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Key Words

Surface chemistry, environmental chemistry, heterogeneous catalysis, thin films

Research Area

My group works in a variety of research field related to surface and interface chemistry. Using thin films technologies, surface of nanostructures is modified and these structures are used as catalysts or adsorbents for efficient removal of pollutant from the wastewater and air. Thin films of hydrophobic polymers can be deposited on nanostructures to fabricate superhydrophobic surfaces with additional functionalities such as optical transparence and electronic conductivity. My group is also active in the field of fundamental surface physical chemistry. Currently, oxidation of organic semiconductive polymer is of our interest, which can be studied using photoelectron spectroscopy and other analysis techniques. My group also works on size-selected clusters within international cooperation with the University of Konstanz in Germany.

Education

- 2000 PhD Freie Universität Berlin, Germany
- 1997 MSc Sungkyunkwan University, Korea
- 1995 BSc Sungkyunkwan University, Korea

Experience

- 2006 JAN –- 2007 AUG Assistant professor, Ewha Womans University
- 2002 Sep – 2006 Feb Group Leader, Konstanz University, Germany
- 2001 Jan – 2002 Sep Postdoc Fellow, Texas A&M University, USA

Position

- 2007 SEP-2011-MAR Assistant professor, Sungkyunkwan University, Korea
- 2011 Apr – Present Associate Professor, Sungkyunkwan University, Korea

Selected Publication

- "Emissive nanoclusters based on sub-nm-sized Au_{38} cores for boosting the performance of inverted organic photovoltaic cells", Adv. Energy Mater. 2015, 5, 1-7
- "Towards fabrication of high-performing organic photovoltaics: new donor-polymer, atomic layer deposited thin buffer layer and plasmonic effects", Energ. Environ. Sci. 2012, 5, 980-98074
- "Multifunctional SWCNT-ZnO nanocomposites for enhancing performance and stability of organic solar cells", Adv. Mater. 2011, 23, 519-522
- "Patterning of self-assembled penta nanolayers cene by extreme ultraviolet-induced three-dimensional polymerization", ACS Nano 2010, 4,4997-5002
- "Size-selectivity of the oxidation behaviors of Au nanoparticles", Angew. Chem. Int. Ed. 2006, 45, 2413-2415
- "Anomalous behavior of atomic hydrogen interacting with gold clusters", J. Am. Chem. Soc. 2003, 126, 14205-14209
- "Direct observation of key reaction intermediates on gold catalysts", J. Am. Chem. Soc. 2003, 125, 2848-2849
- "Atomic-scale structure and catalytic reactivity of the RuO_2(110) surface", Science, 2000, 287, 1474-1476

Others