

# Ha-Yong Kim Master Course

**Solar Cell & Aerosol Science Laboratory**  
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## Career

Oct. 2006 ~ Jan. 2014.

AP Pacific satellite communication Inc.  
Quality Assurance Team Manager.

### Major Career

- Planning and progress of reliability test
- Progress incoming / outgoing / buyer inspection
- Acquisition ISO 14001/9001 and RoHS item management

Mar. 2005 ~ Oct. 2006.

Korea Electronics Technology Institute.  
Business Support Department

### Major Career

- Small / Medium Business Management in charge of administrative tasks
- Start-up support management, Research equipment leasing management

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## RESEARCH INTERESTS

- **Water splitting application:** BiVO<sub>4</sub>, WO<sub>3</sub>, WO<sub>3</sub>/BiVO<sub>4</sub>, TiO<sub>2</sub>, Ag-ZnO, CIGS, CuO
- **Solar cell application:** Nano-particle(CIGS) coating Thin film, Solution-type(CIS/CIGS) coating Thin film Solar cell(II-Gen.), CIS 3-D nanostructure
- **Superhydrophobic thin film application**
- **Titanium dioxide(TiO<sub>2</sub>) thin-films coating applications:** Antibacterial activity, Water purification, Self-cleaning, Dye-Sensitized Solar cell(III-Gen.)
- **Electrohydrodynamics spray coating for thin-film applications**
- **Electro-spinning for nano-fiber applications**

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## EDUCATION

- **Master of Science** in Mechanical Engineering, Feb. 2016 (4.17/4.5)  
Korea University, Seoul, Korea  
Thesis: Experimental Study on Superhydrophobic Organosilane-coated Alumina particles Thin-Film via Electrostatic Spray Deposition.  
Advisor : Prof. Sam Suk Goo Yoon
  - **Bachelor of Science** in Computer science, Feb. 2004 (3.6/4.5)  
Kunyang University, Chung-nam, Korea
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1. Hyun Yoon<sup>1</sup>, **Hayong Kim**<sup>1</sup>, Do–Yeon Kim, Jong–Gun Lee, Bhavana N. Joshi , Seongpil An, Hong Seok Jo, Jeehoon Choi, Salem S. Al–Deyab, Alexander L. Yarin\*, Sam S. Yoon\*, Water cooling enhancement by means of nano–textured copper, silver, and graphene surfaces, Lab on a chip(SCI, IF=6.115), **submitted**
2. Hyun Yoon<sup>1</sup>, **Ha Yong Kim**<sup>1</sup>, Sanjay S. Latthe, Min Woo Kim, Salem S. Al–Deyab, Sam S. Yoon\*, A Highly Transparent Self–Cleaning Superhydrophobic Surface by organosilane–coated alumina particles deposited via electrospraying, Journal of Materials Chemistry A (SCI, IF=7.443), 3(21), 11403–11410, Apr. 2015
3. Santosh S. Patil, Mukund G. Mali, Mohaseen S. Tamboli, Deepak R. Patil, Milind V. Kulkarni, Hyun Yoon, **Ha–Yong Kim**, Salem S. Al–Deyab, Sam S. Yoon\*, Sanjay S. Kolekar\*\*, Bharat B. Kale\*\*\*, Green Approach for Hierarchical Nanostructured Ag–ZnO and their Photocatalytic Performance under Sunlight, Catalysis Today(SCI, IF=3.893), 260, 126–134, Feb. 2016
4. Hyun Yoon<sup>1</sup>, Mukund G. Mali<sup>1</sup>, **Hayong Kim**, Salem S. Al–Deyab, Sam S. Yoon\*, Efficient Water Purification by Photocatalysis and Rapid Adsorption of Dip–coated Metal Foam with Nanostructured Bismuth Vanadate, Journal of the American Ceramic Society (SCI, IF=2.610), **published online**, Oct. 2015
5. Hyun Yoon<sup>1</sup>, Min–woo Kim<sup>1</sup>, **Ha Yong Kim**, Salem S. Al–Deyab, Scott C. James, SeJin Ahn\*, Sam S. Yoon\*, Three Dimensional Web–like Fibrous CuInS<sub>2</sub> Films, Applied surface science (SCI, IF=2.711), 351, 588–593, Oct. 2015
6. Mukund G. Mali<sup>1</sup>, Hyun Yoon<sup>1</sup>, **Hayong Kim**, Bhavana Joshi, Salem S. Al–Deyab, Sam S. Yoon\*, Chemical–bath–deposited indium oxide microcubes for solar water splitting, ChemPhysChem (SCI, IF=3.419), Nov. 2015
7. Bhavana Joshi<sup>1</sup>, Hyun Yoon<sup>1</sup>, **Hayong Kim**, Min–woo Kim, Mukund G. Mali, Salem S. Al–Deyab, Sam S. Yoon\*, Heterojunction photoanodes for solar water splitting using chemical–bath–deposited In<sub>2</sub>O<sub>3</sub> micro–cubes and electro–sprayed Bi<sub>2</sub>WO<sub>6</sub> textured nanopillars, RSC Advances(SCIE, IF=3.840), 5, 85323–85328, Sep. 2015
8. Mukund G. Mali<sup>1</sup>, Hyun Yoon<sup>1</sup>, Seongpil An, Jae–Young Choi, **Ha Yong Kim**, Byung Cheol Lee, Byung Nam Kim, Ji Hyun Park, Salem S. Al–Deyab, Sam S. Yoon\*, Enhanced solar water splitting of electron beam irradiated titania photoanode by electrostatic spray deposition, Applied surface science (SCI, IF=2.711), 319, 205–210, Nov. 2014
9. Hyun Yoon, Seung–Heon Na, Jae Young Choi, Min Woo Kim, **Ha Yong Kim**, Hui Sang

Ahn, Byoung Koun Min, SeJin Ahn, Jae Ho Yun, Jihye Gwak, KyungHoon Yoon, Sanjay S. Kolekard, Maikel F.A.M.van Hest, Salem S. Al-Deyab, Mark T. Swihart, Sam S. Yoon\*, Carbon- and Oxygen-Free Cu(InGa)(SSe)<sub>2</sub> Solar Cell with a 4.63% Conversion Efficiency by Electrostatic Spray Deposition, ACS Applied Materials and Interfaces (SCI,IF=6.723), 6(11), 8369–8377, Apr. 2014

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### Proceeding/Conference Papers

1. Hyun Yoon, Seongpil An, Min Woo Kim, **Ha Yong Kim**, and Sam S. Yoon\*, Optical and Electrical Properties of Electrospun CIS Nanofibers of 3D Network, The 6<sup>th</sup> World Conference on Photovoltaic Energy Conversion (WCPEC-6), Kyoto, Japan, Nov. 23–27, 2014(poster)
  2. Hyun Yoon, Jae-Young Choi, Min Woo Kim, **Ha Yong Kim**, SeJin Ahn, Jae Ho Yun, Jihye Gwak, KyungHoon Yoon, Sam S. Yoon\*, CuInS<sub>2</sub> Nanofibers of 3D Nanostructure by Electrospinning for Efficient Thin Film Solar Cell via Enhanced Light Diffusion, Charge Separation and Transfer, Korea Photovoltaic Society (KPVS 2014), Daegu, Korea April 2–3, 2014(poster)
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### FUND GRANTS

1. BK21 2014.9–2015.8
  2. Research Assistant, 2014 Fall Semester / 2015 Spring Semester
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### FUND GRANTS

- Technique : SEM (Scanning electron microscopy), EDX (Energy dispersive x-ray spectroscopy), AFM (Atomic force microscopy), XRD (X-ray diffraction), XPS (X-ray photoelectron spectroscopy), Raman spectroscopy, UV-VIS spectrometer, Optical surface profiler, Fluidic properties (Viscosity, electrical conductivity, surface tension, dielectric constant)
  - Device fabrication : Electrospinning/electrospray device, Electroplating device, Water contact angle measurement device
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### REFERENCE

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