

OREGON STATE UNIVERSITY  
College of Engineering

Alexandre F. T. Yokochi

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*Professional Preparation*

|  |         |                            |
|--|---------|----------------------------|
| Southern Illinois University at Carbondale | B.S.    | 1989 Chemistry             |
| Southern Illinois University at Carbondale | M.Sc.   | 1991 Chemistry             |
| Texas A&M University                       | Ph.D.   | 1997 Chemistry             |
| Oregon State University                    | Postdoc | 4/1997 – 12/1997 Chemistry |

*Appointments*

|   |                                 |                  |
|---|---------------------------------|------------------|
| Oregon State University, Dept. of Chem. Engr. | Associate Professor             | 9/2010 – present |
| Oregon State University, Dept. of Chem. Engr. | Assistant Professor             | 6/2004 – 9/2010  |
| Oregon State University, Dept. of Chemistry   | Research Assistant Professor    | 1/2000 – 5/2004  |
| Oregon State University, Dept. of Chemistry   | Director of Diffractometry Labs | 1/1998 – 5/2004  |

*Selected Publications*

“Optimal energy storage sizing and control for wind power applications” T.K.A. Brekken, A. Yokochi, A. von Jouanne, J. Yen, H. Hapke, D. Halamay, *IEEE Trans. Sustainable Energy* **2011**, 2, 69.

“Gone With the Wind”, von Jouanne; A. ;Husain, I.; Wallace, A; Yokochi, A. *IEEE Industry Applications Magazine*, July/August 2005, 12-19. (IEEE-IAS Magazine Prize Article Award 2006)

“Innovative Hydrogen/Fuel Cell Electric Vehicle Infrastructure Based on Renewable Energy Sources” von Jouanne, A. Wallace, A.; Husain, I.; Yokochi, A. *IAS2003*, Oct. 2003.

“Hybrid Distributed Generation Systems Using Renewable Energy Sources to Enhance Fuel Cell Technologies”, von Jouanne; A. ; Wallace, A; Yokochi, A. *UIE Conf.*, November 2000.

“A Nanotechnology Processes Option in Chemical Engineering”, M. Koretsky; A. Yokochi; S. Kimura *Chem. Engin. Educ.* **2009**, 43, 265-272.

“Preparation and Characterization of Magnetic Nanocomposite Materials”, R. Kimmell, A. Yokochi, P. Dhagat, A. Jander *Fifth Annual Micro Nano Breakthrough Conference*, 2008.

“Initial studies of the feasibility of performing the Bunsen reaction in a low vapor pressure liquid medium” A. Yokochi, N. AuYeung, *Fuel Chemistry Preprints* **2008**, 53, 452-453.

“Photochemical oxidation of thiophenic molecules with peroxides in a microreactor as part of an oxidative fuel desulfurization system” A. Yokochi, E. Hebert, J. Parker, G. Jovanovic *Fuel Chemistry Preprints* **2008**, 53, 415-418.

“Experimental and Numerical Modeling of Direct-Drive Wave Energy Extraction Devices”, Elwood, D. ; von Jouanne, A.; Brekken, T.; Yokochi, A.; Yim S. *et. al*, *Offshore Mechanics and Arctic Engineering (OMAE) Conf.*, June 2007.

“Strong Negative Thermal Expansion along the O-Cu-O Linkage in CuScO<sub>2</sub>”, Li, J.; Yokochi, A.; Amos, T. G.; Sleight, A. W. *Chem. Mater.* **2002**, 14, 2602-2606.

### *Synergistic activities.*

My main scholarly activities at the moment focus on the implementation of chemical systems in microreactor systems especially where this interfaces with the topic of sustainability and especially of sustainable energy technologies; the development of advanced materials with enhanced properties, with particular emphasis on the development nanocomposite materials; and the development of curriculum, especially in the fields of nanotechnology and renewable energy fields, suitable for students at OSU both at a specialist (i.e., for science and engineering students) and general level (e.g., students from non-technical disciplines desiring to understand the technological and societal impacts of such technologies). In general, my work takes advantage of past expertise in chemical synthesis (organic and inorganic) and characterization of materials by Bragg and non-Bragg (total scattering) X-ray and neutron scattering.

In the area of microreactor system implementation of sustainable energy processes I currently lead a project funded by the CEC and the NSF examining the efficient production of hydrogen from heat through chemically sophisticated implementations of the sulfur-iodine thermochemical approach. Through work funded by the Bonneville Power Administration, the Central Lincoln PUD, and Oregon BEST I have been able to investigate electrical energy storage technologies and examine the construction of high performance microstructured Zinc-Bromine batteries.

My work on development of advanced materials currently focuses on the development of magnetic composite materials to enable high frequency on-chip inductors and on the development of environmentally benign nanocomposite materials such as coatings designed to minimize biofouling of surfaces in the marine environment to enable the implementation of ocean energy technologies.

I have also been active in the creation of curriculum enhancing the education of OSU students in the fields of nanotechnology and renewable/sustainable energy including a new sophomore level survey course in nanotechnology and a graduate level course in solar energy technologies.

Apart from my regular professional duties I am an active member of the American Chemical Society (ACS), the American Crystallographic Association (ACA), and the American Institute of Chemical Engineers (AIChE). As part of these activities I serve on various committees, such as the Industrial and Engineering Chemistry division of the ACS or the General Interest Group and the Powder Diffraction special interest group of the ACA, and frequently chair sessions at national meetings of these professional associations.

### *Collaborators and other affiliations.*

#### **i. Collaborators**

University of Washington

Phil Malte, Mechanical Engineering  
Mitsuhiro Kawase, Oceanography  
Jim Thomson, Applied Physics Lab  
Alberto Aliseda, Mechanical Engineering  
James Riley, Mechanical Engineering  
Mark Tuttle, Mechanical Engineering  
Brian Polagye, Mechanical Engineering

Elsewhere

Ali Mutharoglu,  
Dept. of Electrical Engineering, Middle East  
Technical University, Cyprus  
Armel Le Bail  
Faculté des Sciences, Université du Maine,  
France  
Peter Möck  
Department of Physics, Portland State  
University

#### **ii. Graduate and Post-Doctoral Advisors**

M.Sc. Conrad C. Hinckley (Inorganic Synthesis and Crystallography)  
Ph.D. F. A. Cotton (Inorg. Synthesis, Crystallography and Computational Chemistry; Deceased 2/07)  
Postdoctoral James D. White (Natural Product Synthesis)

#### **iii. Thesis advisor and post graduate scholar sponsor**

*Ph.D.*

Ken Rhinefrank (EECS)  
Nick AuYeung (CBEE)  
Alex Bistrika (CBEE)  
Kevin Caple (CBEE)  
Malachi Bunn (CBEE)

Robbie Kimmell (CBEE)  
David Dickson (MatSci)  
Eilleen Hebert (CBEE)  
Matt Delaney (CBEE)  
Nathan Coussens (CBEE)

Rocio Murillo (U. Saragoza)  
Omar Bamaga (Fullbright  
Scholar, U. Sana'a, Yemen)

*M.S.*

*Visiting Scholars*  
Abishek Raj (IIT-Khanpur)