

KYO YONG SONG

Master of Science in Mechanical Engineering



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RESEARCH INTERESTS

- Electrohydrodynamics (electrospinning/electrospray applications)
- Heat transfer applications using air cooling layers and pool boiling system
- Self-healing of fiber-reinforced polymer composite (FRPC)
- Membrane (Water purification, and biocompatible anti-fungal membrane)
- Metal-organic frameworks (MOFs) and Transparent conductive film(TCF)
- Li-ion battery (Anode materials)

EDUCATION

- Master of Science in Mechanical Engineering (4.06/4.5)
Korea University, Seoul, Korea
Advisor: Prof. Sam S. Yoon
- Bachelor of Science in Mechanical Engineering, Feb. 2015 (3.65/4.5)
Seoul National University of Science and Technology, Seoul, Korea
Advisor: Prof. Jeong yup Kim

EMPLOYMENT

- 2016/Jan. to 2016/June: Teaching Assistant, School of Mechanical Engineering, *Korea University*, Manufacturing Process.
- 2015/Sep. to 2015/Dec.: Teaching Assistant, School of Mechanical Engineering, *Korea University*, Creative Design.

PUBLICATIONS (*corresponding author, †equal contribution)

International Journal Papers

1. S An[†], **KY Song**[†], YI Kim, HS Jo, MW Lee, AL Yarin*, SS Yoon*, Silver-decorated and palladium-coated copper-electroplated fibers derived from electrospun polymer nanofibers, *ACS Applied Materials & Interfaces* (IF=7.145), Submitted.
2. 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, *Advanced Functional Materials* (IF=11.382), Submitted.
3. JH Hong[†], S An[†], **KY Song**, SS Al-Deyab, AL Yarin*, JJ Kim*, SS Yoon*, Eco-friendly lignin nanofiber for wood protection against environmentally hazardous fungi attacks, *Environmental Science: Nano* (IF=5.896), Submitted.
4. BN Joshi[†], S An[†], YI Kim, EP Samuel, **KY Song**, IW Seong, SS Al-Deyab, MT Swihart, WY Yoon*, SS Yoon*, Flexible freestanding Fe₂O₃-SnO_x-carbon nanofiber composites for Li ion battery anodes, *Journal of Alloys and Compounds* (IF=3.014), Under revision.
5. S An[†], JH Hong[†], **KY Song**, MW Lee, SS Al-Deyab, JJ Kim, AL Yarin*, SS Yoon*, Prevention of mold invasion by biocompatible lignin/polycaprolactone nanofiber membranes for amelioration of public hygiene, *Cellulose* (IF=3.195), Online published.
6. BN Joshi[†], S An[†], HS Jo, **KY Song**, HG Park, S Hwang, WY Yoon, SS Al-Deyab, SS Yoon*, Flexible, Freestanding, and Binder-free SnO_x-ZnO/Carbon Nanofiber Composites for Lithium Ion Battery Anodes, *ACS Applied Materials & Interfaces* (IF=7.145), 8, 9446-9453, 2016.
7. MW Lee[†], S An[†], **KY Song**, BN Joshi, HS Jo, SS Al-Deyab, SS Yoon*, AL Yarin*, Polyacrylonitrile nanofibers with added zeolitic imidazolate frameworks (ZIF-7) to enhance mechanical and thermal stability, *Journal of Applied Physics* (IF=2.101), 118, 245307, 2015.
8. S An, HS Jo, **KY Song**, MG Mali, SS Al-Deyab, SS Yoon*, Electrically-charged recyclable graphene flakes entangled with electrospun nanofibers for the adsorption of organics for water purification, *Nanoscale* (IF=7.760), 7, 19170-19177, 2015.
9. S An[†], M Liou[†], **KY Song**, HS Jo, MW Lee, SS Al-Deyab, AL Yarin*, SS Yoon*, Highly flexible transparent self-healing composite based on electrospun core-shell nanofibers produced by coaxial electrospinning for anti-corrosion and electrical insulation, *Nanoscale* (IF=7.760), 7, 17778-17785, 2015.

Proceeding/Conference Papers

1. **KY Song**, JH Hong, S An*, Highly porous biocompatible lignin-based nanofiber membranes for enhanced indoor hygiene by prevention of mold invasion, *Tokyo International Conference on Engineering and Applied Sciences*, Aug. 14-15, 2016.
2. HS Jo, S An*, **KY Song**, HG Park, Efficient air cooling using optimized nano-textured surface comprised of copper oxide nanofibers, *5th Annual International Conference on Sustainable Energy and Environmental Sciences*, Singapore, Feb. 22-23, 2016.

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/DTG (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
- **Computational fluid dynamics code:** FLUENT
- **Design software program:** CATIA, UG NX, Pro engineering, AUTO CAD

REFERENCE

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