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Signature: 

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RESEARCH INTERESTS

- 4D flow MRI
- Cardiovascular disease
- Hemodynamics

EDUCATIONS

Integrated M.S./Ph.D. Course in Mechanical Engineering **Mar 2015 – Feb 2021**

Pohang University of Science and Technology, Pohang, Republic of Korea

Biofluid and Biomimetic Research Center, Advisor: Prof. Sang Joon Lee

B.S. In Mechanical Engineering **Mar 2011 – Feb 2015**

Pusan National University, Busan, Republic of Korea

WORK EXPERIENCES

Postdoctoral Fellow **Mar 2024 – Present**

Colorado University Anschutz Medical Campus, Aurora, CO, USA

Visiting Scholar **Apr 2023 – Feb 2024**

Colorado University Anschutz Medical Campus, Aurora, CO, USA

Postdoctoral Fellow **Oct 2022 – Feb 2024**

Department of Mechanical and Biomedical Engineering, Kangwon National University, Chuncheon, Republic of Korea

Postdoctoral Researcher **Sep 2021 – Sep 2022**

Daegu Gyeongbuk Medical Innovation Foundation (K-Medihub), Medical Device Development Center, Daegu, Republic of Korea

Postdoctoral Researcher **Feb 2021 – Aug 2021**

Pohang University of Science and Technology, Pohang, Republic of Korea

GRANTS

American Diabetes Association (Postdoctoral fellowship)

(24/04 – 27/03) Identification of subclinical cardiac remodeling in type 2 diabetes using CMR and 4D flow MRI techniques, Role: **PI**

Korea Health Industry Development Institute (Postdoctoral fellowship, ~75,000$/year)

(22/09 – 24/02) A development of an ex vivo-based valve flow analysis simulator on artificial prosthetic heart valve for transcatheter aortic valve implantation, Role: **PI**

AWARDS

益成 (Ik–sung) Scholarship, Pohang University of Science and Technology, 2020

5th KSME–SEMES Open Innovation Challenge Bronze Prize, The Korean Society of Mechanical Engineers, 2020

The Best Graduate Student Paper Award, Pohang Accelerator Laboratory, 2019

BK21 The Best Graduate Student Paper Award, Pohang University of Science and Technology, 2019

The Best Graduate Student Paper Award, The Korean Society of Visualization, 2017

PUBLICATIONS

JOURNAL PUBLICATIONS

 # indicates equally contributing first authors. * indicates the corresponding author(s).

First Authored Papers

1. **S. Park**, M. Kwon, H. Nam, and H. Huh*, "Interpolation time-optimized aortic pulse wave velocity estimation by 4D flow MRI", Scientific Reports, **13**, 16484 (2023); (2022 JCR IF: 4.9)
2. **S.H. Park**, and S.J. Lee*, "Thermoresponsive Al^{3+}–crosslinked poly(*N*–isopropylacrylamide)/alginate composite for green recovery of lithium from Li–spiked seawater", Green Energy and Environment **7**(2), 334–344 (2022); (2022 JCR IF: 13.3)
3. **S.H. Park#**, Y.-Z. Yan#, J. Kim, C.-S. Ha*, S.J. Lee*, "Rapid and selective adsorption of Li+ from concentrated seawater using repulsive force of Al^{3+}–crosslinked alginate composite incorporated with hydrogen manganese oxide", Hydrometallurgy **208**, 105812 (2022); (2022 JCR IF: 4.7)
4. **S.H. Park**, K. Kim*, "Microplastics induced developmental toxicity with microcirculation dysfunction in zebrafish embryos", Chemosphere **286**, 131868 (2022); (2022 JCR IF: 8.8)
5. **S.H. Park**, J.H. Park, J. Kim, and S.J. Lee*, "Simultaneous solar–driven seawater desalination and spontaneous power generation using polyvalent crosslinked polypyrrole/alginate hydrogels", Desalination **500**, 114900 (2021); (2022 JCR IF: 9.9)
6. **S.H. Park**, and S.J. Lee*, "Versatile amorphous structures of phosphonate metal–organic framework/alginate composite for tunable sieving of ions", Advanced Functional Materials **29**(42), 1904016 (2019); (2022 JCR IF: 19.9)
7. **S.H. Park**, and S.J. Lee*, "Advanced molecular interaction in Cu^{2+}–alginate beads with high M/G ratio for the intercalation of Li^{+} and Mg^{2+} ions", Journal of Molecular Structure **1187**, 172–178 (2019); (2022 JCR IF: 3.8)
8. **S.H. Park**, K. Kim, J.H. Lim, and S.J. Lee*, "Selective lithium and magnesium adsorption by phosphonate metal–organic framework–incorporated alginate hydrogel inspired from lithium adsorption characteristics of brown algae", Separation and Purification Technology **212**, 611–618 (2019); (2022 JCR IF: 8.6)

Contributing Authored Papers

1. J.W. Yang, K-I Song, J. Lee, **S. Park**, H. Huh, G. Choi, H.H. Shin, and H.J. Cha. "A Customizable Proteinic Bioadhesive Patch with Water-Switchable Underwater Adhesiveness, Adjustable Biodegradability, and Modifiable Stretchability for Healing Diverse Internal Wounds", *Advanced Materials*, 2310338 (2023) (2022 JCR IF: 29.4)
2. Y. Oh, C.M. Heo, S. Gwoo, H. Huh, **S. Park**, W. Heo. "Effect of flow reduction surgery in a patient with high flow arteriovenous fistula with aortic dissection using 4D flow magnetic resonance imaging: A case report" *The Journal of Vascular Access*, 11297298231209778 (2023) (2022 JCR IF: 1.9)
3. J. Kim, J.J. Kim, **S.H. Park**, and S.J. Lee. "Electric charge effect of micro-droplets generated by electrospray atomization on removal of indoor fine particulate matter" *Atmospheric Pollution Research*, 101711 (2023) (2022 JCR IF: 4.5)
4. H.W. Lim, **S.H. Park**, and S.J. Lee. "3D thermoresponsive hydrogel with enhanced water uptake and active evaporation for effective interfacial solar steam generation." *Desalination* **550**, 116368 (2023); (2022 JCR IF: 9.9)
5. N. Ha, J.Y. Park, **S.H. Park**, E.S. Seo, J.H. Lim and S.J. Lee*, "Domino-like water transport on Tillandsia through flexible trichome wings", New Phytologist **231**(5), 1906–1922 (2021); (2021 JCR IF: 9.4)
6. J.Y. Park, J.E. Ryu, **S.H. Park**, and S.J. Lee*, "Air spread through a wetted deformable membrane: Implications for the mechanism of soft valves in plants", Physical Review E **103**(6), 062407 (2021); (2021 JCR IF: 2.7)
7. J.H. Park, **S.H. Park**, J. Lee and S.J. Lee*, "Solar evaporation–based energy harvesting using a leaf–inspired energy–harvesting foam", ACS Sustainable Chemistry & Engineering **9**(14) 5027–5037 (2021); (2021 JCR IF: 9.2)
8. S.J. Lee*, H.W. Lim, and **S.H. Park**, "Adsorptive seawater desalination using MOF–incorporated Cu–alginate/PVA beads: Ion removal efficiency and durability" Chemosphere **268**, 128797 (2021); (2021 JCR IF: 8.9)
9. M. Bangeppagari, E. Seo, **S.H. Park**, R.R. Kundapur, S.J. Lee, "Pristine graphene and graphene oxide induce multi–organ defects in zebrafish (Danio rerio) larvae/juvenile: an in vivo study" Environmental Science and Pollution Research, 1–12 (2021); (2020 JCR IF: 4.2)
10. S.J. Lee*, T. Hann, and **S.H. Park**, "Seawater desalination using MOF–incorporated Cu–based alginate beads without energy consumption" ACS Applied Materials & Interfaces **12**(14) 16319–16326 (2020); (2020 JCR IF: 9.2)
11. B. Manjunatha, **S.H. Park**, R.R. Kundapur, and S.J. Lee*, "Graphene oxide induces cardiovascular defects in developing zebrafish (Danio rerio) embryo model: In–vivo toxicity assessment" Science of The Total Environment **673**, 810–820 (2019); (2020 JCR IF: 8.0)
12. B. Manjunatha, **S.H. Park**, K. Kim, R.R Kundapur, and S.J. Lee*, "*In vivo* toxicity evaluation of pristine graphene in developing zebrafish (Danio rerio) embryos" Environmental Science and Pollution Research **25**(13), 1–9 (2018); (2020 JCR IF: 4.2)
13. B. Manjunatha, **S.H. Park**, K. Kim, R.R. Kundapur, and S.J. Lee*, "Pristine graphene induces cardiovascular defects in zebrafish (Danio rerio) embryogenesis" Environmental Pollution **243**, 246–254 (2018); (2020 JCR IF: 8.1)
14. J. Lee, H.K. Huh, **S.H. Park**, S.J. Lee*, and J. Doh*, "Endothelial cell monolayer–based microfluidic systems mimicking complex in vivo microenvironments for the study of leukocyte dynamics in inflamed blood vessels" Methods in Cell Biology **146**, 23–42 (2018); (2019 JCR IF: 1.4)

15. K. Kim, H. Kim, **S.H. Park**, and S.J. Lee*, "Hydraulic strategy of cactus trichome for absorption and storage of water under arid environment" Frontiers in Plant Science 8, 1777 (2017); (2020 JCR IF: 5.8)
16. W.R. Choi, H.M. Kim, **S.H. Park**, E. Yeom, J. Doh, and S.J. Lee*, "Variation in wall shear stress in channel networks of zebrafish models" Journal of The Royal Society Interface **14**(127), 20160900 (2017); (2020 JCR IF: 4.7)
17. S.Y. Jung, H.W. Park, **S.H. Park**, and S.J. Lee*, "Synchrotron x–ray imaging of acoustic cavitation bubbles induced by acoustic excitation" Measurement Science and Technology **28**(4), 045301 (2017); (2020 JCR IF: 2.3)
18. W. Choi, **S.H. Park**, H.K. Huh, and S.J. Lee*, "Hemodynamic characteristics of flow around a deformable stenosis" Journal of Biomechanics **61**, 216–223 (2017); (2020 JCR IF: 2.7)

CONFERENCE PROCEEDINGS & PRESENTATIONS

International conferences

1. H. Huh, **S.H. Park**, Y. Ahn, H.J. Koo, D.H. Yang, "Quantitative and qualitative analysis of left ventricular remodeling after myocardial infarction: 4D flow MRI in a swine model", 2023 ISMRM & ISMRT Annual Meeting & Exhibition, Poster# 5242, Toronto, Canada, Jun 03–08, 2023
2. **S.H. Park**, S.J. Lee, "Green recovery of lithium from seawater by hydrophobic interaction of poly(*N*–isopropylacrylamide)/alginate composite", 73th APS DFD annual meeting, J13–5, Chicago, Illinois, USA, Nov 22–24, 2020 (Virtual)
3. **S.H. Park**, K.W. Kim, S.J. Lee, "A novel selective lithium separation using amorphous pMOF/alginate interfaces", 72th APS DFD annual meeting, A28–3, Seattle, Washington, USA, Nov 23–26, 2019
4. **S.H. Park**, and S.J. Lee, "Visualization of amorphous metal organic framework with tunable ion sieving", The 15th Asian Symposium on Visualization, Busan, Republic of Korea, Sep 25–28, 2019
5. **S.H. Park**, K.W. Kim, S.J. Lee, "Selective separation of lithium using brown algae–inspired alginate hydrogel incorporated with phosphonate metal organic framework", 71th APS DFD annual meeting, E24–4, Atlanta, Georgia, USA, Nov 18–20, 2018