

# NANO KOREA 2020

## July 1~3, KINTEX, Korea

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### Jae Sung Lee

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### **EDUCATION**

Stanford University	Ph.D	Chemical Engineering	1984
Korea Advanced Institute of Science	MS	Chemical Engineering	1977
Seoul National University,	BS	Chemical Engineering	1975

### **PROFESSIONAL ACTIVITIES**

2013- Present	Professor, School of Energy and Chemical Engineering, UNIST
1986-2013	Assistant, Associate & Full Professor, Department of Chemical Engineering, Pohang University of Science & Technology (POSTECH)
1984-1986	Research Fellow, Catalytic Associates, Inc., Mountain View, California
2006-2007	Visiting Professor, Department of Chemical Engineering, Korea University
1993-1994	Visiting Professor, Department of Chemical Engineering, Yale University
1975-1980	Process Engineer, Sam Sung Petrochemical Co. Ulsan

Editorial Advisory Board of International Journals: Journal of Catalysis (Elsevier, 2007 - Current), Catalysis Letters (Baltzer Science, 2000 - Current), Topics in Catalysis (Baltzer Science, 2000 - Current), CATTECH (Kluwer 2001 - 2005), Applied Catalysis A: General (Elsevier, 2004 - 2008), Journal of Molecular Catalysis A: Chemical (Elsevier, 2004 -), Open Catalysis Journal (2009 - Current), Catalysis for Sustainable Energy (2012)

### Member of Academic Societies

- President of Korean Association of Photo Science (KAPS).
- Treasurer of Asian Pacific Association of Catalysis Societies (APACS)
- Member of American Chemical Society (ACS): North American Catalysis Society (NACS): Materials Research Society (MRS): Korean Institute of Chemical Engineering (KIChE): Korean Institute of Industrial Chemistry (KIIC): Korean Chemical Society (KCS):

### **AWARD AND HONORS**

2005-present	Full Member, Korean Academy of Engineers
2004	Green Energy Awards (Korean Institute of Energy Engineering)
2007	Thompson Top Citation Awards (Thompson Reuters)

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- 2010 Yeosan Catalytic Science Awards (KIChE)
- 2004 Top 30 Research Projects for Excellent Performance in 2004 (KOSEF)
- 2007 Top 50 Research Projects for Excellent Performance in 2007 (MOST)
- 2011 Certificate of Excellent Basic Research (MEST)
- 2012 Excellency Award in Government Sponsored Researches (National Sci & Tech Council)
- 2013 Best Review Award (Energies)

### **MAIN SCIENTIFIC PUBLICATION**

Total ~450 SCI journal papers; ~100 Korean and International Patents; ~ 20000 times citations, 76 of H-index based on Web of Science

### **(Selected Publications)**

1. J.H. Kim, J.H. Kim, J.Y. Kim, S.H. Choi, G. Magesh, J.S. Lee, "Awakening Solar Water Splitting Activity of ZnFe<sub>2</sub>O<sub>4</sub> Nanorods by Hybrid Microwave Annealing", *Adv. Energy Mater.* 5, 1401933 (2015)
2. W.J. Jo, H.J. Kang, K.-J. Kong, H. Park, Y.H. Lee, J.S. Lee, "Phase Transition Induced Band Edge Engineering of Bi<sub>1-x</sub>In<sub>x</sub>V<sub>1-x</sub>Mo<sub>x</sub>O<sub>4</sub> to Split Pure Water under Visible Light" *Proc. Nat. Acad. Sci. USA* 112, 13774-13778 (2015)
3. J.H. Kim, Y. Jo, J.W. Jang, H.J. Kang, Y.H. Lee, D.S. Kim, Y. Jun, and J.S. Lee, "Wireless Solar Water Splitting Device with Robust Cobalt-catalyzed, Dual-doped BiVO<sub>4</sub> Photoanode and Perovskite Solar Cell in Tandem: A Dual Absorber Artificial Leaf", *ACS Nano.* 9, 11820–11829 (2015)
4. Y.J. Jang, J.W. Jang, J. Lee, J.H. Kim, S. Cho, H. Kumagai, T. Minegishi, J. Kubota, K. Domen, and J.S. Lee, "Selective CO Production by Au Coupled ZnTe/ZnO in the Photoelectrochemical CO<sub>2</sub> System", *Energy Env. Sci.* 8, 3597-3604 (2015).
5. J. H. Kim, J.-W. Jang, Y.H. Jo, F.F. Abdi, Y.H. Lee, R. van de Krol, J.S. Lee, "Hetero-type dual photoanodes for unbiased solar water splitting with extended light harvesting" *Nat. Commun.* 7, 13380 (2016)
6. M.A.R. Anjum, H.Y. Jeong, M.H. Lee, H.S. Shin, J.S. Lee, "Efficient Hydrogen Evolution Reaction Catalysis in Alkaline Media by All-in-One MoS<sub>2</sub> with Multifunctional Active Sites", *Adv. Mater.* 30(20) 1707105 (2018)
7. L. Pan, J.H. Kim, M.T. Mayer, M.-K. Son, A. Ummadisingu, J.S. Lee, A. Hagfeldt, J. Luo, and M. Grätzel, "Boosting the Performance of Cu<sub>2</sub>O Photocathodes for Unassisted Solar Water Splitting", *Nat. Catal.* 1, 412-420 (2018)
8. Y.J. Jang, M.D. Bhatt, J. Lee, S.H. Choi, B. Lee, J.S. Lee, "Metal-Free Artificial Photosynthesis of Carbon Monoxide Using N-doped ZnTe Nanorod Photocathode and N-doped Carbon Electrocatalyst" *Adv. Energy Mater.* 8 (20), 1702636 (2018)
9. J.H. Kim, J.S. Lee, "Elaborately Modified BiVO<sub>4</sub> Photoanodes for Solar Water Splitting" *Adv. Mater.* 31(20) 1806938 (2019)
10. J.H. Kim, D. Hansora, P. Sharma, J.-W. Jang, J.S. Lee, "Toward practical solar hydrogen production – An artificial leaf-to-farm challenge", *Chem. Soc. Rev.* 48, 1908-1971 (2019)

### **RESEARCH INTERESTS**

1. Photocatalytic water splitting for solar hydrogen and fuels
2. Materials and electrocatalysis for low temperature fuel cells.
3. Catalysis for energy and environment