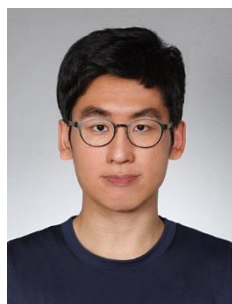


# YONG IL KIM

## MASTER COURSE



### *Solar Cell & Aerosol Science Laboratory*

School of Mechanical Engineering

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## RESEARCH INTERESTS

- Electrohydrodynamics (electrospinning/electrospray applications)
- Nanofibers (polymer, metal, and ceramic)
- Membrane (water/oil separation, water purification, and biocompatible anti-fungal membrane)
- Photocatalysis applications (water purification, water splitting, and anti-microbial activity)
- Heat transfer applications (air cooling layer, pool boiling, and transparent heater film)
- Self-healing composites
- Metal-organic frameworks (MOFs)
- Transparent conductive electrodes (TCEs)
- Supersonic gas flow
- Secondary batteries (Li-ion battery, supercapacitor)

## EDUCATION

- Master course in Mechanical Engineering, (4.13/4.5)  
Korea University, Seoul, Korea  
Advisor: Prof. Sam S. Yoon
- Bachelor of Science in Mechanical Engineering, Aug. 2015 (3.00/4.5)  
Korea University, Seoul, Korea  
Advisor: Prof. Sam S. Yoon  
Senior Dissertation: Experimental study of nano-textured Cu<sub>2</sub>O nanofiber film for efficient air cooling

## EMPLOYMENT

- 2016/Sep. to 2016/Dec.: Teaching Assistant, School of Mechanical Engineering, Korea University, Creativity in machine design: capstone design.

- 2017/Mar. to 2017/June.: Teaching Assistant, School of Mechanical Engineering, Korea University, Fluid mechanics I.

## PUBLICATIONS (†equal contribution, \*corresponding author)

### International Journal Papers (0 published, 5 submitted)

1. S An, HS Jo, YI Kim, KY Song, MW Kim, KB Lee, AL Yarin\*, SS Yoon\*, Bio-inspired colorful, flexible, defrostable light-scattering hybrid films for effective distribution of LED light, Nanoscale (IF=7.760), **In revision**.
2. S An†, YI Kim†, HS Jo, MT Swihart, AL Yarin\*, SS Yoon\*, Oxidation-resistant metallized nanofibers as transparent conducting films and heaters, ACS Applied Materials & Interfaces (IF=7.145), **Submitted**.
3. HS Jo†, S An†, XH Nguyen, YI Kim, SC James, J Choi\*, SS Yoon\*, Modifying capillary pressure and boiling regime of micro-porous wicks textured with graphene oxide, Applied Thermal Engineering (IF=3.043), **Submitted**.
4. EP Samuel†, HS Jo†, BH Joshi, HG Park, YI Kim, S An, MT Swihart, JM Yun, KH Kim\*, SS Yoon\*, High-performance supercapacitors using flexible and freestanding MnO<sub>x</sub>/carbamide carbon nanofibers, Applied Surface Science (IF=3.150), **Submitted**.
5. EP Samuel†, BH Joshi†, HS Jo, YI Kim, S An, MT Swihart, JM Yun, KH Kim\*, SS Yoon\*, Carbon nanofibers decorated with FeO<sub>x</sub> nanoparticles as a flexible electrode material for symmetric supercapacitors, Chemical Engineering Journal (IF=5.310), **Submitted**.
6. HS Jo†, MW Kim†, K Kim, S An, YI Kim, SC James, J Choi\*, SS Yoon\*, Effects of Capillarity on Pool Boiling Using Nanotextured Surfaces through Electrospayed BiVO<sub>4</sub> Nanopillars, Chemical Engineering Science (IF=2.750), Accepted.
7. S An†, YI Kim†, S Sinha-Ray, MW Kim, HS Jo, AL Yarin\*, SS Yoon\*, Platinum nanofibers via electrospinning, solution blowing, and electroplating, Nanoscale (IF=7.760), Accepted.
8. S An†, BN Joshi†, JG Lee†, MW Lee, YI Kim, MW Kim, HS Jo, SS Yoon\*, A Comprehensive Review on Wettability, Desalination, and Purification of Graphene at Water Interfaces, Catalysis Today (IF=4.312), Accepted.
9. EP Samuel†, HS Jo†, BN Joshi, S An, HG Park, YI Kim, WY Yoon\*, SS Yoon\*, Decoration of MnO nanocrystals on flexible freestanding carbon nanofibers for lithium ion battery anodes, Electrochimica Acta (IF=4.803), 231, 582-589, 2017.
10. BN Joshi†, S An†, YI Kim, EP Samuel, KY Song, IW Seong, SS Al-Deyab, MT Swihart, WY Yoon\*, SS Yoon\*, Flexible freestanding Fe<sub>2</sub>O<sub>3</sub>-SnO<sub>x</sub>-carbon nanofiber composites for Li ion battery anodes, Journal of Alloys and Compounds (IF=3.014), 700, 259-266, 2017.

### Conference Papers

1. YI Kim, S An, HS Jo, SS Yoon\*, Novel platinum nanofibers via electrospinning and electroplating techniques, Global Photovoltaic Conference (GPVC), Gwangju, Republic of Korea, Mar. 15 – 17, 2017.

2. **YI Kim**, HG Park, HS Jo, S An\*, Novel core-shell copper-silver microfibers based on electrospun polymer nanofibers, *International Conference on Mechanical Design and Engineering, (ICMDE)*, Hong Kong, Jan. 20 – 22, 2017.

#### Patents (6 applied, 4 registered)

1. SG Yoon, S An, HS Jo, **YI Kim**, *Light-scattering plate for LED light and method of manufacturing the same*, 10-2017-0017971 (applied).

#### SKILLS

- **Technique:** SEM (scanning electron microscopy), EDX (energy dispersive x-ray spectroscopy), TEM (transmission electron microscopy), AFM (atomic force microscopy), XRD (X-ray diffraction), XPS (X-ray photoelectron spectroscopy), FTIR (Fourier transform infrared spectroscopy), Raman spectroscopy, UV-VIS spectrometer, DSC (Differential scanning calorimetry), TGA (thermogravimetric analysis), 4-point probe station, Optical surface profiler, Fluidic properties (viscosity, electrical conductivity, surface tension, dielectric constant)
- **Device fabrication:** electrospinning/electrospray device, electroplating device, supersonic flow nozzle, water contact angle measurement device
- **Design software program:** CATIA, Pro Engineering, AUTO CAD

#### REFERENCE

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