JINSONG YU

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PROFESSIONAL CHARACTERISTICS

- **Extensive experience in multidiscipline areas:** chemical & environmental engineering, microfabrication, electrochemistry, sensors, and wastewater treatment technologies
- **Excellent Communication skills:** journal paper, report & grant proposal writing, presentation, teaching

EDUCATION

Ph. D. in Chemical Engineering Case Western Reserve University, Cleveland, OH, USA 2008
Dissertation: "Development of microfabricated electrochemical sensors for corrosion evaluation and gaseous oxygen detection"

M. S. in Chemical Engineering Case Western Reserve University, Cleveland, OH, USA 2002
Thesis: "Thermal and chemical expansion of perovskite materials $La_{1-x}Sr_xCoO_{3-\delta}$"

B. S. in Chemical Engineering Tsinghua University, Beijing, China 1997
Thesis: "Development of alginate pervaporation membrane for ethanol separation"

PROFESSIONAL EXPERIENCE

Visiting Assistant Professor, University of New Haven, West Haven, CT 06516
Aug. 2014 to present

Assistant Professor, Youngstown State University, Youngstown, OH 44555
Aug. 2013 to May 2014

Postdoctoral researcher Level I (Oct. 2009- Jan. 2011) & Level II (Feb. 2011-Jan. 2013) -Purdue University Calumet Water Institute, Hammond, IN 46323

- **Multimillion Environmental Project funded by British Petroleum (BP)**
  Cooperated with Argonne National Laboratory (ANL) on bench and pilot scale treatability studies to remove heavy metals from BP refinery wastewaters. As the only postdoctoral researcher for this project, major contributions include:
  - Critically participated in the design, planning, and implementation of the entire project;
  - Leaded in carrying out experimental studies on iron coprecipitation, ion exchange, adsorption, reactive filtration, UF, NF, RO membrane filtration, and electro-deionization;
  - Achieved satisfactory removals of heavy metals including mercury, arsenic, selenium, and vanadium to meet stringent US EPA permit regulations on industrial wastewater discharge;
  - Managed the research associates and supervised the daily operation in the laboratory;

- Played a key role in assisting project management team and supported administrative tasks;
- Ensured the smooth progress of the project through writing technical summaries, arranging technical meetings, and giving presentations;
- Critically involved in briefing project outcomes to the general public through presentations;
- Featured in the local news paper for the May 10th 2010 public briefing event.
- In charge of PWI side's writing two project reports for two modules submitted to BP

- **Advising Undergraduate and graduate students**
  - Providing discussion, directing and guiding students' thesis works;
  - Assisting in the preparation of thesis;
  - Critically involving in publishing experimental findings and achievements.
- **Supervising the operation of 2000 sq. ft. water research laboratory**
  - Involved in the operation of advanced water research laboratory;
  - Experienced with water quality researches such as optic fiber sensory systems;
  - Working knowledge of membrane and membrane fouling mechanism and mitigation;
  - Well trained in cleanroom (class-100) operation;
  - Familiar with high performance ICP mass spectrometer;

Consultant (Aug. 2008-Jan. 2009) & Postdoctoral Scholar (Feb. 2009-Sept. 2009)-Electronics Design Center, Case Western Reserve University, Cleveland, OH

- **Design and microfabrication of gaseous NOx electrochemical sensor**

  Contributed to the development of microfabricated gaseous NOx sensor
  - Proved the necessity of miniaturized electrochemical NO_x sensor;
  - Determined structure, microfabrication process, and the characterization methodology;
  - Provided the initial AutoCAD design of the sensor;
  - Identified suitable electrode and electrolyte materials.

Research Assistant (May 2002-Jan. 2008)-Electronics Design Center, Case Western Reserve University, Cleveland, OH USA

Research and Development on microfabricated electrochemical sensors and biosensors
- Independently worked on sensor research projects from inception through completion and resulted in advanced sensors that are critical to selected NASA and DOE projects;
- novelized the design and functionality of high temperature O_2 gas sensors;
- Critically involved in the invention of QCM sensor, **US PATENT #7232545;**
- Grasped electrochemistry principles applicable to sensor, battery, and fuel cell;
- Well trained in electrochemical measurements: AC impedance, amperometric, cyclic voltammetry, and potentiometric, and conductometric;
- Well-trained in performing microfabrication of MEMs electronic devices.

TEACHING EXPERIENCE

Visiting Assistant Professor, University of New Haven, Aug. 2014-present

- Introduction to Engineering Modeling, Chemical Process Analysis, Chemical Engineering Senior Design, Senior Lab

Assistant Professor, Youngstown State University, Aug. 2013-May 2014

- Transport Phenomena I & II, Unit Operation I & Lab, Chemical Reactor Design I & II

Lecturer-(Limited Term), Purdue University Calumet Jan.2012-May 2012

- Engineering Core Course: Heat Transfer

Teaching Assistant (1999-2003) Case Western Reserve University, USA

- Five engineering/chemical engineering core courses

PUBLICATION

- Guangliang Chen, Xiaolei Si, **Jinsong Yu**, Huiyu Bai, Xianhui Zhang, *Applied Surface Science*, 330 pp. 191–199 **(2015)**, "Doping nano-Co3O4surface with bigger nanosized Ag and itsphotocatalytic properties for visible light photodegradationof organic dyes"
- George Nnanna, **Jinsong Yu***, and Ishital Biswas, *Water Science and Technology*, 68(11): pp. 2407-2413, (**2013),** "Analyzing the spatial and temporal characteristics of membrane fouling"
- M. Urgun-Demirtas, M.C. Negri, P.S. Gillenwater, AGA Nnanna, **Jinsong Yu**, *J. of Environmental Management,* 117 pp. 65-75 **(2013),** "Meeting world's most stringent Hg criterion: A pilot-study for the treatment of oil refinery wastewater using an ultrafiltration membrane process"
- Ahmed Hasnain Jalal, **Jinsong Yu***, and A. G. Agwu Nnanna, *Applied Optics*, Vol. 51, Issue 17, pp. 3768-3775 **(2012)**, "Fabrication and Calibration of Oxazine-Based Optic Fiber Sensor for Detection of Ammonia in Water"
- Xu Li, **Jinsong Yu***, and A.G. Agwu Nnanna, *J. Desalination*, Vol. 281 (17) Aug. **(2011)**, "Fouling mitigation for hollow-fiber UF membrane by sonication";
- **Jinsong Yu*** and C.C. Liu, *Sensors Journal*, 10, 5845-5858, **(2010)**, "Microfabricated Thin Film Impedance Sensor & AC Impedance Measurements";
- Centanni; Michael A., Liu; Chung-Chiun, Zhao; Dong, and **Yu; Jinsong**, "Sensor for determining concentration of fluid sterilant" **US Patent #7232545, 2007**
- Xiyong Chen, **Jinsong Yu**, and Stuart Adler, *Chem. Mater.,* 17, 4537-4546, **(2005)**, "Thermal and Chemical Expansion of Sr-Doped Lanthanum Cobalt Oxide ($La_{1-x}Sr_xCoO_{3-\delta}$)"

Conference Proceeding, Technical Report, and Public Presentation

- Conference Proceeding: Jinsong Yu* and Stuart Adler, "Chemical Expansion of Perovskite Materials $La_{1-x}Sr_xCoO_{3-\delta}$" Electrochemical Society 200th Semiannual Conference proceeding, San Francisco, CA 2001;
- Technical Reports: "Emerging Technologies and Approaches to Minimize Discharges into Lake Michigan, Phase II-Module 3" (http://webs.purduecal.edu/pwi);
- "Pilot-Scale Studies on mercury removal from refinery wastewater, Phase II-Module 4"

Independent Grant Proposal Writing Experience

- "Probing methodologies of biological olfaction and applying them to artificial sensory system based on novel operation of MEMs SnO_2 sensors", Joint NIST-NIH proposal, finalist list 2009;
- "Research into Optic-fiber Sensor for the Detection of Heavy Metals Mercury, Vanadium and Chromium (VI) in Dynamic Water System", submitted to NSF 2011
- "Mercury Reduction from Municipal Effluents Discharged into Lake Michigan", submitted to EPA Funding Opportunity Number: EPA-R5-GL2012-1, 2012
- "Occurrence of Emerging Contaminants in Lake Michigan and Sensory Development", submitted to Illinois and Indiana Sea Grant, 2012
- "Reducing Makeup Water Usage through Reactive Filtration and Reuse of the Blowdown Water", Submitted to Electric Power Research Institute request for proposal, 2012