annual Micro Nano Breakthrough Conference, 2008*.
18. A. Yokochi, N. AuYeung, "Initial studies of the feasibility of performing the Bunsen reaction in a low vapor pressure liquid medium" *2008 ACS Spring National Meeting*.
19. A. Yokochi, E. Hebert, J. Parker, G. Jovanovic "Photochemical oxidation of thiophenic molecules with peroxides in a microreactor as part of an oxidative fuel desulfurization system" *2008 ACS Spring National Meeting*.
20. Ken Rhinefrank, Ted Brekken, Bob Paasch, Alex Yokochi, Annette von Jouanne, "Comparison of Linear Generators for Wave Energy Applications", *AIAA 27th ASME Wind Energy Symposium (including revolutionary ocean energy concepts), January 2008*.
21. A. Muhtaroglu, A. von Jouanne, A. Yokochi, "Ring Oscillator Controlled Asynchronous Charge-Pump for Low Power Renewable Applications in Computing Platforms", *PowerMEMS, Nov. 2007*.

22. D. Elwood, A. von Jouanne, T. Brekken, A. Yokochi, S. Yim *et. al*, "Experimental and Numerical Modeling of Direct-Drive Wave Energy Extraction Devices", *Offshore Mechanics and Arctic Engineering (OMAE) Conf.*, June 2007.
23. Yokochi, A.; Koretsky, M; Amatore, D.; Kimura, S.; "Development of a Nanotechnology Curriculum at Oregon State University" *Fourth Annual Micro Nano Breakthrough Conference, 2007.*
24. Yokochi, A.; Koretsky, M; Amatore, D.; Kimura, S.; "Development of a Nanotechnology Curriculum at Oregon State University" *2007 ASEE Chemical Engineering Summer School Poster Session, 2007.*
25. Koretsky, M; Amatore, D.; Kimura, S.; Yokochi, A. "Development of a Nanotechnology Curriculum at Oregon State University" *2007 ASEE Annual Conference and Exposition, 2007.*
26. Elwood, D.; Yim, S.; Yokochi, A.; Rhinefrank, K., Brekken, T., von Jouanne, A. et al. "Numerical And Experimental Modeling Of Direct-Drive Wave Energy Extraction Devices" *Proc. 26th Intern. Conf. Offshore Mechanics and Arctic Engineering 2007, OMAE 2007-29728.*
27. A. Muhtaroglu, A. von Jouanne, *Hybrid Thermoelectric Conversion for Enhanced Efficiency in Mobile Computing Platforms*, PowerMEMS 2006, University of California, Berkeley, Nov. 2006.
28. A. Yokochi, L. Marple, A. Buchannan, Insights in the Characterization of Nanostructured Materials by PDF Using In-House Instrumentation, 2006 Meeting of the American Crystallographic Association; Honolulu, July 2006.
29. Armel Le Bail, Daniel Chateigner, Xiaolong Chen, Marco Ciriotti, Lachlan M.D. Cranswick, Robert T. Downs, Luca Lutterotti, Alexandre F.T. Yokochi, COD (Crystallography Open Database) and PCOD (Predicted) 2005 Meeting of the International Union of Crystallography, paper P.24.01.1, *Acta Crystallogr.* **2005**, A61, C481.
30. Yokochi, "Recent work in OSU's Crystallographic Laboratories", invited paper at the 2004 Annual Meeting of the American Crystallographic Association (ACA)
31. A. von Jouanne, A. Wallace, A. Yokochi, I. Husain, Innovative Hydrogen/Fuel Cell Electric Vehicle Infrastructure Based on Renewable Energy Sources, IAS2003, Oct. 2003.
32. Yokochi, A.; Li, J.; Sleight, Arthur W. The thermal expansion of some Cu delafossite compounds. 2002 Meeting of the American Crystallographic Association; San Antonio, May 2002.
33. Duan, Niangao; Nagarajan, R.; Li, J.; Yokochi, Alex; Achuthan, Vanaja; Uma, S.; Jayaraj, Madambi K.; Sleight, Arthur W. Delafossites for electronic applications. Abstr. Pap. - Am. Chem. Soc. 2001, 221st INOR-605.
34. Li, J.; Duan, N.; Yokochi, A.; Sleight, A. W. Synthesis and Characterization of CuScO_{2+x} Phases. Book of Abstracts, 56th ACS Northwest Regional Meeting, Seattle, June 14 – 17 2001, INOR89.
35. Xun, X.; Uma, S.; Yokochi, A. F. T.; Sleight, A. W. Structural Studies of Novel Oxides Containing both Bi(III) and Mn(II). Book of Abstracts, 56th ACS Northwest Regional Meeting, Seattle, June 14 – 17 2001, INOR88.

36. Bliesner, R.; Yokochi, A.; Sleight, A. W. Structure of the Oxygen Ion Conductor $\text{NaBi}_3\text{V}_2\text{O}_{10}$. Book of Abstracts, 56th ACS Northwest Regional Meeting, Seattle, June 14 – 17 2001, INOR37.
37. A. von Jouanne, A. Wallace, and A. Yokochi. Hybrid Distributed Generation Systems Using Renewable Energy Sources to Enhance Fuel Cell Technologies. UIE Conf., November 2000, pp 121 – 127.
38. White, J. D.; Blakemore, P. R.; Browder, C. C.; Hong, J.; Nagorny, P. A.; Robarge, L. A.; Yokochi, A. F. T.. Formal synthesis of polycavernoside A. 37th National Organic Symposium, Bozeman, MT (USA), 10-14 Jun 2001.
39. White, James D.; Hrnciar, Peter; Yokochi, Alexandre F. T.. Tandem ring-closing-metathesis transannular-cyclization as a route to hydroxylated pyrrolizidines. Asymmetric synthesis of (+)-australine. Book of Abstracts, 216th ACS National Meeting, Boston, August 23-27 1998, ORGN-506.
40. Gable, Kevin P.; Ness, Stephanie; Yokochi, Alexandre F. T.. Proteolytic fragmentation of tris-(3,5-dimethylpyrazolyl)hydridoborate during reductive halogenation of potassium perrhenate. Book of Abstracts, 216th ACS National Meeting, Boston, August 23-27 1998, INOR-107.
41. "The Flexibility of M-M and M-Cl Bonds"; Chen, L. F.; Cotton, F. A.; Pascual, I. A.; Yokochi, A. 1997 Meeting of the American Crystallographic Association; St. Louis, July 1997.
42. "Synthesis and Structures of Some Compounds Containing Linked, Multiply-Bonded Diruthenium Units"; Cotton, F. A.; Yokochi, A. 52nd Southwest Regional Meeting of the American Chemical Society, Houston, October 1996.
43. "Compounds Containing Linked, Multiply Bonded Dimetal Units"; Cotton, F. A.; Yokochi, A. 51st Northwest Regional Meeting of the American Chemical Society; Corvallis, OR, June 1996.
44. "Improved Routines for Area Detector Data Reduction"; Blessing, R. A.; Smith, G.; Yokochi, A. 1995 Meeting of the American Crystallographic Association; Montreal, July 1995.
45. "The Flexibility of M-M and M-Cl Bonds"; Chen, L. F.; Cotton, F. A.; Pascual, I. A.; Yokochi, A. 1997 Meeting of the American Crystallographic Association; St. Louis, July 1997.
46. "Synthesis and Structures of Some Compounds Containing Linked, Multiply-Bonded Diruthenium Units"; Cotton, F. A.; Yokochi, A. 52nd Southwest Regional Meeting of the American Chemical Society, Houston, October 1996.
47. "Compounds Containing Linked, Multiply Bonded Dimetal Units"; Cotton, F. A.; Yokochi, A. 51st Northwest Regional Meeting of the American Chemical Society; Corvallis, OR, June 1996.
48. "Improved Routines for Area Detector Data Reduction"; Blessing, R. A.; Smith, G.; Yokochi, A. 1995 Meeting of the American Crystallographic Association; Montreal, July 1995.
49. "Macrocyclic Complexes of Osmium"; Ali, I. A.; Hinckley, C. C.; Ikuo, A.; Robinson, P. D.; Yokochi, A. 199th ACS National Meeting; Boston, April 1990; Abstract No. 589

Conference Papers Under Review

- 50. ECCE – Supercaps for Wind/Energy Storage Integration
- 51. ECCE – Control of Multiple Energy Storage Devices in Wind Applications
- 52. ECCE – Wind Ramp Identification and Characterization
- 53. NORM 2011 – Aging Studies of Zn/Br Batteries
- 54. NORM 2011 – Catalytic Effects in the Sulfur-Sulfur Cycle
- 55. NORM 2011 – Bunsen Reaction in Non-Aqueous Media for Hybrid Thermochemical Cycles
- 56. AIChE – Aging Studies of Zn/Br Batteries
- 57. AIChE – Full Study of the Implementation of the Sulfur-Sulfur Cycle

C.2.2. Presentations to Professional Organizations

- 1. A. Yokochi, “Overview of the NNMREC” Wave Energy Centre (Portugal), December 2010.
- 2. A. Yokochi, “Overview of OSU’s Energy Storage to Support Wind Power Generation Laboratory Experimental Grid” Electricidade de Portugal, December 2010.
- 3. A. Yokochi, “Alternative chemical approaches for energy and fluid processing” Faculdade de Engenharia da Universidade do Porto (Portugal), December 2010.
- 4. A. Yokochi, “Preparation and Characterization of High Performance Nanocomposite Magnetic Materials” Army Research Lab / ONAMI project progress review, November 2010
- 5. A. Yokochi, “Preparation and Characterization of High Performance Nanocomposite Magnetic Materials” Army Research Lab / ONAMI project progress review, April 2010
- 6. A. Yokochi, “Overview of OSU’s Energy Storage to Support Wind Power Generation Laboratory Experimental Grid” Johnson Controls, December 2009.
- 7. A. Yokochi, “Preparation and Characterization of High Performance Nanocomposite Magnetic Materials” Army Research Lab / ONAMI project inception review, October 2009
- 8. A. Yokochi, “Nanocomposite Magnetic Materials for High Performance Inductors” American Society of Materials Oregon Chapter, October 2009
- 9. A. Yokochi, “Overview of Current Research in the Yokochi Laboratory” Oregon State University CBEE Student Club, April 2009
- 10. A. Yokochi, “Planned Approaches to Biofouling Prevention of Marine Energy Devices” National Northwest Marine Renewable Energy Center, April 2009
- 11. A. Yokochi, “Planned Approaches to Biofouling Prevention of Marine Energy Devices” National Northwest Marine Renewable Energy Center kick-off meeting with USDOE, Dec. 2008
- 12. A. Yokochi, “Introduction to Nanotechnology” Johns Hopkin’s University Center for Talented Youth, June 2007

13. A. Yokochi, K. Drost "Proposed Application of Microchannel Reactors to the Thermochemical Decomposition of Water", Idaho National Laboratory Seminar, May 2006.
14. K. Drost, A. Yokochi "Overview of the MBI", Idaho National Laboratory Seminar, May 2006.
15. A. Yokochi "Advanced Materials and Innovative Energy Storage Techniques", Oregon State University Faculty Seminar, March 2004.
16. A. Yokochi "Application Insights on Advanced Materials and Opportunities for Emerging Solutions", Virginia Tech Faculty Seminar, March 2004.
17. Yokochi, A. Overview of OSU's New Rigaku/MSR R-AXIS RAPID. Oregon State University's Transparent Conducting Oxides Group Meeting, October 2003.
18. "Superreduced Transition Metal Carbonyls as Ligands: A Facile Way to Generate New Metal-Metal Bonds"; Cotton, F. A.; Yokochi, A. TAMU Intradepartmental Seminar, College Station; April 1994
19. "Coordination Complexes of the 'Non-Coordinating Anions'"; Cotton, F. A.; Yokochi, A. TAMU Intradepartmental Seminar, College Station; October 1994.

C.3. List grant and contract support

Total = \$16,215,812

My Portion = \$2,864,272 (equally distributed with co-PIs unless differently indicated)

1. "Wind Integration Research, Demonstration and Exploration", co-PI, with A. von Jouanne (PI), T. Brekken, S. Walker \$674,237, from a consortium including Bonneville Power Administration, Pacific Power, Oregon Built Environment and Sustainable Technologies (Oregon BEST), Grainger Center for Electric Machinery and Electromechanics, Portland General Electric and Oregon State University 2010-2011 (my portion = \$42,000 from Oregon BEST match).
2. "Advance full scale Wave Energy ocean test berths", FY09 Federal Omnibus Earmark \$2,331,175 (my portion: \$114,454 from DOE and \$28,816 OSU Match)
3. "Integrated RF Inductors using Nano-Structured Soft Magnetic Materials" PI, with Pallavi Dhagat (co-PI) and Albrecht Jander (co-PI); \$196,261 from ONAMI-Nanostructures for Enhanced Performance program (2009-2010).
4. "Corona Discharge Microreactor for Highly Efficient and Compact Desulfurization of Logistic Fuels", PI with Goran Jovanovic (co-PI); \$80,000 from ONAMI-Tactical Energy Systems 2009-2010.
5. "Synthesis of Traceable Nanoparticles for Studying the Fate and Transport of Engineered Nanomaterials in Aquatic Systems", co-PI with Jeff Nason (PI); \$35,991 from USGS, 2009-2010.
6. "Northwest National Marine Renewable Energy Center", co-PI with B. Paasch (PI), A. von Jouanne(OSU), T.Brekken (OSU), M. Haller (OSU), T Ozkan-Haller (OSU), George Boehlert (OSU), Philip Malte (UW) and Mitsuhiro Kawase (UW), \$13,545,481 from USDOE Water Power Program, 2008-2013.
7. "Wind Integration Research, Demonstration and Exploration", with T. Brekken, \$35,764 match to BPA proposal from Oregon BEST, 2008-2009.

8. "Wind Integration Research, Demonstration and Exploration", co-PI, with A. von Jouanne (PI), T. Brekken, S. Walker, A. Yokochi, B. Paasch, \$357,640, from Bonneville Power Administration, 2008-2009.
9. "Energy Storage for Variable Renewables", co-PI with T. Brekken (co-PI) and A. von Jouanne (PI), \$140,000 from Central Lincoln Public Utility District, 2008-2009.
10. "Wind Energy Advancement", co-PI with T. Brekken (co-PI) and A. von Jouanne (PI), \$10,000 from Sprint Capital Japan Ltd., 2008-2009.
11. "Engineered, Solid-State Processes for Enhanced Biosolar Hydrogen Production Enabling the Development of Biocomposite Materials" co-PI, with R. Ely (PI); \$89,974 from NSF-CBET, 2008-2009.
12. "Determination of Gas-Liquid Equilibria Relevant to Tribromosilane Purification Processes", co-PI with Goran Jovanovic (PI); \$62,183 from Peak Sun Silicon, 2008.
13. "CAREER: Implementation of Sustainable Energy Related Processes in Microstructured Reactors" PI; \$400,000 from the NSF CTS and ETS divisions + \$40,000 matching funds from ONAMI, 2008-2013.
14. "Wave Energy Laboratory and Ocean Test Beds", co PI with Annette von Jouanne (PI), T. Brekken (co-PI), B. Paasch (co-PI), S. Yim (co-PI), \$466,100 from Bonneville Power Administration, 2007.
15. "Enabling the thermochemical production of hydrogen from water: investigation of the Bunsen reaction in a low vapor pressure solvent" PI; \$95,000 from the California Energy Commission, 2008-2009.
16. "Direct Drive Power Generation Buoys", Navy Plus-Up with Columbia Power Technologies, with A. von Jouanne (PI), T. Brekken, S. Yim, R. Paasch, \$402,753, 2007-2008.
17. "Acquisition of a Reactive Sputter Coater for Hands-On Microelectronics and Nanotechnology Education", \$50,000 from Intel Corporation + \$20,000 matching funds from ONAMI, in collaboration with Milo Koretsky and Pallavi Dhagat, 2007.
18. "Field Testing of a Desktop Scanning Electron Microscope", DOE-BER, \$100,000 + donation of \$95,000 desktop scanning electron microscope development prototype. PI, 2006-2007.
19. "Integration of Nanotechnology into the Engineering Curriculum at Oregon State University", NSF, \$190,000 (1/06 – 12/08) in collaboration with Milo Koretsky (PI) and Shoichi Kimura.
20. "Desulfurization of Fuels in Micro Reactors", ONAMI, \$146,000 in collaboration with Goran Jovanovic (PI), 2006-2007.
21. "Preliminary Investigation Of The Use Of An Electrocoagulation Device For The "Salting Out" Separation of *n*-Butanol From Water", EnerGenetics, Inc., PI, \$15,000 (3/07-7/07).
22. "Ocean Wave Energy Extraction", Oregon Sea Grant, \$54,503 (2006-2007) in collaboration with Annette von Jouanne (PI).
23. "Wave Energy Materials Research for the Permanent Magnet Helical Screw Drive (PMHSD)", Oregon Sea Grant, PI, \$11,038, (6/2006 – 9/2006).

24. "Chemical Engineering Large Format Printer", OSU-Technology Resource Fee, \$10,319 in collaboration with David Hackleman, Lesley Jones and Paul Montagne. PI, 2006.
25. "Aluminum as Energy Storage Material for Fuel Cell Electric Vehicle Development", a proposal requesting \$10,000 from Oregon State University's General Research Fund in collaboration with Annette von Jouanne. PI, \$10,000, 2004.
26. "Acquisition of CCD X-ray Detection System", a proposal submitted to the NSF's Instrumentation for Materials Research program, requesting \$271,000 for acquisition of an area detector based single crystal X-ray diffractometer and ancillary equipment, in collaboration with D. A. Keszler and A. W. Sleight. Funding of \$252,000 granted (7/02).
27. "Emergency repair of chilled water system for the X-ray diffraction laboratories", submitted to OSU's Research Equipment Reserves Fund requesting \$30,000 for repair of cold water system for instrument cooling. Funding granted (7/00).
28. "Improvement of a variable temperature X-ray diffractometer", submitted to OSU's Research Office. \$10,000 awarded for purchase of parts for the construction of a new monochromator (5/98).

C.4. Patents and inventions

C.4.1. Patents

1. "Methods And Apparatus For Power Generation", Rhinefrank, K.; von Jouanne, A.; Prudell, J.; Schacher, A.; Yokochi, A.F.T.; Brekken, T.; Elwood, D.; Stillinger, C.; Paasch, R. K. PCT/US2008/002837.
2. "Magnetic Helical Screw Drive" Rhinefrank; K.; Yokochi; A.F.T.; von Jouanne; A.; Dittrich; M.; Agamloh; E. PCT/US2009/0251258.

C.4.2. Invention Disclosures

1. A New Sulfur-Sulfur Thermochemical Cycle for Hydrogen Production From Water Decomposition (2009)
2. Activation of Chemical Reactions in Microchemical Systems Using Electrical Discharges (2009)
3. Implementation of the Sulfur-Iodine Thermochemical Cycle in Low Vapour Pressure Liquid Phases (2006)
4. Electroluminescent displays using solution phase (liquid) organic phosphors in a microfluidic device (channeling process throughout display) (2004)
5. Aluminum Metal as Energy Storage Material for Fuel Cell Electric Vehicles (2003)

C.5. Other information

None

D. SERVICE

D.1. University Service

Graduate Committee, 2006-2007, 2009-2011
Computer and Facilities Committee, 2004-2011
Marketing and Recruiting Committee 2005-2006
Awards Committee, 2009-2011
Faculty Search Committee, 2008

D.2. Service to the Profession

Session and SIG Organizer at Professional Society Meetings

1. "Sustainable Electricity: Generation, Transmission, and Storage" session chair for AIChE Fall National Meeting 2011.
2. "Concentrated Solar for Power Generation and Chemical Processing" session chair for AIChE Fall National Meeting 2010.
3. "Renewable Energy: Energy Storage to Support Grid Integration" session chair for AIChE Fall National Meeting 2010.
4. "Renewable Energy: Materials for Energy Generation" session chair for AIChE Fall National Meeting 2010.
5. "Structure Solution from Powder Data", symposium at ACA2004 annual meeting. (Program Chair)
6. "New Approaches to Difficult Structures", symposium at ACA2003 annual meeting. (Program Chair)
7. Founding Member of Powder Diffraction Special Interest Group at American Crystallographic Association, SIG Chair 2002-2003
8. "General Interest" Special Interest Group at American Crystallographic Association, SIG Chair 2003-2004

External Peer Reviewer for Journals and Competitive Grant Selection Panels

Journal Article Review:

Journal of the American Chemical Society
Inorganic Chemistry
Journal of Natural Products
Acta Crystallographica B
Acta Crystallographica C
Powder Diffraction
Journal of Applied Physics
AIChE Journal
Journal of Power Sources

Competitive Proposal Review Panels:

US National Science Foundation
US Environmental Protection Agency
ACS Petroleum Research Fund

US Department of Energy
US Department of Energy – Nuclear Energy University Program

D.3. Service to the Public (professionally related)

None

E. AWARDS

E.1. National and International Awards

National Science Foundation Faculty Early Career Development Award (CAREER) – 2007. “the National Science Foundation’s most prestigious awards in support of the early career-development activities of those teacher-scholars who most effectively integrate research and education within the context of the mission of their organization.” [NSF web site]

IEEE Industry Applications Society Magazine Prize Article Award for the paper “Gone with the wind: innovative hydrogen/fuel cell electric vehicle infrastructure based on wind energy sources” Von Jouanne, A.; Husain, I.; Wallace, A.; Yokochi, A.; Industry Applications Magazine, pp. 12-19, July/August 2005.

E.2. State and Regional Awards

None

E.3. University and Community Awards

None