

## Synthesis and Characterization of Inorganic Semiconductor Nanomaterials for Spin-/Opto-electronics

양지웅<sup>1,2</sup>, 현택환<sup>1,2,†</sup>

<sup>1</sup>서울대학교; <sup>2</sup>Institute for Basic Science (IBS)

(thyeon@snu.ac.kr<sup>†</sup>)

Semiconductor nanomaterials have unique magnetic, optical, and electronic properties which cannot be achieved by their bulk counterparts. This leads to tremendous attraction for the research on the nanoscale materials for spin-/opto-electronics. Here, synthesis and characterization of inorganic semiconductor quantum nanostructures for spin-/opto-electronics will be described. First, Mn<sup>2+</sup>-doped CdSe clusters, which form the ultra-small sized diluted magnetic semiconductors, will be discussed.[1-4] Second, our recent studies on optoelectronic devices (solar cells[5,6] and light-emitting diodes[7,8]) using quantum dots will be discussed.

References: [1] J. Lee\*, J. Yang\* et al. Nature Rev. Mater. 2016, 1, 16034.(\*co-first) [2] J. Yang et al. J. Am. Chem. Soc. 2015, 137, 12776. [3] F. Muckel\*, J. Yang\* et al. ACS Nano 2016, 10, 7135.(\*co-first) [4] J. Yang et al. Chem. Mater. 2013, 25, 1190. [5] J.-Y. Kim\*, J. Yang\* et al. ACS Nano 2015, 9, 11286.(\*co-first) [6] J. Yang et al. Phys. Chem. Chem. Phys. 2013, 15, 20517. [7] M. K. Choi\*, J. Yang\* et al. Nature Comm. 2015, 6, 7149.(\*co-first) [8] J. Yang et al. Adv. Mater. 2016, 28, 1176.