

## **ZHEN LEI**

**Assistant Professor of Energy and Environmental Economics**  
**Department of Energy and Mineral Engineering**  
**125 Hosler Building**  
**The Pennsylvania State University**  
**University Park, PA 16802**

**Tel: 814-863-0810**  
**Fax: 814-865-3248**  
**Email: zlei@psu.edu**

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### **RESEARCH INTERESTS**

Economics of Innovation and Intellectual Property Right, Energy and Environmental Economics, Science and Technology Policy, Industrial Organization, Development Economics, Applied Econometrics

### **EDUCATION**

Ph.D., 2009, Agricultural and Resource Economics  
University of California, Berkeley

Ph.D., 2000, Pharmaceutical Sciences  
Peking University Health Science Center, China

M.S., 1997, Chemistry  
Shanghai Institue of Organic Chemisty, Chinese Academy of Sciences, China

B.S., 1993, Chemistry  
Wuhan University, China

### **EMPLOYMENT**

Assistant professor of energy and environmental economics, 2009-  
Department of Energy and Mineral Engineering, Penn State University

Research Assistant, 2004-2009  
Department of Agricultural and Resource Economics, UC Berkeley

Postdoctoral Researcher, 2000-2003  
Department of Nutritional Science and Toxicology, UC Berkeley

## RESEARCH GRANTS

DOE Hub “Greater Philadelphia Innovation Center for Energy Efficient Building (GPIC)”, Subtask on “GPIC EEB Hub History and Assessment”, Co-Principal Investigator, 07/01/2011-01/31/2013, \$453,189

National Institute of Health Grant (subcontract from University of Minnesota), “International Assessments of Patenting in Genetics,” Principal Investigator, 07/01/2011-06/30/2012, \$39,421.

National Science Foundation Collaborative Research Grant, “The Impacts of University Research and Funding Sources in Chemical Sciences: Publishing, Patenting, Commercialization.” Principal Investigator, 5/1/2011-4/30/2014, \$215,765.

US Patent and Trademark Office (USPTO) Grant, “The implications of Patent Application Growth in China on the USPTO,” Co-Principal Investigator, 5/1/2011-4/30/2012, \$319,927.

Penn State Sustainability Seed Grant, “China’s Monopoly on Rare Earth Elements and the Sustainability of Green Technology”, Co-Principal Investigator, 6/1/2010-5/31/2011, \$40,000.

Pennsylvania State Electricity Markets Initiative, Consortium of Electric Utilities, Co-Principal Investigator, 1/1/10 – 12/31/11, \$250,000.

Center for Rural Pennsylvania Grant, “Assessing and Mitigating Rising Electricity Prices in Rural Pennsylvania,” Co-Principal Investigator, 1/1/08-5/31/10, \$100,000.

## PAPERS

### Academic Papers in Economics, Law and Computer Sciences:

#### Peer Reviewed Publications

Oh, Sooyoung, Zhen Lei, Wang-Chien Lee, Prasenjit Mitra and John Yen. “CV-PCR: A Context-Guided Value-Driven Framework for Patent Citation Recommendation,” *ACM International Conference on Information and Knowledge Management (CIKM 2012)*, San Francisco, CA, U.S.A., Oct. 2013.

Graff, Gregory D., Devon Phillips, Zhen Lei, Sooyoung Oh, Carol Nottenburg, and Philip G. Pardey. “Not Quite a Myriad of Gene Patents: Assessing the Potential

- Impact of the U.S. Supreme Court on the Changing Landscape of U.S. Patents that Claim Nucleic Acids,” *Nature Biotechnology*, 2013, 31(5), 404-410.
- Daniel R. Cahoy, Joel Gehman and Zhen Lei, “Fracking Patents: The Emergence of Patents as Information Containment Tools in Shale Drilling,” *Michigan Telecommunications and Technology Law Review*, 2013, 19(2), 279-330.
- Sooyoung Oh, Zhen Lei, Prasenjit Mitra and John Yen, “Evaluating and Ranking Patents Using Weighted Citations,” in *Proceedings of The ACM/IEEE-CS Joint Conference on Digital Libraries (JCDL 2012)*, 281-284, Washington D.C., U.S.A., 2012.
- Zhen Lei, Rakhi Juneja and Brian Wright, “Patents vs. Patenting: Implications of Intellectual Property Protection for Biological Research”, *Nature Biotechnology*, 2009, 27(1), 36-40.
- Steven E. Sexton, Zhen Lei and David Zilberman, “The Economics of Pesticides and Pest Control”, *International Review of Environmental and Resource Economics*, 2007, 1(3), 271-326.

#### Book Chapters and Reports

- Daniel R. Cahoy, Joel Gehman and Zhen Lei, “The transformation of patents into information containment Tools”, in “The Changing Face of US Patent Law and its Impact on Business Strategy,” Edited by Daniel R. Cahoy and Lynda J. Oswald, The New Horizons In International Business, Edward Elgar, 2013.
- Kyriakos Drivas, Zhen Lei and Brian Wright, “A Preliminary View of University of California Data on Disclosures, Licensing and Patenting,” Prepared for *The Committee on Management of University Intellectual Property: Lessons from a Generation of Experience, Research, and Dialogue*, National Research Council, The National Academies.

#### **Academic Publications in Chemistry and Biochemistry:**

- Zhen Lei, Weiguo Chen, Min Zhang and Joseph L. Napoli, Reduction of all-trans-retinal in the mouse liver peroxisome fraction by the short-chain dehydrogenase/reductase RRD: induction by the PPAR $\alpha$ -ligand clofibrate, *Biochemistry*, 2003, 42, 4190-4196.

Zhen Lei, Ling Zhang, Liang Ren Zhang, Jun Chen, Jimei Min and Lihe Zhang, Hybrid Characteristics of oligonucleotides consisting of isonucleoside 2',5'-anhydro-3'-deoxy- 3'-(thymine-1-yl)-D-mannitol with different linkage modes, *Nucleic Acids Research*, 2001, 29(7), 1470-1475.

Zhen Lei, Jimei Min, Lihe Zhang, Synthesis of 3-deoxy-3-nucleobase -2,5-anhydro-D -mannitol: a novel class of hydromethyl-branched isonucleosides, *Tetrahedron Asymmetry*, 2000, 11, 2899-2906.

Weisheng Tian, Zhen Lei, Ling Chen, Ying Huang, Some new reactions of per(poly)alkyl sulfonyl fluoride with steriodic molecules , *Journal of fluorine chemistry*, 2000, 101, 305-308.

## **PATENTS**

Weisheng Tian and Zhen Lei, 6,10-methylene-19-nor-4-ene-3-one steriodic compounds and their synthesis, *Chinese Patent*, CN 97106575.6

## **PRESENTATIONS**

Tsinghua University-UC Berkeley Workshop on Chinese Innovation and Intellectual Property Protection,” Beijing, March, 2013.

Workshop on “China’s Patent Regime and its Quest to Become an Innovative Economy,” George Washington University Law School, January, 2013.

The Asia Pacific Innovation Conference 2012, Seoul, South Korea, Oct, 2012.

Science of Science and Innovation Policy Conference 2012, National Research Council of the National Academies, Washington D.C, September, 2012.

Penn State-Tsinghua Conference on “China and the World Economy”, Penn State University, May, 2012.

The 4th Annual International Workshop on Patent Analysis on “Output of R&D activities: Harnessing the Power of Patents Data”, The Institute for Prospective Technological Studies (JRC-IPTS) of the European Commission, Seville, Spain, May 2012.

Seminar at Chinese Intellectual Property Office (SIPO), Beijing, China, March 2012.

USDA NC1034 Annual Conference (Impact Analysis and Decision Strategies for Agricultural Research), Washington D.C., March 2012.

Seminar at School of Economics, Renmin University, China, December 2011.

The Workshop on Energy Modelling Methods and Tools, The China National Renewable Energy Centre, Beijing, November, 2011.

Patent Statistics for Decision Makers Conference (USPTO), Washington D.C., November 2011.

Workshop on Innovation and Patent Harmonization, Boston University School of Law, Boston, September, 2011

UC Berkeley- Peking University Workshop on Evolution of Chinese Patenting and Its Implications for Research and Innovation, Beijing, China, May, 2011

International Workshop on Technology and Economics of Rare Earths and Metals, Beijing, China, 2011

Penn State Environmental Seminar, March, 2011.

Joint Seminar in IO and Innovation, Department of Economics and School of Business at UC Berkeley, Berkeley, February, 2011.

American Economic Association Annual Meeting, Denver, January, 2011.

US Patent and Trademark Office (USPTO), Washington D.C., November, 2010.

The Conference on Patent Statistics for Decision Makers, organized by the European Patent Office and The Organization for Economic Cooperation and Development (OECD), Vienna, Austria, November, 2010.

The third Biennial Conference of the American Society of Health Economists, July, 2010.

Intellectual Property Scholarship Seminar, UC Berkeley School of Law, March, 2010.

Joint Seminar in IO and Innovation, Department of Economics and School of Business at UC Berkeley, Berkeley, March, 2010.

The Fourth Annual Conferences on Empirical Legal Studies, the Society of Empirical Legal Studies, LA, 2009.

The China Task Force meeting, The Initiative for Policy Dialogue, Beijing, China, October 2009.

The Annual Meeting of Agricultural and Applied Economics Association,  
Milwaukee, July 2009.

The Innovation and Intellectual Property Policy meeting, National Bureau of  
Economic Research, Summer Institute, Boston, July 2009.

Presentations to the Gathering 2 patent trader and buyer group, in a presentation at  
Intel Corporation in Silicon Valley, and to Gathering 1, via video to AT&T in  
Georgia, March, 2009.

USDA NC1034 Annual Conference (Impact Analysis and Decision Strategies for  
Agricultural Research), Washington D.C., March 2009.

The Symposium on Theory and Practice of Patent Evaluation, Center for Law and  
Technology at School of Law, UC Berkeley School of Law, February, 2009.

Mirrison & Foerster LLP Lunch Seminar, San Francisco, November 2008.

Joint Seminar in IO and Innovation, Department of Economics and School of  
Business at UC Berkeley, Berkeley, September 2008.

Environment & Resource Economics Seminar, Department of Agricultural and  
Resource Economics at UC Berkeley, Berkeley, September 2008.

## **OTHER INFORMATION**

***Affiliation:*** American Economic Association  
Agricultural and Applied Economics Association  
The Society for Empirical Legal Studies  
Chinese Economists Society

***Languages:*** English (fluent), Chinese (native)

***Citizenship:*** China