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Mechanical Engineering
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Education:

Ph.D., Princeton University 02/2006
Department of Mechanical and Aerospace Engineering
Dissertation: "Studies on Ignition of Hydrogen and Hydrocarbons"
Advisor: Professor Chung K. Law

M.A., Princeton University 2002
Department of Mechanical and Aerospace Engineering

B.Sc., Tsinghua University 2000
Department of Thermal Engineering

Work Experience:

Stanford University, Assistant Professor 07/2007 - present
Department of Mechanical Engineering, Thermosciences Group

Harvard University, Postdoctoral Fellow 02/2006-06/2007
Department of Chemistry & Chemical Biology, Advisor: Professor Charles M. Lieber

Research Interests:

Interested in the interfacial science among nano science & technology, biology and energy conversion. Specifically, synthesis and assembly of functional nanomaterials, understanding the physical and chemical processes involved in the synthesis, elucidation of the fundamental properties of nanomaterials, applying nanomaterials intelligently in energy conversion systems and Nano-Electro-Mechanical Systems to fully exploit their ubiquitous properties.

Honors & Awards:

Presidential Early Career Awards for Scientists and Engineers 2009

ONR Young Investigator Program 2008

DARPA Young Faculty Award 2008

Terman Fellowship (Faculty) Award, Stanford University 2007

NSEC Postdoctoral Fellowship, Harvard University 2006

Bernard Lewis Fellowship, the Combustion Institute 2004

Harold W. Dodds Honorific Fellowship, Princeton University 2004

Amelia Earhart Fellowship, Zonta International Foundation 2003

Larisse Rosentweig Klein Memorial Award, Department of Mechanical & Aerospace Engineering (MAE), Princeton University	2003
Britt and Eli Harari Fellowship, Department of MAE, Princeton University	2002
Sayre Graduate Prize, Department of MAE, Princeton University	2001
Guggenheim Fellowship, Princeton University	2000
Graduation with Honor, Tsinghua University	2000

Journal Publications:

1. "Rapid Catalyst-Free Flame Synthesis of Dense, Aligned α -Fe₂O₃ Nanoflakes and CuO Nanoneedle Arrays", P. M. Rao and **X. L. Zheng**, accepted by *Nano Letters*.
2. "Probing Flow Velocity with Silicon Nanowire Sensors", D. R. Kim, C. H. Lee and **X. L. Zheng**, *Nano Letters*, 9, 1984-1988 (2009).
3. "Numerical Characterization and Optimization of the Microfluidics for Nanowire Biosensors", D. R. Kim and **X. L. Zheng**, *Nano Letters*, 8, 3233-3237 (2008).
4. "Single and Tandem Axial p-i-n Nanowire Photovoltaic Devices", T. J. Kempa, B.Z. Tian, D. R. Kim, J. Hu, **X. L. Zheng** and C. M. Lieber, *Nano Letters*, 8, 3456-3460 (2008).
5. "Coaxial Silicon Nanowires as Solar Cells and Nanoelectronic Power Sources", B. Z. Tian*, **X. L. Zheng***, T. J. Kempa, Y. Fang, N. F. Yu, G. H. Yu, J. L. Huang and C. M. Lieber, *Nature* 449, 885-890 (2007). (* These authors contributed equally)
6. "Experimental Counterflow Ignition Temperatures and Reaction Mechanisms of 1, 3-Butadiene", **X. L. Zheng**, T. L. Lu and C. K. Law, *Proc. Combust. Inst.* 31, 367-375 (2007).
7. "Thermochemical and Kinetic Analyses on Oxidation of Isobutenyl Radical and 2-Hydroperoxymethyl-2-Propenyl Radical", **X. L. Zheng**, H. J. Sun and C. K. Law, *J. Phys. Chem. A* 109, 9044-9054 (2005).
8. "Non-premixed Ignition of H₂/Air in a Mixing Layer with a Vortex", **X. L. Zheng**, J. Yuan and C. K. Law, *Proc. Combust. Inst.* 30, 415-421 (2005).
9. "Experimental Determination of Counterflow Ignition Temperatures and Laminar Flame Speeds of C2-C3 Hydrocarbons at Atmospheric and Elevated pressures", G. Jomaas, **X. L. Zheng**, D. L. Zhu and C. K. Law, *Proc. Combust. Inst.* 30, 193-200 (2005).
10. "Experimental and Computational Study of Non-premixed Ignition of Dimethyl Ether in Counterflow", **X. L. Zheng**, T. F. Lu, C. K. Law, C. K. Westbrook and H. J. Curran, *Proc. Combust. Inst.* 30, 1101-1109 (2005).
11. "Ignition of Premixed Hydrogen/Air by Heated Counterflow under Reduced and Elevated Pressures", **X. L. Zheng** and C. K. Law, *Combust. Flame* 136 (1-2), 168-179 (2004).
12. "Ignition of Premixed Hydrogen/Air by Heated Counterflow", **X. L. Zheng**, J. D. Blouch, D. L. Zhu, T. G. Kreutz and C. K. Law, *Proc. Combust. Inst.* 29, 1637-1644 (2002).
13. "Oscillating Disturbance Propagation in Passages of Multi-Stage Hydrogen Turbine", L. Hong, **X. L. Zheng** and Z. Y. Chen, *Tsinghua Sci. and Tech.* 6 (5): 488-491 (2001).

Conference Presentations:

1. "Experimental Counterflow Ignition Temperatures and Reaction Mechanisms of 1, 3-Butadiene," *31th Int. Sym. on Combustion*, Heidelberg, Germany, 2006.
2. "Ignition of Butene Isomers: An Experimental and Kinetic Study," *Western States Sections of Combust. Inst.*, Stanford University, 2005.
3. "Thermochemical and Kinetic Analyses on Oxidation of Isobutenyl Radical," *4th Joint Meeting of the US Sections of Combust. Inst.*, Philadelphia, 2005.
4. "Experimental and Computational Study of Non-premixed Ignition of Dimethyl Ether in Counterflow," *30th Int. Sym. on Combustion*, Chicago, 2004.
5. "Experimental Determination of Counterflow Ignition Temperatures and Laminar Flame Speeds of C₂-C₃ Hydrocarbons at Atmospheric and Elevated pressures," *30th Int. Sym. on Combustion*, Chicago, 2004.
6. "Ignition of Premixed Hydrogen/Air by Heated Counterflow under Reduced and Elevated Pressures," *3rd Joint Meeting of the US Sections of Combust. Inst.*, Chicago, 2003.
7. "Ignition of Premixed Hydrogen/Air by Heated Counterflow," *29th Int. Sym. on Combustion*, Sapporo, Japan, 2002.

Invited Talks:

1. University of California, Berkeley, BNNI Nano Seminar Series, May 1, 2009
2. Agilent Technologies, Inc., Santa Clara, CA, 2008
3. Stanford University, Mechanical Engineering, 2005
4. Purdue University, Mechanical Engineering, 2005
5. University of California, Irvine, Mechanical and Aerospace Engineering, 2005
6. University of Illinois at Urbana-Champaign, Mechanical and Industrial Engineering, 2005
7. University of Notre Dame, Aerospace and Mechanical Engineering, 2005
8. Sandia National Laboratories, Combustion Research Facility, 2005
9. Harvard University, Department of Chemistry and Chemical Biology, Professor Charles M. Lieber's group, 2005

Professional Activities:

Synergistic Activities

1. Reviewer for Nature Materials, ACS Nano, Combustion and Flame, Nano Letter, Nanoscale and Microscale Thermophysical Engineering, and Journal of the Royal Society Interface
2. Participated in NSF panel review
3. Member of The Combustion Institute, American Institute of Aeronautics and Astronautics and Materials Research Society
4. Work with the Stanford Office of Science Outreach to provide summer internships in my laboratory for high school students from underrepresented group.