

SEONGPIL AN



Postdoctoral Research Associate

Multiscale Mechanics and Nanotechnology Laboratory
(Advisor: Distinguished Prof. Alexander L. Yarin)
Department of Mechanical and Industrial Engineering
University of Illinois at Chicago, Chicago, IL, USA

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Nationality: Republic of Korea

Date of birth: May 6, 1986

RESEARCH INTERESTS

Fundamentals and multidisciplinary applications of micro- and nanofibers:

- Electrohydrodynamic and aerodynamic fiber-forming techniques
(electrospinning, electrospraying, inkjet printing, solution blowing, and supersonic blowing)
- Viscoelastic polymeric materials
(mechanical, rheological and hyperelastic behaviors of polymer fibers)
- Metal-plated nanofibers
(transparent conducting electrodes, transparent heater, multi-functional sensor, endovascular coiling)
- Extrinsic self-healing materials (core-shell-structured vascular self-healing fibers)
- Bioinspired and environmentally friendly materials
(thorny devil nanofibers, biopolymer nanofibers, soft actuator for artificial muscle, *etc.*)
- Heat transfer applications (air cooling layer/film, pool boiling, and heat-pipe)
- Photocatalysis applications (water purification, water splitting, and anti-microbial films)
- Membranes (water/oil separation, water purification, and anti-fungal membranes)
- Secondary batteries (anode materials for Li-ion battery and electrodes for supercapacitor)
- Triboelectric/piezoelectric/flexoelectric nanogenerators

EDUCATION

- Doctor of Philosophy in Mechanical Engineering, Aug 25, 2017
Korea University, Seoul, Republic of Korea
Thesis: Performance enhancements of transparent conducting electrodes (TCEs) via electrospinning and electroplating methods
Advisor: Prof. Sam S. Yoon (Suk Goo Yoon)
- Bachelor of Science in Mechanical Engineering, Feb 25, 2012
Korea University, Seoul, Republic of Korea
Senior Dissertation: Experimental study on the dynamic characteristics of a hybrid ground source heat pump with heat build-up
Advisor: Prof. Yong-Chan Kim

EMPLOYMENT

- 2017/Aug to **present**: Postdoctoral Research Associate (funded from NASA grant, PI: Alexander L. Yarin)
University of Illinois at Chicago, Chicago, IL, USA.
- 2017/Aug: Research Specialist
University of Illinois at Chicago, Chicago, IL, USA.
- 2014/Sep to 2014/Dec: Teaching Assistant for ‘Dissertation guide for undergraduate’
School of Mechanical Engineering, *Korea University*, Seoul, Republic of Korea.
- 2015/Mar to 2018/Feb: Technical Research Personnel (Military Service), Republic of Korea
- 2012/Mar to 2014/Jun: Teaching Assistant for ‘Thermodynamics’
School of Mechanical Engineering, *Korea University*, Seoul, Republic of Korea.
- 2011/Sep to 2011/Dec: Undergraduate Tutor for ‘Air conditioning’
School of Mechanical Engineering, *Korea University*, Seoul, Republic of Korea.

AWARDS

- 2016 Achievement Award
Korea University, 2017/Feb.
- Scholarship for The Encouragements of Research, College of Engineering
Korea University, 2016/Aug.
- Scholarship for The Encouragements of Research, College of Engineering
Korea University, 2015/Aug.
- KAIST Jo Jeong-Hoon Scholarship
Korea Advanced Institute of Science and Technology (KAIST), 2013/May.
- Outstanding Graduate Student Award, School of Mechanical Engineering
Korea University, 2013/Mar.
- Best Poster Presentation Award
Global Photovoltaic Conference (GPVC), 2012/Nov.
- Outstanding Undergraduate Student Scholarship, School of Mechanical Engineering
Korea University, 2011-Fall.
- Outstanding Undergraduate Student Scholarship, School of Mechanical Engineering
Korea University, 2010-Spring.

PUBLICATIONS (Citations: 1202, h-index: 20 by Google scholar)

International peer-reviewed journal papers

※ †Equal contribution, *Corresponding author

————— 2019 (post-doc) —————

1. MW Kim†, **S An†**, H Seok, DH Park, SS Yoon*, AL Yarin*
“Platinum-plated polymer nanofibers for aneurysm embolization”
In preparation.
2. **S An†**, HS Jo†, AL Yarin*, SS Yoon*
“A review on transparent conductive nanotextured one-dimensional materials via electrospinning technique: percolative network based on intrinsic and extrinsic conductive nanofibers”
In preparation.

3. **S An**, G Li, AL Yarin*
“Nano-textured piezoelectric nanogenerator based on non-woven electrospun and solution-blown nanofibers”
In preparation.
4. **S An**, MW Kim, YI Kim, AL Yarin*, SS Yoon*
“Performance-enhanced nano-textured thermo-pneumatic soft actuator”
In preparation.
5. CS Ahn†, MW Kim†, **S An**, Y Yoon, AL Yarin*, SS Yoon*
“Large-scale solar energy-powered air plumes rising from black tethered balloons for pollutant removal”
In preparation.
6. **S An***, AL Yarin*, MT Swihart*, SS Yoon*
“A review on supersonic cold spraying for energy and environmental applications: Scalable solution-precursor coating technology for advanced materials”
Advanced Materials (IF:21.950), To be submitted.
7. AL Yarin*, A Sankaran, **S An**, B Pourdeyhimi
“Constitutive modeling of polymers accounting for their hyperelasticity, plasticity, creep and viscoelastic relaxation”
International Journal of Engineering Science (IF:7.023), Submitted.
8. HS Jo†, **S An**†, HJ Kwon, AL Yarin*, SS Yoon*
“Transparent body-attachable multifunctional pressure, thermal, and proximity sensor and heater”
ACS Applied Materials & Interfaces (IF:8.097), Submitted.
9. **S An**, AL Yarin*
“Mechanical behavior of sintered submicron glass fiber matrix”
Composites Part B: Engineering (IF:4.920), Under review.
10. MW Kim†, **S An**†, H Seok, SS Yoon*, AL Yarin*
“Electrostatic transparent air filter membranes comprising metalized microfibers for particulate removal”
ACS Applied Materials & Interfaces (IF:8.097), Under review.
11. YI Kim†, **S An**†, MW Kim, HS Jo, TG Kim, MT Swihart, AL Yarin*, SS Yoon*
“Highly transparent, conducting, body-attachable metalized fibers as a flexible and stretchable film”

Journal of Alloys and Compounds (IF:3.779), 790, 1127-1136, 2019.

12. DJ Kang[†], **S An**[†], AL Yarin*, S Anand*
 “Programmable soft robotics based on nano-textured thermo-responsive actuators”
Nanoscale (IF:7.233), 11, 2065-2070, 2019.
13. JH Hong[†], **S An**[†], KY Song, YI Kim, AL Yarin*, JJ Kim*, SS Yoon*
 “Eco-friendly lignin nanofiber mat for protection of wood against attacks by environmentally hazardous fungi”
Polymer Testing (IF:2.247), 74, 113-118, 2019.

2017 ~ 2018 (post-doc)

14. HS Jo[†], HJ Kwon[†], TG Kim, CW Park, **S An**, AL Yarin*, SS Yoon*
 “Wearable transparent thermal sensors and heaters based on metal-plated fibers and nanowires”
Nanoscale (IF=7.233), 10, 19825-19834, 2018.
15. **S An**, A Sankaran, AL Yarin*
 “Natural biopolymer-based triboelectric nanogenerators via fast, facile, scalable solution blowing”
ACS Applied Materials & Interfaces (IF:8.097), 10, 37749-37759, 2018.
16. HS Jo, MW Kim, TG Kim, **S An**, HG Park, JG Lee, SC James, J Choi*, SS Yoon*,
 “Supersonically spray-coated copper meshes as textured surface for pool boiling”
International Journal of Thermal Sciences (IF:3.361), 132, 26-33, 2018.
17. **S An**[†], DJ Kang[†], AL Yarin*
 “Blister-like soft nano-textured thermo-pneumatic actuator as an artificial muscle”
Nanoscale (IF:7.233), 10, 16591-16600, 2018.
18. **S An**, MW Lee, AL Yarin*, SS Yoon*
 “A review on corrosion-protective extrinsic self-healing: Comparison of microcapsule-based systems and those systems based on core-shell vascular networks”
Chemical Engineering Journal (IF:6.735), 344, 206-220, 2018.
19. MW Kim[†], **S An**[†], K Kim, TG Kim, HS Jo, DH Park*, SS Yoon*, AL Yarin*
 “Packing of metalized polymer nanofibers for aneurysm embolization”
Nanoscale (IF:7.233), 10, 6589-6601, 2018.
20. MW Lee, **S An**, YI Kim, SS Yoon*, AL Yarin*

- “Self-healing three-dimensional bulk materials based on core-shell nanofibers”
Chemical Engineering Journal (IF:6.735), 334, 1093-1100, 2018.
21. BN Joshi†, S Park†, EP Samuel†, HS Jo, **S An**, MW Kim, MT Swihart, JM Yun, KH Kim*, SS Yoon*
 “Zeolitic imidazolate framework-7 textile-derived nanocomposite fibers as freestanding supercapacitor electrodes”
Journal of Electroanalytical Chemistry (IF:3.235), 810, 239-247, 2018.
22. MW Lee, **S An**, SS Yoon*, AL Yarin*
 “Advances in self-healing materials based on vascular networks with mechanical self-repair characteristics”
Advances in Colloid and Interface Science (IF:7.346), 252, 21-37, 2018.
23. **S An**†, YI Kim†, HS Jo, MW Kim, MT Swihart, AL Yarin*, SS Yoon*
 “Oxidation-resistant metallized nanofibers as transparent conducting films and heaters”
Acta Materialia (IF:6.036), 143, 174-180, 2018.
24. HS Jo†, **S An**†, XH Nguyen, YI Kim, BH Bang, SC James, J Choi*, SS Yoon*
 “Modifying capillary pressure and boiling regime of micro-porous wicks textured with graphene oxide”
Applied Thermal Engineering (IF:3.771), 128, 1605-1610, 2018.
25. **S An**, YI Kim, JY Yoon, AL Yarin*, SS Yoon*
 “Wetting of inclined nano-textured surfaces by self-healing agents”
Applied Physics Letters (IF:3.495), 111, 234101, 2017.
26. **S An**†, YI Kim†, MW Lee, AL Yarin*, SS Yoon*
 “Wetting and coalescence of drops of self-healing agents on electrospun nanofiber mats”
Langmuir (IF:3.789), 33, 10663-10672, 2017.

2017 (PhD candidate)

27. EP Samuel†, HS Jo†, BN Joshi, HG Park, YI Kim, **S An**, MT Swihart, JM Yun, KH Kim*, SS Yoon*
 “High-performance supercapacitors using flexible and freestanding MnO_x/carbamide carbon nanofibers”
Applied Surface Science (IF:4.439), 423, 210-218, 2017.
28. EP Samuel†, BN Joshi†, HS Jo, YI Kim, **S An**, MT Swihart, JM Yun, KH Kim*, SS Yoon*
 “Carbon nanofibers decorated with FeO_x nanoparticles as a flexible electrode material for

- symmetric supercapacitors”
Chemical Engineering Journal (IF:6.735), 328, 776-784, 2017.
29. HS Jo†, MW Kim†, K Kim, ***S An***, YI Kim, SC James, J Choi*, SS Yoon*
“Effects of capillarity on pool boiling using nano-textured surfaces through electrospayed BiVO₄ nano-pillars”
Chemical Engineering Science (IF:3.306), 171, 360-367, 2017.
30. ***S An***†, YI Kim†, HS Jo, MW Kim, MW Lee, AL Yarin*, SS Yoon*
“Silver-decorated and palladium-coated copper-electroplated fibers derived from electrospun polymer nanofibers”
Chemical Engineering Journal (IF:6.735), 327, 336-342, 2017.
31. JG Lee†, BN Joshi†, EP Samuel, ***S An***, MT Swihart, JS Lee, YK Hwang, JS Chang*, SS Yoon*
“Supersonically sprayed gas- and water-sensing MIL-100(Fe) films”
Journal of Alloys and Compounds (IF:3.779), 722, 996-1001, 2017.
32. ***S An***†, BN Joshi†, JG Lee†, MW Lee, YI Kim, MW Kim, HS Jo, SS Yoon*
“A comprehensive review on wettability, desalination, and purification using graphene-based materials at water interfaces”
Catalysis Today (IF:4.667), 295, 14-25, 2017.
33. JG Lee†, ***S An***†, TG Kim, MW Kim, HS Jo, MT Swihart, AL Yarin*, SS Yoon*
“Self-cleaning anticondensing glass via supersonic spraying of silver nanowires, silica, and polystyrene nanoparticles”
ACS Applied Materials & Interfaces (IF:8.097), 9, 35325-35332, 2017.
34. HS Jo†, JG Lee†, ***S An***, TG Kim, SC James, J Choi*, SS Yoon*
“Supersonically sprayed, triangular copper lines for pool boiling enhancement”
International Journal of Heat and Mass Transfer (IF:3.891), 113, 210-216, 2017.
35. MW Lee, S Sett, ***S An***, SS Yoon*, AL Yarin*
“Self-healing nano-textured vascular-like materials: Mode I crack propagation”
ACS Applied Materials & Interfaces (IF:8.097), 9, 27223-27231, 2017.
36. ***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:7.233), 9, 9139-9147, 2017.

37. **S An**†, YI Kim†, S Sinha-Ray†, MW Kim, HS Jo, MT Swihart, AL Yarin*, SS Yoon*
“Facile processes for producing robust, transparent, conductive platinum nanofiber mats”
Nanoscale (IF:7.233), 9, 6076-6084, 2017.
38. JG Lee†, JH Lee†, **S An**, DY Kim, TG Kim, SS Al-Deyab, AL Yarin*, SS Yoon*
“Highly flexible, stretchable, wearable, patternable, transparent heaters on complex 3D surfaces formed from supersonically sprayed silver nanowires”
Journal of Materials Chemistry A (IF:9.931), 5, 6677-6685, 2017.
39. 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:3.779), 700, 259-266, 2017.
40. HS Jo†, **S An**†, HG Park, MW Kim, SS Al-Deyab, SC James, J Choi*, SS Yoon*
“Enhancement of critical heat flux and superheat through controlled wettability of cuprous-oxide fractal-like nanotextured surfaces in pool boiling”
International Journal of Heat and Mass Transfer (IF:3.891), 107, 105-111, 2017.
41. 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:5.116), 231, 582-589, 2017.
42. JG Lee†, JH Lee†, **S An**, JY Yoon, JW Choi, MG Kang, JI Lee, HE Song, SS Al-Deyab, SC James, Y Kang, D Kim SS Yoon*, HS Lee*
“Effects of impact conditions on the electrical and mechanical properties of supersonic cold sprayed Cu–Ni electrodes”
Journal of Alloys and Compounds (IF:3.779), 695, 3714-3721, 2017.
43. HS Jo†, **S An**†, JG Lee, HG Park, SS Al-Deyab, AL Yarin*, SS Yoon*
“Highly flexible, stretchable, patternable, transparent copper fiber heater on a complex 3D surface”
NPG Asia Materials (IF:7.208), 9, e347, 2017.
44. MW Kim†, H Yoon†, TY Ohm, HS Jo, **S An**, SK Choi, H Park, SS Al-Deyab, BK Min, MT Swihart, SS Yoon*
“Nanotextured cupric oxide nanofibers coated with atomic layer deposited ZnO-TiO₂ as highly efficient photocathodes”
Applied Catalysis B: Environmental (IF:11.698), 201, 479-485, 2017.

45. **S An**†, JH Hong†, KY Song, MW Lee, SS Al-Deyab, JJ Kim, AL Yarin*, SS Yoon*
 “Prevention of mold invasion by eco-friendly lignin/polycaprolactone nanofiber membranes for amelioration of public hygiene”
Cellulose (IF:3.809), 24, 951-965, 2017.
46. BN Joshi†, JG Lee†, **S An**, DY Kim, JS Lee, YK Hwang, JS Chang, SS Al-Deyab, JC Tan*, SS Yoon*
 “Tuning crystalline structure of zeolitic metal-organic frameworks by supersonic spraying of precursor nanoparticle suspensions”
Materials & Design (IF:4.525), 114, 416-423, 2017.

2016 (PhD candidate)

47. H Yoon†, MW Kim†, H Kim†, DY Kim, **S An**, JG Lee, BN Joshi, HS Jo, J Choi, SS Al-Deyab, AL Yarin*, SS Yoon*
 “Efficient heat removal via thorny devil nanofiber, silver nanowire, and graphene nanotextured surfaces”
International Journal of Heat and Mass Transfer (IF:3.891), 101, 198-204, 2016.
48. **S An**†, HS Jo†, DY Kim, HJ Lee, BK Ju, SS Al-Deyab, JH Ahn, Y Qin, MT Swihart, AL Yarin*, SS Yoon*
 “Self-junctioned copper nanofiber transparent flexible conducting film via electrospinning and electroplating”
Advanced Materials (IF:21.950), 28, 7149-7154, 2016.
49. **S An**†, JS Lee†, BN Joshi, HS Jo, K Titov, JS Chang, CH Jun, SS Al-Deyab, YK Hwang*, JC Tan*, SS Yoon*
 “Freestanding fiber mats of zeolitic imidazolate framework 7 via one-step, scalable electrospinning”
Journal of Applied Polymer Science (IF:1.901), 133, 43788, 2016.
50. **S An**†, DY Kim†, JG Lee, HS Jo, MW Kim, SS Al-Deyab, J Choi*, SS Yoon*
 “Supersonically sprayed reduced graphene oxide film to enhance critical heat flux in pool boiling”
International Journal of Heat and Mass Transfer (IF:3.891), 98, 124-130, 2016.
51. JG Lee†, DY Kim†, JH Lee, MW Kim, **S An**, HS Jo, C Nervi, SS Al-Deyab, MT Swihart, SS Yoon*
 “Scalable binder-free supersonic cold spraying of nanotextured cupric oxide (CuO) films as efficient photocathodes”

- ACS Applied Materials & Interfaces** (IF:8.097), 8, 15406-15414, 2016.
52. **S An**[†], MW Lee[†], HS Jo, SS Al-Deyab, SS Yoon*
 “Weaving nanofibers by altering counter-electrode electrostatic signals”
Journal of Aerosol Science (IF:2.281), 95, 67-72, 2016.
53. 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:8.097), 8, 9446-9453, 2016.
54. **S An**[†], HS Jo[†], SS Al-Deyab, AL Yarin*, SS Yoon*
 “Nano-textured copper oxide nanofibers for efficient air cooling”
Journal of Applied Physics (IF:2.176), 119, 065306, 2016.
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- 2015 (PhD candidate)**
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55. 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:2.176), 118, 245307, 2015.
56. **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:7.233), 7, 19170-19177, 2015.
57. **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:7.233), 7, 17778-17785, 2015.
58. S Liu*, X Liu, SS Latthe, L Gao, **S An**, SS Yoon
 “Self-cleaning transparent Superhydrophobic coatings through simple sol-gel processing of fluoroalkylsilane”
Applied Surface Science (IF:4.439), 351, 897-903, 2015.
59. MW Lee, **S An**, HS Jo, SS Yoon*, AL Yarin*
 “Self-healing nanofiber-reinforced polymer composites: 2. Delamination/debonding, and adhesive and cohesive properties”

- ACS Applied Materials & Interfaces* (IF:8.097), 7, 19555-19561, 2015.
60. MW Lee, **S An**, HS Jo, SS Yoon*, AL Yarin*
 “Self-healing nanofiber-reinforced polymer composites: 1. Tensile testing and recovery of mechanical properties”
ACS Applied Materials & Interfaces (IF:8.097), 7, 19546-19554, 2015.
61. MG Mali†, **S An**†, M Liou, SS Al-Deyab, SS Yoon*
 “Photoelectrochemical solar water splitting using electrospun TiO₂ nanofibers”
Applied Surface Science (IF:4.439), 328, 109-114, 2015.
62. HJ Lee, **S An**, JH Hwang, SG Jung, HS Jo, KN Kim, YS Shim, CH Park, SS Yoon, YW Park, BK Ju*
 “Novel composite layer based on electrospun polymer nanofibers for efficient light scattering”
ACS Applied Materials & Interfaces (IF:8.097), 7, 68-74, 2015.
-
- 2014 (PhD candidate)**
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63. **S An**†, MW Lee†, NY Kim, C Lee, SS Al-Deyab, SC James, SS Yoon*
 “Effect of viscosity, electrical conductivity, and surface tension on direct current-pulsed drop-on-demand electrohydrodynamic printing frequency”
Applied Physics Letters (IF:3.495), 105, 214102, 2014.
64. MG Mali†, H Yoon†, **S An**, JY Choi, HY Kim, BC Lee, BN Kim, JH Park, SS Al-Deyab, SS Yoon*
 “Enhanced solar water splitting of electron beam irradiated titania photoanode by electrostatic spray deposition”
Applied Surface Science (IF:4.439), 319, 205-210, 2014.
65. **S An**, C Lee, M Liou, HS Jo, JJ Park, AL Yarin*, SS Yoon*
 “Supersonically blown ultrathin thorny devil nanofibers for efficient air cooling”
ACS Applied Materials & Interfaces (IF:8.097), 6, 13657-13666, 2014.
66. MW Lee†, **S An**†, C Lee, M Liou, AL Yarin*, SS Yoon*
 “Hybrid self-healing matrix using core-shell nanofibers and capsuleless microdroplets”
ACS Applied Materials & Interfaces (IF:8.097), 6, 10461-10469, 2014.
67. MW Lee†, **S An**†, C Lee, M Liou, AL Yarin*, SS Yoon*
 “Self-healing transparent core-shell nanofiber coatings for anti-corrosive protection”
Journal of Materials Chemistry A (IF:9.931), 2, 7045-7053, 2014.

68. **S An**†, BN Joshi†, MW Lee, NY Kim, SS Yoon*
“Electrospun graphene-ZnO nanofiber mats for photocatalysis applications”
Applied Surface Science (IF:4.439), 294, 24-28, 2014.
69. **S An**†, MW Lee†, BN Joshi, A Jo, J Jung, SS Yoon*
“Water purification and toxicity control of chlorophenols by 3D nanofiber membranes decorated with photocatalytic titania nanoparticles”
Ceramics International (IF:3.057), 40, 3305-3313, 2014.

2013 (PhD candidate)

70. MW Lee†, **S An**†, SS Latthe, C Lee, S Hong, SS Yoon*
“Electrospun polystyrene nanofiber membrane with superhydrophobicity and superoleophilicity for selective separation of water and low viscous oil”
ACS Applied Materials & Interfaces (IF:8.097), 5, 10597-10604, 2013.
71. SS Latthe†, **S An**†, S Jin, SS Yoon*
“High energy electron beam irradiated TiO₂ photoanodes for improved water splitting”
Journal of Materials Chemistry A (IF:9.931), 1, 13567-13575, 2013.
72. S Sinha-Ray†, MW Lee†, S Singha-Ray, **S An**, B Pourdeyhimi, SS Yoon*, AL Yarin*,
“Supersonic nanoblowing: A new ultra-stiff phase of nylon 6 in 20-50 nm confinement”
Journal of Materials Chemistry C (IF:5.976), 1, 3491-3498, 2013.
73. Y Zhang†, MW Lee†, **S An**, S Sinha-Ray, S Khansari, BN Joshi, S Hong, JH Hong, JJ Kim, B Pourdeyhimi, SS Yoon*, AL Yarin*
“Antibacterial activity of photocatalytic electrospun titania nanofiber mats and solution-blown soy protein nanofiber mats decorated with silver nanoparticles”
Catalysis communications (IF:3.463), 34, 35-40, 2013.
74. MW Lee, **S An**, NY Kim, JY Huh, HY Kim, SS Yoon*
“Effects of pulsing frequency on characteristics of electrohydrodynamic inkjet using micro-Al and nano-Ag particles”
Experimental Thermal and Fluid Science (IF:3.204), 46, 103-110, 2013.
75. MW Lee, **S An**, BN Joshi, SS Latthe, SS Yoon*
“Highly efficient wettability control via three-dimensional (3D) suspension of titania nanoparticles to polystyrene nanofibers”
ACS Applied Materials & Interfaces (IF:8.097), 5, 1232-1239, 2013.

Books

1. AL Yarin, MW Lee, **S An**, SS Yoon
 “Self-Healing Nanotextured Vascular Engineering Materials”
Springer International Publishing, Chan, Switzerland, 2019.

Conference and workshop papers

※ †Equal contribution, *Corresponding author

1. **S An**
 “Soft Nano-textured thermo-pneumatic actuator for artificial muscle and robotic arm applications”
The Fourth UIC-KU Conference on Nano-textured Composite, Chicago, IL, USA, July 24, 2018.
2. **S An**, SS Yoon*
 “Enhanced pool boiling performance by supersonically sprayed rGO film”
10th International Conference on Computational Heat, Mass and Momentum Transfer (ICCHM²T), Seoul, Republic of Korea, May 28–Jun 1, 2017.
3. 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.
4. 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, China, Jan 20–22, 2017.
5. **S An**, HS Jo, SS Yoon*
 “Self-junctioned copper wires for high performance transparent conducting electrodes”
Korea Photovoltaic Society (KPVS), Osong, Republic of Korea, Oct 13–14, 2016.
6. 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, Tokyo, Japan, Aug 14–15, 2016.
7. SS Yoon*, AL Yarin, MW Lee, **S An**

- “Self-healing transparent core-shell nanofiber coatings for anti-corrosive protection”
Electrospin, Otranto, Italy, Jun 28–Jul 1, 2016.
8. **S An**
“Biocompatible electrospun nanofiber membranes for prevention of fungal invasion”
The Second UIC-KU Conference on Nano-textured Composite, Chicago, IL, USA, Apr 20–May 1, 2016.
9. 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.
10. **S An**, SS Yoon^{*}
“Self-junctioned copper nanofibers for transparent conducting electrodes via electrospinning and electroplating”
The 5th East Asia Mechanical and Aerospace Engineering Workshop, Seoul, Republic of Korea, May 28–30, 2015.
11. **S An**
“Self-junctioned Cu-plated wires for transparent conducting electrodes using electrospinning and electroplating”
The First UIC-KU Conference on Nano-textured Composite, Chicago, IL, USA, Apr 16–24, 2015.
12. H Yoon, JG Lee, **S An**, JY Choi, YH Cha, C Lee, SS Yoon^{*}
“Enhanced photodegradation performance of Nb doped ZnO thin films prepared by electrostatic spray deposition”
Electrochemical Conference on Energy & the Environment, Shanghai, China, Mar 13–16, 2014.
13. HJ Lee, MW Lee, YW Park, **S An**, YY Yu, KB Choi, SS Yoon^{*}, BK Ju^{*}
“The effect of composite nanofiber layer base on polyacrylonitrile with SU-8 for light out coupling enhancement”
Solid state Surfaces and Interfaces, Smolenice Castle, Slovakia, Nov 25–28, 2013.
14. H Yoon, JY Choi, **S An**, SJ Ahn, JH Yun, J Gwak, KH Yoon, SS Yoon^{*}
“Copper-indium nanofibers nanotextured by electroplating”
Global Photovoltaic Conference (GPVC), Busan, Republic of Korea, Nov 23–26, 2013.

15. MW Lee, S Latthe, **S An**, SS Yoon*
 “Electrospun graphene-ZnO nanofibers for water splitting application”
The Korea Society of Mechanical Engineers (KSME) Spring Meeting, Fluid Mechanics
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 “Packing material for coil embolization, apparatus and method for manufacturing the same”
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5. SG Yoon, **S An**, HS Jo, YI Kim
 “Light-scattering plate for LED light and method of manufacturing the same”
10-1908218, Republic of Korea.
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10-1375996, Republic of Korea.
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RESEARCH GRANTS

※ As a participant

1. Stationary and swing-like pool boiling for microgravity applications for cooling of high-power microelectronics
National Aeronautics and Space Administration (NASA), USA, 2017 – 2021 (PI: AL Yarin).
2. In-depth study of mechanical behavior and constitutive modeling of fibers
Nonwoven Institute (NI), USA, 2017 – 2019 (PI: AL Yarin).
3. Ultra fast/high dense/super precise 3D multi-scale self-healing composite based on microcapsule/core-shell nanofiber/CNT
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4. Platinum nanofibers for endovascular treatment of cerebral aneurysm
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6. LED light with cooling rate of 0.1 kW/cm² using 3D nano-textured film

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 8. 3D nano-textured cooling film and self-junctioned flexible transparent conductive electrode using ultra-thin metal nanofibers
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 9. Transparent conducting electrodes via non-vacuum supersonic spraying method
Korea University Holdings, Republic of Korea, Mar–May 2015 (PI: SS Yoon).
 10. Micro-crack prevention nanotechnology via supersonic blown ultra-thin/ultra-light/transparent self-healing nanofibers
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 11. Self-healing core-shell nanofibers for composite materials
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 12. Electron-beam irradiated photocatalytic hybrid nanomaterials for water purification and solar water splitting hydrogen production applications
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 13. Thin-film coating and dot-patterning via electrohydrodynamics (EHD) inkjet printing technique for their uses in solar cell and electronics applications
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 14. 24hr/day working microbial solar cells
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 15. The fabrication of artificial spider-silk via E-beam
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- *Composites Part B: Engineering* (IF:4.920, ELSEVIER)
- *Renewable Energy* (IF:4.900, ELSEVIER)
- *Applied Surface Science* (IF:4.439, ELSEVIER)
- *Materials & Design* (IF:4.525, ELSEVIER)
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- *Polymers* (IF:2.935, MDPI)
 - ※ Reviewer board: https://www.mdpi.com/journal/polymers/submission_reviewers
- *Polymer Testing* (IF:2.247, ELSEVIER)
- *Micromachines* (IF:2.222, MDPI)
- *Materials Chemistry and Physics* (IF:2.210, ELSEVIER)
- *Journal of Mechanical Science and Technology* (IF:1.194, SPRINGER)

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Citations: 3599, h-index: 33 (by Google scholar)
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Citations: 1117, h-index: 21 (by Google scholar)