

# Curriculum Vitae

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**JAE YOUNG KIM, Ph.D.**

## Personal Information

- Current position: **Research Professor** (2020. 10. 1. ~ )
- Affiliation: School of Electronic and Electrical Engineering, College of IT Engineering, Kyungpook National University, Daegu 41566, South Korea
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## Education

- August 2008 **Ph.D.** in Electronic Engineering, Kyungpook National University, Daegu, Korea.  
Thesis: *Luminous Efficiency Improvements of Wide-Gap AC Plasma Display Panel and DBD-Based Xe Lamp* (Advisor: Prof. Heung-Sik Tae)
- February 2004 **M.S.** in Electronic Engineering, Kyungpook National University, Daegu, Korea.  
Thesis: *Xe Content and Gas Pressure Dependence on Surface Type AC Positive Column Micro-Discharge* (in Korean Language; Advisor: Prof. Heung-Sik Tae)
- February 2002 **B.S.** in Electrical and Electronic Engineering, Kyungpook National University, Daegu, Korea.

## Research Interests

- General plasmas, discharge physics, and diverse applications of nonthermal plasmas
- Nanomaterial deposition and polymerization using atmospheric pressure & solution plasmas
- Decomposition of organic compounds using plasma-assisted advanced oxidation process (AOP)
- Electron, ion, and plasma sources / gaseous electronics / plasma medicine
- Displays, gas sensors, and water quality sensors

## Research Skill

- Design and building-up of high vacuum to atmospheric pressure plasma systems
- Diagnostic and characterization of plasmas and lasers

- Quantification of long-lived reactive species ( $\text{H}_2\text{O}_2$ ,  $\text{NO}_2^-$ ,  $\text{NO}_3^-$ ) generated by liquid–plasma interaction
- ICCD camera, optical emission/absorption spectra, UV–Vis, FE-SEM, AFM, FT-IR, Raman spectra

## Professional Experience

- October 2020 – present  
**Research Professor** of School of Electronic and Electrical Engineering, College of IT Engineering, Kyungpook National University, Daegu, Korea.
- May 2013 – September 2020 (7 yr 5 mo)  
**Research Professor & Research Fellow** of Department of New Biology and Department of Robotics Engineering at Daegu Gyeongbuk Institute of Science and Technology (DGIST), Daegu, Korea.
- May 2009 – March 2013 (3 yr 11 mo)  
**Postdoctoral Research Fellow** of Department of Electrical and Computer Engineering at Clemson University, SC, United States.
- March 2008 – February 2009 (1 yr)  
**Visiting Professor** of School of Electrical Engineering and Computer Science at Kyungpook National University, Daegu, Korea.
- February 2007 – October 2007 (9 mo)  
**Intern Researcher** (Graduate Research Fellow) at Mercury-Free BLU (Back Light Unit) Development Team in Samsung Corning Co. LTD., Asan, Korea.
- April 2006 – August 2006 (5 mo)  
**Intern Researcher** (Graduate Research Fellow) at Display 2 Team in Samsung SDI Co. LTD., Giheung, Korea.
- January 2005 – February 2006 (1 yr 2 mo)  
**Intern Researcher** (Graduate Research Fellow) at PDP Development Team in Samsung SDI Co. LTD., Cheonan, Korea.
- June 2002 – December 2002 (7 mo)  
**Adjunct Researcher** (Graduate Research Fellow) at Pohang Accelerator Laboratory, Pohang, Korea.
- March 2002 – August 2008 (6 yr 5 mo)  
**Graduate Research Assistant** at Kyungpook National University, Daegu, Korea.

## Journal Publications (SCIE)

1. Ye Rin Lee<sup>†</sup>, Do Yeob Kim<sup>†</sup>, **Jae Young Kim<sup>†</sup>**, Da Hye Lee, Gyu Tae Bae, Hyojun Jang, Joo Young Park, Sunghoon Jung, Eun Young Jung, Choon-Sang Park, Hyung-Kun Lee, and Heung-Sik Tae, "Effect of dielectric barrier on water activation and phosphorus compound digestion in gas–liquid discharges", *Nanomaterials*, **14**(1), 40, 2024. <https://doi.org/10.3390/nano14010040>
2. **Jae Young Kim**, Gyu Tae Bae, Ye Rin Lee, Sebinn Jang, Eun Young Jung, and Heung-Sik Tae, "Long and flexible atmospheric pressure plasma jet probes for operation in humid environments", *Journal of Vacuum Science & Technology A*, **41**(4), 043002, 2023. <https://doi.org/10.1116/6.0002710>
3. **Jae Young Kim**, Hyojun Jang, Ye Rin Lee, Kangmin Kim, Habeeb Olaitan Suleiman, Choon-Sang Park, Bhum Jae Shin, Eun Young Jung, and Heung-Sik Tae, "Nanostructured polyaniline films functionalized through auxiliary nitrogen addition in atmospheric pressure plasma polymerization", *Polymers*, **15**(7), 1626, 2023. <https://doi.org/10.3390/polym15071626>
4. Hyeong Jung Woo, Seung-Hoon Kim, Hyun Gyu Kang, Taehoon Kim, Sooyeol Kim, Jong Man Kim, **Jae Young Kim**, Seung Joon Lee, Young Zoon Kim, So Yeon Oh, Ji Hyae Lim, Hyun Mee Ryu, and Minseok S. Kim, "Lossless immunocytochemistry based on large-scale porous hydrogel pellicle for accurate rare cell analysis", *ACS Applied Materials & Interfaces*, **15**(12), 15059–15070, 2023. <https://doi.org/10.1021/acsami.2c18321>

5. Hyo Jun Jang, Bhum Jae Shin, Eun Young Jung, Gyu Tae Bae, **Jae Young Kim\***, and Heung-Sik Tae\*, "Polypyrrole film synthesis via solution plasma polymerization of liquid pyrrole", *Applied Surface Science*, **608**, 155129, 2023. <https://doi.org/10.1016/j.apsusc.2022.155129>
6. Gyu Tae Bae, Hyo Jun Jang, Eun Young Jung, Ye Rin Lee, Choon-Sang Park, **Jae Young Kim\***, and Heung-Sik Tae\*, "Development of an atmospheric pressure plasma jet device using four-bore tubing and its applications of in-liquid material decomposition and solution plasma polymerization", *Polymers*, **14**(22), 4917, 2022. <https://doi.org/10.3390/polym14224917>
7. Habeeb Olaitan Suleiman<sup>†</sup>, **Jae Young Kim<sup>†</sup>**, Hyo Jun Jang, Eun Young Jung, Muhan Choi, and Heung-Sik Tae, "Morphological and electrical properties of polythiophene nanostructured film synthesized using atmospheric pressure-plasma reactor with double V-shaped bare electrode", *ECS Journal of Solid State Science and Technology*, **11**(4), 064005, 2022. <https://doi.org/10.1149/2162-8777/ac7660>
8. Hyo Jun Jang<sup>†</sup>, **Jae Young Kim<sup>†</sup>**, Eun Young Jung, Muhan Choi, and Heung-Sik Tae, "Photoresist removal using reactive oxygen species produced by an atmospheric pressure plasma reactor", *ECS Journal of Solid State Science and Technology*, **11**(4), 045010, 2022. <https://doi.org/10.1149/2162-8777/ac62ef>
9. **Jae Young Kim**, Heejin Lim, and Dae Won Moon, "Mass spectrometry imaging of small molecules from live cells and tissues using nanomaterials", *Surface and Interface Analysis*, **54**(4), 381–388, 2022. <https://doi.org/10.1002/sia.7070>
10. **Jae Young Kim**, Hyo Jun Jang, Gyu Tae Bae, Choon-Sang Park, Eun Young Jung, and Heung-Sik Tae, "Improvement of nanostructured polythiophene film uniformity using a cruciform electrode and substrate rotation in atmospheric pressure plasma polymerization", *Nanomaterials*, **12**(1), 32, 2022. <https://doi.org/10.3390/nano12010032>
11. Gyu Tae Bae<sup>†</sup>, **Jae Young Kim<sup>†</sup>**, Do Yeob Kim, Eun Young Jung, Hyo Jun Jang, Choon-Sang Park, Hyeseung Jang, Dong Ho Lee, Hyung-Kun Lee, and Heung-Sik Tae, "Potential application of pin-to-liquid dielectric barrier discharge structure in decomposing aqueous phosphorus compounds for monitoring water quality", *Materials*, **14**(24), 7559, 2021. <https://doi.org/10.3390/ma14247559>
12. **Jae-Young Kim**, Hyo-Jun Jang, Eunyoung Jung, Gyutae Bae, Soonwon Lee, Choon-Sang Park, Bhumjae Shin, and Heung-Sik Tae, "Improvement of uniformity and electrical properties of poly-aniline nanocomposite film by addition of auxiliary gases during atmospheric pressure plasma polymerization", *Nanomaterials*, **11**(9), 2315, 2021. <https://doi.org/10.3390/nano11092315>
13. Choon-Sang Park, Do Yoeb Kim, Eun Young Jung, Hyo Jun Jang, Gyu Tae Bae, **Jae Yong Kim**, Bhum Jae Shin, Hyung-Kun Lee, and Heung-Sik Tae, "Ultrafast room temperature synthesis of porous polythiophene via atmospheric pressure plasma polymerization technique and its application to NO<sub>2</sub> gas sensors", *Polymers*, **13**(11), 1783, 2021. <https://doi.org/10.3390/polym13111783>
14. **Jae Yong Kim**, Shahzad Iqbal, Hyo Jun Jang, Eun Young Jung, Gyu Tae Bae, Choon-Sang Park, Bhum Jae Shin, and Heung-Sik Tae, "Transparent polyaniline thin film synthesized using a low-voltage-driven atmospheric pressure plasma reactor", *Materials*, **14**(5), 1278, 2021. (selected as a **Featured Paper**) <https://doi.org/10.3390/ma14051278>
15. **Jae Yong Kim**, Shahzad Iqbal, Hyo Jun Jang, Eun Young Jung, Gyu Tae Bae, Choon-Sang Park, and Heung-Sik Tae, "In-situ iodine doping characteristics of conductive polyaniline film polymerized by low-voltage driven atmospheric pressure plasma", *Polymers*, **13**(3), 418, 2021. <https://doi.org/10.3390/polym13030418>
16. **Jae Young Kim**, Heejin Lim, Sun Young Lee, Gwanjin Lee, Dong-Kwon Lim, Dae Won Moon, and Cheol Song, "Gold-nanoparticle layer substrate assisted transmission-mode laser desorption for atmospheric pressure mass spectrometry imaging", *Science of Advanced Materials*, **12**(10), 1517–1523, 2020. <https://doi.org/10.1166/sam.2020.3792>

17. Jun-Goo Shin, Bhum Jae Shin, Eun Young Jung, Choon-Sang Park, **Jae Young Kim**, and Heung-Sik Tae, "Effects of a dielectric barrier discharge (DBD) on characteristics of polyaniline nanoparticles synthesized by a solution plasma process with an Ar gas bubble channel", *Polymers*, **12**(9), 1939, 2020. <https://doi.org/10.3390/polym12091939>
18. Sun Young Lee, Heejin Lim, Dae Won Moon, and **Jae Young Kim**, "Improved ion imaging of slowly dried neurons and skin cells by graphene cover in time-of-flight secondary ion mass spectrometry", *Biointerphases*, **14**(5), 051001, 2019. <https://doi.org/10.1116/1.5118259> (selected as a **Featured Article** and **AIP Scilight** <https://doi.org/10.1063/1.5127526>, **Online Cover Picture** <https://avs.scitation.org/action/showLargeCover?doi=10.1116%2Fbip.2019.14.issue-5>)
19. Heejin Lim, Sun Young Lee, Dae Won Moon, and **Jae Young Kim**, "Preparation of cellular samples using graphene cover and air-plasma treatment for time-of-flight secondary ion mass spectrometry imaging", *RSC Advances*, **9**(49), 28432–28438, 2019. <https://doi.org/10.1039/C9RA05205D>
20. **Jae Young Kim**, Heejin Lim, Sun Young Lee, Cheol Song, Ji-Won Park, Hyeon Ho Shin, Dong-Kwon Lim, and Dae Won Moon, "Graphene-coated glass substrate for continuous wave laser desorption and atmospheric pressure mass spectrometric imaging of live hippocampal tissue", *ACS Applied Materials & Interfaces*, **11**(30), 27153–27161, 2019. <https://doi.org/10.1021/acsami.9b02620> (**Cover Picture** <https://pubs.acs.org/toc/aamick/11/30>)
21. Jun-Goo Shin, Choon-Sang Park, Hyun-Jin Kim, Dae Sub Kum, Eun Young Jung, Gyu Tae Bae, Hyo Jun Jang, **Jae Young Kim**, Byung-Gwon Cho, Bhum Jae Shin, and Heung-Sik Tae, "Preparation and synthesis of carbon nanomaterials from 1-hexanol by solution plasma process with Ar/O<sub>2</sub> gas bubbles", *Molecular Crystals and Liquid Crystals*, **678**(1), 20–32, 2019. <https://doi.org/10.1080/15421406.2019.1597524>
22. **Jae Young Kim**, Sun Young Lee, Dae Won Moon, Ji-Won Park, Dong-Kwon Lim, and Cheol Song, "Atmospheric pressure mass spectrometric imaging of bio-tissue specimen using electrospray-assisted CW laser desorption and ionization source", *Biointerphases*, **14**(4), 041001, 2019. <https://doi.org/10.1116/1.5099563>
23. **Jae Young Kim**, Sun Young Lee, Hyunmin Kim, Ji-Won Park, Dong-Kwon Lim, and Dae Won Moon, "Biomolecular imaging of regeneration of zebrafish caudal fins using high spatial resolution ambient mass spectrometry", *Analytical Chemistry*, **90**(21), 12723–12730, 2018. <https://doi.org/10.1021/acs.analchem.8b03066>
24. Dong Ha Kim, Choon-Sang Park, Eun Young Jung, Bhum Jae Shin, **Jae Young Kim**, Gyu Tae Bae, Hyo Jun Jang, Byung-Gwon Cho, and Heung-Sik Tae, "Effects of iodine dopant on atmospheric pressure plasma polymerized pyrrole in remote and coupling methods", *Molecular Crystals and Liquid Crystals*, **677**(1), 135–142, 2018. <https://doi.org/10.1080/15421406.2019.1597520>
25. Choon-Sang Park, Dae Sub Kum, Jong Cheol Kim, Jun-Goo Shin, Hyun-Jin Kim, Eun Young Jung, Dong Ha Kim, Daseulbi Kim, Gyu Tae Bae, **Jae Young Kim**, Bhum Jae Shin, and Heung-Sik Tae, "Simple one-step synthesis of carbon nanoparticles from aliphatic alcohols and n-hexane by stable solution plasma process", *Carbon Letters*, **28**(1), 31–37, 2018. <https://doi.org/10.5714/CL.2018.28.031>
26. Dae Sub Kum, Choon-Sang Park, Hyun-Jin Kim, Jun-Goo Shin, Dong Ha Kim, Daseulbi Kim, Gyu Tae Bae, **Jae Young Kim**, Byung-Kwon Cho, Bhum Jae Shin, Dong Ho Lee, Sung-Il Chien, and Heung-Sik Tae, "Synthesis of carbon materials by solution plasma reactor with stable discharge and advanced plasma spray deposition method", *Molecular Crystals and Liquid Crystals*, **663**(1), 115–123, 2018. <https://doi.org/10.1080/15421406.2018.1468645>
27. Dong Ha Kim, Choon-Sang Park, Eun Young Jung, Dae Sub Kum, **Jae Young Kim**, Daseulbi Kim, Gyu Tae Bae, Byung-Gwon Cho, Bhum Jae Shin, Dong Ho Lee, Sung-Il Chien, and Heung-Sik Tae, "Experimental study on atmospheric pressure plasma polymerized conducting polymer under coupling and remote conditions", *Molecular Crystals and Liquid Crystals*, **663**(1), 108–114, 2018. <https://doi.org/10.1080/15421406.2018.1468636>

28. Hyun-Jin Kim, Jun-Goo Shin, Choon-Sang Park, Dae Sub Kum, Bhum Jae Shin, **Jae Young Kim**, Hyung-Dal Park, Muhan Choi, and Heung-Sik Tae, "In-liquid plasma process for size- and shape-controlled synthesis of silver nanoparticles by controlling gas bubbles in water", *Materials*, **11**(6), 891, 2018. <https://doi.org/10.3390/ma11060891>
29. **Jae Young Kim**, Eun Seok Seo, Hee Jin Lim, Hyunmin Kim, Ji-Won Park, Hyun Ho Shin, Dong-Kwon Lim, and Dae Won Moon, "Nanomaterials and continuous wave laser-based efficient desorption for atmospheric pressure mass spectrometric imaging of live hippocampal tissue slices", *RSC Advances*, **8**, 8021–8025, 2018. <https://doi.org/10.1039/C8RA00038G>
30. **Jae Young Kim**, Eun Seok Seo, Hyunmin Kim, Ji-Won Park, Dong-Kwon Lim, and Dae Won Moon, "Atmospheric pressure mass spectrometric imaging of live hippocampal tissue slices with subcellular spatial resolution", *Nature Communications*, **8**(1), 2113, 2017. <https://doi.org/10.1038/s41467-017-02216-6> **(HanBitSa Journal** [http://www.ibric.org/hanbitsa/treatise\\_index\\_for\\_author.php?idauthorid=28448](http://www.ibric.org/hanbitsa/treatise_index_for_author.php?idauthorid=28448))
31. Hyun-Jin Kim, **Jae Young Kim**, Jae Hyun Kim, Dong Ha Kim, Duck-Sik Lee, Choon-Sang Park, Hyung Dal Park, Bhum Jae Shin, and Heung-Sik Tae, "Improvement of stability of sinusoidally driven atmospheric pressure plasma jet using auxiliary bias voltage", *AIP Advances*, **5**(12), 127141, 2015. <https://doi.org/10.1063/1.4939577>
32. Jae Hyun Kim, Hyun-Jin Kim, **Jae Young Kim**, and Heung-Sik Tae, "Intense Ar plasma array jet with ring-type focusing electrode", *IEEE Transactions on Plasma Science*, **42**(10), 2478–2479, 2014. <https://doi.org/10.1109/TPS.2014.2334735>
33. **Jae Young Kim**, Jae Hyun Kim, Heung-Sik Tae, and Dae Won Moon, "Electrode-embedded atmospheric pressure plasma jet device for humid environment", *IEEE Transactions on Plasma Science*, **42**(10), 2476–2477, 2014. <https://doi.org/10.1109/TPS.2014.2325572>
34. **Jae Young Kim**, Jae Hyun Kim, Hyun-Jin Kim, Dae Won Moon, and Heung-Sik Tae, "Plasma jet-to-jet coupling behavior between two plasma jet arrays for surface treatments requiring strong discharge process", *IEEE Transactions on Plasma Science*, **42**(10), 2474–2475, 2014. <https://doi.org/10.1109/TPS.2014.2322631>
35. **Jae Young Kim**, Dong-Hoon Lee, John Ballato, Weiguo Cao, and Sung-O Kim, "Reactive oxygen species controllable non-thermal helium plasmas for evaluation of plasmid DNA strand breaks", *Applied Physics Letters*, **101**(22), 224101, 2012. <https://doi.org/10.1063/1.4768922>
36. Do Yeob Kim, **Jae Young Kim**, Hyuk Chang, Min Su Kim, Jae-Young Leem, John Ballato, and Sung-O Kim, "Low-temperature growth of multiple-stack high-density ZnO nanoflowers/ nanorods on plastic substrates", *Nanotechnology*, **23**(48), 485606, 2012. <https://doi.org/10.1088/0957-4484/23/48/485606>
37. Sung-O Kim, **Jae Young Kim**, Do Yeob Kim, and John Ballato, "Intense plasma emission induced by jet-to-jet coupling in atmospheric pressure plasma arrays", *Applied Physics Letters*, **101**(17), 173503, 2012. <https://doi.org/10.1063/1.4764022>
38. **Jae Young Kim**, John Ballato, and Sung-O Kim, "Intense and energetic atmospheric pressure plasma jet arrays", *Plasma Processes and Polymers*, **9**(3), 253–260, 2012. <https://doi.org/10.1002/ppap.201100190> **(Cover Picture** <http://dx.doi.org/10.1002/ppap.201290007> **and Article in Advanced Science News** <http://www.advancedsciencenews.com/new-dimensions-of-plasma-jets/>)
39. Choon-Sang Park, **Jae Young Kim**, Eun Young Jung, and Heung-Sik Tae, "Numerical analysis and experiment on discharge characteristics under various address electrode widths in ac plasma display panel", *Molecular Crystals and Liquid Crystals*, **564**, 56–66, 2012. <https://doi.org/10.1080/15421406.2012.691682>

40. **Jae Young Kim**, John Ballato, Paul Foy, Thomas Hawkins, Yanzhang Wei, Jinhua Li, and Sung-O Kim, "Apoptosis of cultured tumor cells treated with 200  $\mu\text{m}$ -sized flexible microplasma jet", *IEEE Transactions on Plasma Science*, **39**(11), 2974–2975, 2011. <https://doi.org/10.1109/TPS.2011.2134111>
41. **Jae Young Kim**, John Ballato, Paul Foy, Thomas Hawkins, and Sung-O Kim, "Atmospheric pressure microplasma jets from linear arrays of hollow-core optical fibers for biomedical applications", *IEEE Transactions on Plasma Science*, **39**(11), 2958–2959, 2011. <https://doi.org/10.1109/TPS.2011.2129534>
42. John Furmanski, **Jae Young Kim**, and Sung-O Kim, "Triple-coupled intense atmospheric pressure plasma jet from honeycomb structural plasma device", *IEEE Transactions on Plasma Science*, **39**(11), 2338–2339, 2011. <https://doi.org/10.1109/TPS.2011.2119332>
43. **Jae Young Kim**, Hal-Bon Gu, Yang-Suk Ko, and Sung-O Kim, "Dual atmospheric pressure plasma jet with He and Ar gases in theta shaped tube", *IEEE Transactions on Plasma Science*, **39**(11), 2302–2303, 2011. <https://doi.org/10.1109/TPS.2011.2147802>
44. **Jae Young Kim**, Jang Bo Shim, and Sung-O Kim, "Surface modifications of rapid hydrothermal synthesized ZnO nanowires on PET substrate by cold plasma jet array", *IEEE Transactions on Plasma Science*, **39**(11), 2300–2301, 2011. <https://doi.org/10.1109/TPS.2011.2157837>
45. **Jae Young Kim** and Sung-O Kim, "Intense plasma emission from atmospheric pressure plasma jet array by jet-to-jet coupling", *IEEE Transactions on Plasma Science*, **39**(11), 2278–2279, 2011. <https://doi.org/10.1109/TPS.2011.2157836>
46. **Jae Young Kim**, John Ballato, Paul Foy, Thomas Hawkins, Yanzhang Wei, Jinhua Li, and Sung-O Kim, "Apoptosis of lung carcinoma cells induced by a flexible optical fiber-based cold microplasma", *Biosensors and Bioelectronics*, **28**(1), 333–338, 2011. <https://doi.org/10.1016/j.bios.2011.07.039>
47. **Jae Young Kim**, Yanzhang Wei, Jinhua Li, Paul Foy, Thomas Hawkins, John Ballato, and Sung-O Kim, "Single-cell-level microplasma cancer therapy", *Small*, **7**(16), 2291–2295, 2011. <https://doi.org/10.1002/sml.201100456> ([Frontispiece](http://dx.doi.org/10.1002/sml.201190059) <http://dx.doi.org/10.1002/sml.201190059>)
48. **Jae Young Kim**, Yanzhang Wei, Jinhua Li, and Sung-O Kim, "15- $\mu\text{m}$ -sized single-cellular-level and cell-manipulatable microplasma jet in cancer therapies", *Biosensors and Bioelectronics*, **26**(2), 555–559, 2010. <https://doi.org/10.1016/j.bios.2010.07.043>
49. **Jae Young Kim**, John Ballato, Paul Foy, Thomas Hawkins, Yanzhang Wei, Jinhua Li, and Sung-O Kim, "Single-cell-level cancer therapy using a hollow optical fiber-based microplasma", *Small*, **6**(14), 1474–1478, 2010. <https://doi.org/10.1002/sml.201000480> ([Cover](#) [Picture](#) <http://dx.doi.org/10.1002/sml.201090043>)
50. **Jae Young Kim**, Sung-O Kim, Yanzhang Wei, and Jinhua Li, "Flexible cold microplasma jet using biocompatible dielectric tubes for cancer therapy", *Applied Physics Letters*, **96**(20), 203701, 2010. <https://doi.org/10.1063/1.3431392>
51. **Jae Young Kim** and Heung-Sik Tae, "Analysis on discharge modes in AC plasma display panel with sustain gap of 200  $\mu\text{m}$ ", *IEEE Transactions on Plasma Science*, **35**(6), 1766–1774, 2007. <https://doi.org/10.1109/TPS.2007.910689>
52. **Jae Young Kim**, Hyun Kim, Heung-Sik Tae, Jeong Hyun Seo, and Seok-Hyun Lee, "Effect of voltage distribution among three electrodes on microdischarge characteristics in ac-PDP with long discharge path", *IEEE Transactions on Plasma Science*, **34**(6), 2579–2587, 2006. <https://doi.org/10.1109/TPS.2006.887766>



## Journal Publications (SCOPUS)

1. **Jae Young Kim**, Heejin Lim, and Dae Won Moon, "Ambient mass spectrometry imaging of small molecules from cells and tissues", *Methods in Molecular Biology*, **2437**, 41–59, 2022. [https://doi.org/10.1007/978-1-0716-2030-4\\_3](https://doi.org/10.1007/978-1-0716-2030-4_3)

## Book Chapter

1. **Jae Young Kim**, Heejin Lim, and Dae Won Moon, "Ambient Mass Spectrometry Imaging of Small Molecules from Cells and Tissues", book chapter published a book edited by Prof. Young-Jin Lee titled *Mass Spectrometry Imaging of Small Molecules*, Humana, New York, NY, pp 41–59, 2022. (ISBN:978-1-0716-2030-4) <https://doi.org/10.1007/978-1-0716-2030-4>

## Conference Abstracts and Proceedings

1. **Jae Young Kim**, Hyo Jun Jang, Eun Young Jung, and Heung-Sik Tae, "Morphological and chemical properties of polythiophene nanostructure films synthesized by an atmospheric pressure plasma reactor with cross-shaped electrode", *The 13th Asian-European International Conference on Plasma Surface Engineering (AEPSE 2023)*, Busan, Korea, November 5–8, 2023.
2. Hyojun Jang, **Jae Young Kim**, and Heung-Sik Tae, "Single-process coating of polypyrrole film on micro-sized patterned electrode using in-solution plasma process", *The 13th Asian-European International Conference on Plasma Surface Engineering (AEPSE 2023)*, Busan, Korea, November 5–8, 2023.
3. Ye Rin Lee, Gyu Tae Bae, **Jae Young Kim**, Do Yeob Kim, Hyung-Kun Lee, Joo Young Park, Sunghoon Jung, and Heung-Sik Tae, "Comparison of pin-liquid discharge and pin-liquid barrier discharge for reactive species production and phosphorus compound decomposition", *The 13th Asian-European International Conference on Plasma Surface Engineering (AEPSE 2023)*, Busan, Korea, November 5–8, 2023.
4. **Jae Young Kim**, Hyojun Jang, Eun Young Jung, and Heung-Sik Tae, "Synthesis of polythiophene film using atmospheric pressure plasma reactor with cross-shaped electrode for improvement of film uniformity", *The Summer Conference of the Korean Vacuum Society 2023 & International Forum on Functional Materials (IFFM 2023)*, Jeju, Korea, August 20–23, 2023.
5. Ye Rin Lee, Gyu Tae Bae, **Jae Young Kim**, Do Yeob Kim, Hyung-Kun Lee, and Heung-Sik Tae, "Use of dielectric barrier in pin-liquid discharge for water activation and effective phosphorus compound digestion", *The Summer Conference of the Korean Vacuum Society 2023 & International Forum on Functional Materials (IFFM 2023)*, Jeju, Korea, August 20–23, 2023.
6. Hyojun Jang, Eun Young Jung, **Jae Young Kim**, and Heung-Sik Tae, "Deposition and selective coating of polypyrrole film on desired pattern from liquid pyrrole via single process using in-solution plasma", *The Summer Conference of the Korean Vacuum Society 2023 & International Forum on Functional Materials (IFFM 2023)*, Jeju, Korea, August 20–23, 2023.
7. Sebin Jang, **Jae Young Kim**, Hyojun Jang, Eun Young Jung, and Heung-Sik Tae, "Electrical properties of iodine-doped polymer films synthesized by atmospheric pressure plasma polymerization", *The Summer Conference of the Korean Vacuum Society 2023 & International Forum on Functional Materials (IFFM 2023)*, Jeju, Korea, August 20–23, 2023.
8. **Jae Young Kim**, Hyo Jun Jang, Eun Young Jung, Gyu Tae Bae, Kangmin Kim, and Heung-Sik Tae, "Nanostructured polyaniline films functionalized by auxiliary gas addition during atmospheric

- pressure plasma polymerization", *The 25th International Symposium on Plasma Chemistry (ISPC25)*, Kyoto, Japan, May 21–26, 2023.
9. Ye Rin Lee, Da Hye Lee, Gyu Tae Bae, **Jae Young Kim**, Do Yeob Kim, Hyung-Kun Lee, and Heung-Sik Tae, "Determination of dissolved total phosphorus in water by a pin-liquid dielectric barrier discharge treatment", *The 25th International Symposium on Plasma Chemistry (ISPC25)*, Kyoto, Japan, May 21–26, 2023.
  10. Hyo Jun Jang, Eun Young Jung, **Jae Young Kim**, and Heung-Sik Tae, "Polypyrrole film synthesis using in-liquid plasma assisted-electrochemical deposition", *The 25th International Symposium on Plasma Chemistry (ISPC25)*, Kyoto, Japan, May 21–26, 2023.
  11. **Jae Young Kim**, Hyo Jun Jang, Eun Young Jung, Kangmin Kim, and Heung-Sik Tae, "Morphological and electrical properties of conductive polyaniline films prepared by atmospheric pressure plasma polymerization", *The Winter Conference of the Korean Vacuum Society 2023*, Hoengseong, Korea, February 8–10, 2023.
  12. Ye Rin Lee, Gyu Tae Bae, Da Hye Lee, Do Yeob Kim, **Jae Young Kim**, Hyung-Kun Lee, and Heung-Sik Tae, "Atmospheric pressure plasma-based advanced oxidation process for detection of total dissolved phosphorus in fresh water", *The Winter Conference of the Korean Vacuum Society 2023*, Hoengseong, Korea, February 8–10, 2023.
  13. Hyo Jun Jang, Eun Young Jung, **Jae Young Kim**, and Heung-Sik Tae, "Selective coating of polypyrrole using solution plasma process", *The Winter Conference of the Korean Vacuum Society 2023*, Hoengseong, Korea, February 8–10, 2023.
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## Intellectual Property

### • International patents

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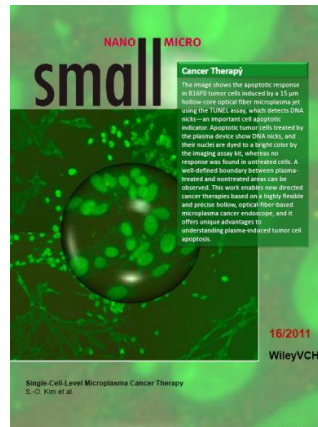
## Press Release

1. 2022 년 12 월 6 일자 경북대학교 IT 대학 전자공학부 NEWS  
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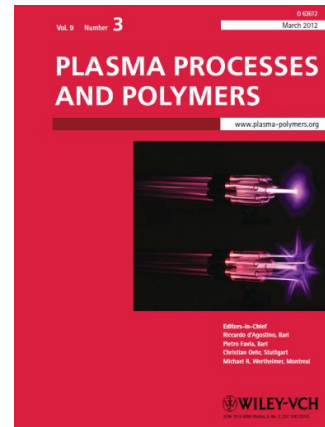
## Journal Cover



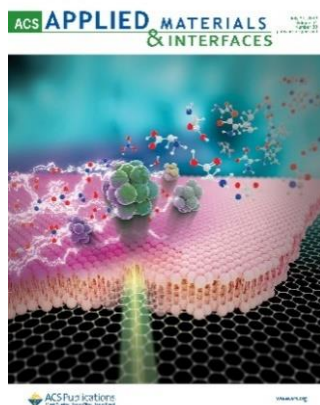
Cover picture of Small (2010)



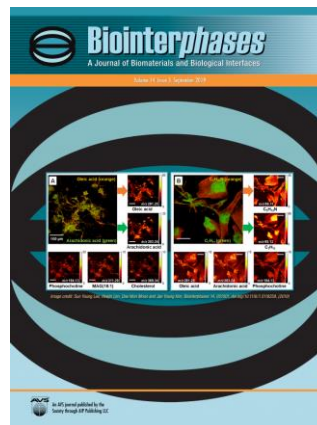
Frontispiece of Small (2011)



Cover picture of PPAP (2012)



Cover picture of ACS AM&I (2019)



Online Cover picture of Biointerphases (2019)

## Supplementary Report

My top 10 journals with highest journal impact factor

	Journal	Title	My Contribution	Impact Factor (2022/2023)	Public. Year
1	Nature Communications	Atmospheric pressure mass spectrometric imaging of live hippocampal tissue slices with subcellular spatial resolution	First author	16.6	2017
2	Small	Single cell-level microplasma cancer therapy	First author	13.3	2011
3	Small	Single-cell-level cancer therapy using a hollow optical fiber-based microplasma	First author	13.3	2010
4	Biosensors & Bioelectronics	Apoptosis of lung carcinoma cells induced by a flexible optical fiber-based cold microplasma	First author	12.6	2011
5	Biosensors & Bioelectronics	15- $\mu$ m-sized single-cellular-level and cell-manipulatable microplasma jet in cancer therapies	First author	12.6	2010
6	ACS Applied Materials & Interfaces	Graphene-coated glass substrate for continuous wave laser desorption and atmospheric pressure mass spectrometric imaging of live hippocampal tissue	First author	9.5	2019
7	Analytical Chemistry	Biomolecular imaging of regeneration of zebrafish caudal fins using high spatial resolution ambient mass spectrometry	First author	7.4	2018
8	Applied Surface Science	Polypyrrole film synthesis via solution plasma polymerization of liquid pyrrole	Corresponding author	6.7	2023
9	Nanomaterials	Effect of dielectric barrier on water activation and phosphorus compound digestion in gas-liquid discharges	First author	5.3	2024
10	Nanomaterials	Improvement of nanostructured polythiophene film uniformity using a cruciform electrode and substrate rotation in atmospheric pressure plasma polymerization	First author	5.3	2022