Curriculum Vitae

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JAE YOUNG KIM, Ph.D.

Personal Information

- Current position: **Researcher/Research Professor** (2020. 10. 1. ~)
- Affiliation: The Institute of Electronic Technology and School of Electronic and Electrical Engineering, College of IT Engineering, Kyungpook National University, Daegu 41566, South Korea
- Contact: E-mail: jyk@knu.ac.kr, jykim1998@gmail.com
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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, electrical discharge physics, and diverse applications of nonequilibrium plasmas
- Nanomaterial deposition and polymerization using atmospheric pressure & solution plasmas
- Decomposition of organic compounds using plasma-assisted advanced oxidation process (AOP)
- Gaseous electronics, displays, gas sensors, and water quality sensors

Research Skill

- Design and building-up of ultra-low pressure to atmospheric pressure plasma systems
- Diagnostic and characterization of plasmas and lasers
- Quantification of long-lived reactive species (H_2O_2, NO_2^-, 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
  Researcher/Research Professor of Institute of Electronic Technology, 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)

(Total: 56 – Main author: 40, Co-author: 16)

1. **Jae Young Kim**, Sebinn Jang, Hyojun Jang, Jeongbin Nam, Habeeb Olaitan Suleiman, Eun Young Jung, Choon-Sang Park, and Heung-Sik Tae, "Polythiophene nanostructure film deposited using a bump electrode in atmospheric pressure plasma polymerization for increased film uniformity", *Current Applied Physics*, **71**, 152–162, 2025. https://doi.org/10.1016/j.cap.2025.01.004
2. Habeeb Olaitan Suleiman, Eun Young Jung, Hyojun Jang, **Jae Young Kim***, and Heung-Sik Tae*, "Comparison of ex-situ solid and liquid iodine doping methods at different temperatures to improve electrical properties of polythiophene nanostructure films synthesized by atmospheric pressure plasma process", *Current Applied Physics*, **70**, 11–20, 2025. https://doi.org/10.1016/j.cap.2024.11.007
3. Hyojun Jang, Eun Young Jung, **Jae Young Kim***, and Heung-Sik Tae*, "Polypyrrole film formation using DC biasing of substrate in in-solution plasma process", *APL Materials*, **12**(5), 051120, 2024. https://doi.org/10.1063/5.0203623
4. Eun Young Jung, Salman Khalil, Hyojun Jang, Habeeb Olaitan Suleiman, **Jae Young Kim**, Bhum Jae Shin, Heung-Sik Tae, and Choon-Sang Park, "Improvement of electrical conductivity of in situ iodine-doped polypyrrole film using atmospheric pressure plasma reactor with capillary electrodes", *Nanomaterials*, **14**(5), 468, 2024. https://doi.org/10.3390/nano14050468
5. Ye Rin Lee†, Do Yeob Kim†, **Jae Young Kim**†, 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

6. **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
7. **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
8. 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
9. 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
10. 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
11. Habeeb Olaitan Suleiman†, **Jae Young Kim**†, 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
12. Hyo Jun Jang†, **Jae Young Kim**†, 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
13. **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
14. **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
15. Gyu Tae Bae†, **Jae Young Kim**†, 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
16. **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
17. 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_2 gas sensors", *Polymers*, **13**(11), 1783, 2021. https://doi.org/10.3390/polym13111783

18. **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
19. **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
20. **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
21. 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
22. 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://pubs.aip.org/avs/bip/issue/14/5)
23. 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
24. **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**)**
25. 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_2 gas bubbles", *Molecular Crystals and Liquid Crystals*, **678**(1), 20–32, 2019. https://doi.org/10.1080/15421406.2019.1597524
26. **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
27. **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
28. 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

29. 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
30. 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
31. 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
32. 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
33. **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
34. **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** https://www.ibric.org/s.do?thkalaBhjC**)**
35. 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
36. 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
37. **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
38. **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
39. **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
40. 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

41. 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
42. **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/**)**
43. 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
44. **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 μm-sized flexible microplasma jet", *IEEE Transactions on Plasma Science*, **39**(11), 2974–2975, 2011. https://doi.org/10.1109/TPS.2011.2134111
45. **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
46. 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
47. **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
48. **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
49. **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
50. **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
51. **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/smll.201100456 **(Frontispiece** http://dx.doi.org/10.1002/smll.201190059**)**
52. **Jae Young Kim**, Yanzhang Wei, Jinhua Li, and Sung-O Kim, "15-μm-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
53. **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/smll.201000480 **(Cover Picture** http://dx.doi.org/10.1002/smll.201090043**)**
54. **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

55. **Jae Young Kim** and Heung-Sik Tae, "Analysis on discharge modes in AC plasma display panel with sustain gap of 200 μm", *IEEE Transactions on Plasma Science*, **35**(6), 1766–1774, 2007. https://doi.org/10.1109/TPS.2007.910689
56. **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

Book Chapter

1. **Jae Young Kim**, Heejin Lim, and Dae Won Moon, "Ambient Mass Spectrometry Imaging of Smal 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

(Total: 91 – Invited talk: 7, Regular presentation: 84)

1. **Jae Young Kim**, Sebinn Jang, Eun Young Jung, and Heung-Sik Tae, "Effective in-situ iodine doping method using powered and floating electrodes for conductive polypyrrole film deposited by atmospheric pressure plasma process", *The Global Conference of Innovation Materials 2025 (GCIM 2025)*, Jeju, Korea, June 15–19, 2025.
2. Sebinn Jang, **Jae Young Kim**, Eun Young Jung, and Heung-Sik Tae, "In-situ iodine-doped atmospheric pressure plasma polymerization using metal capillary electrodes for conductive polypyrrole film fabrication", *The combined 25th IEEE Pulsed Power Conference and the 52nd IEEE International Conference on Plasma Science (PPC & ICOPS 2025)*, Berlin, Germany, June 15–20, 2025.
3. Jeongbin Nam, Hyojun Jang, **Jae Young Kim**, Heung-Sik Tae, and Eun Young Jung, "Polypyrrole-metal hybrid film formation using various metal substrates in solution plasma process ", *The combined 25th IEEE Pulsed Power Conference and the 52nd IEEE International Conference on Plasma Science (PPC & ICOPS 2025)*, Berlin, Germany, June 15–20, 2025.
4. Hyojun Jang, **Jae Young Kim**, and Heung-Sik Tae, "Conductive polymer film formation using plasma process in organic solution according to driving power condition", *The AVS Pacific Rim Symposium on Surfaces, Coatings and Interfaces (PacSurf 2024)*, Waikoloa, HI, December 8–12, 2024.
5. **Jae Young Kim**, Sebinn Jang, Hyojun Jang, Eun Young Jung, and Heung-Sik Tae, "Uniform and conductive polymeric nanocomposite film synthesized by atmospheric pressure plasma reactor", *30th Symposium on Plasma Physics and Technology (SPPT 2024)*, Prague, Czech Republic, June 17–20, 2024.

6. Hyojun Jang, Eun Young Jung, **Jae Young Kim**, and Heung-Sik Tae, "Plasma generated in organic solution for formation of conductive polymer film", *30th Symposium on Plasma Physics and Technology (SPPT 2024)*, Prague, Czech Republic, June 17–20, 2024.
7. **Jae Young Kim**, Sebinn Jang, Hyojun Jang, Eun Young Jung, and Heung-Sik Tae, "Development of polythiophene nanostructure film using a bump-shaped electrode for plasma volume expansion in atmospheric pressure plasma polymerization", *Joint Symposium of Global Conference on Innovation Materials 2024 & The 6th IUMRS International Conference of Younng Researchers on Advanced Materials (GCIM 2024 & IUMRS-ICYRAM 2024 & MRS-K SPRING MEETING)*, Jeju, Korea, June 8–12, 2024.
8. Sebinn Jang, **Jae Young Kim**, Jeongbin Nam, Eun Young Jung, and Heung-Sik Tae, "One-step synthesis of conductive polypyrrole film by halogen-doped atmospheric pressure plasma process", *Joint Symposium of Global Conference on Innovation Materials 2024 & The 6th IUMRS International Conference of Younng Researchers on Advanced Materials (GCIM 2024 & IUMRS-ICYRAM 2024 & MRS-K SPRING MEETING)*, Jeju, Korea, June 8–12, 2024.
9. Hyojun Jang, **Jae Young Kim**, and Heung-Sik Tae, "Plasma polymerization in pyrrole solution for PPy-Cu film for gas sensing layer", *Joint Symposium of Global Conference on Innovation Materials 2024 & The 6th IUMRS International Conference of Younng Researchers on Advanced Materials (GCIM 2024 & IUMRS-ICYRAM 2024 & MRS-K SPRING MEETING)*, Jeju, Korea, June 8–12, 2024.
10. Habeeb Olaitan Suleiman, Eun Young Jung, Hyujun Jang, **Jae Young Kim**, and Heung-Sik Tae, "Improvement of electrical property of polythiophene nanostructure film prepared by atmospheric pressure plasma polymerization using ex-situ heated iodine doping technique", *Joint Symposium of Global Conference on Innovation Materials 2024 & The 6th IUMRS International Conference of Young Researchers on Advanced Materials (GCIM 2024 & IUMRS-ICYRAM 2024 & MRS-K SPRING MEETING)*, Jeju, Korea, June 8–12, 2024.
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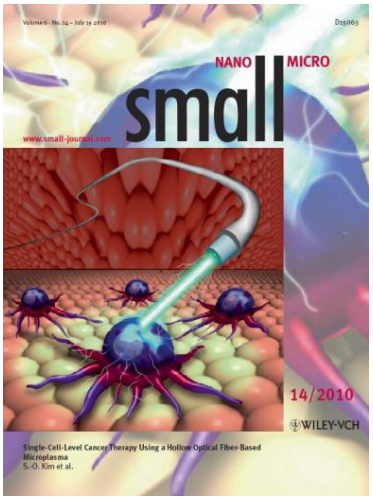
5. **김재영,** 우석균, "플라즈마 디스플레이 패널", 대한민국 특허 출원번호 10-2006-0058091, 출원일자 2006 년 6 월 27 일, **등록번호 10-0813837**, 등록일자 2008 년 1 월 2 일
6. **김재영,** 박기형, "플라즈마 디스플레이 패널", 대한민국 특허 출원번호 10-2006-0033197, 출원일자 2006 년 4 월 12 일, **등록번호 10-0741124**, 등록일자 2007 년 7 월 12 일

Press Release

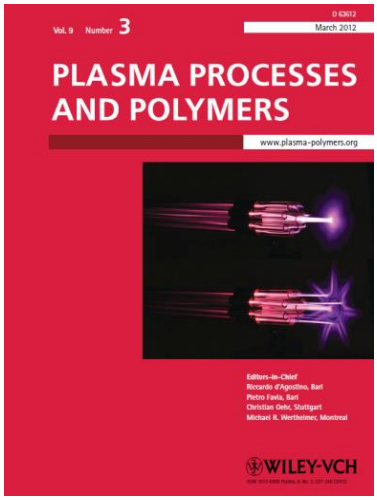
1. 2022 년 12 월 6 일자 경북대학교 IT 대학 전자공학부 NEWS
   https://see.knu.ac.kr/eng/content/board/news.html?pg=vv&fidx=101201
2. AIP Scilight (Sep. 20, 2019): New method allows for improved ion images of neurons and skin cells
   https://doi.org/10.1063/1.5127526
3. 2019 년 8 월 5 일자 전자신문 외 15 개 언론사: DGIST, 신개념 고해상도 질량분석 기법 개발
   http://www.etnews.com/20190805000196
4. BRIC 한빛사 interview (김재영): 2017 년 12 월 26 일
   https://www.ibric.org/s.do?kKKnJlopFQ
5. 2017 년 12 월 18 일자 한국경제신문 외 30 개 언론사: DGIST, "살아있는 세포 조직 고해상도 질량분석"
   https://www.hankyung.com/it/article/201712183277h
6. 과학동아 2017 년 6 월호: "암 검사체계 바꿀 다중 모달 융합내시경"
   https://mdl.dongascience.com/article/view/S201706N051/4041
   https://tmarket.dgist.ac.kr/patent/pdf.do?gwanriNo=P-2017-0380-KR-00
7. Advanced Science News (Mar. 5, 2012): New Dimensions of Plasma Jets
   http://www.advancedsciencenews.com/new-dimensions-of-plasma-jets/

Journal Cover & Award

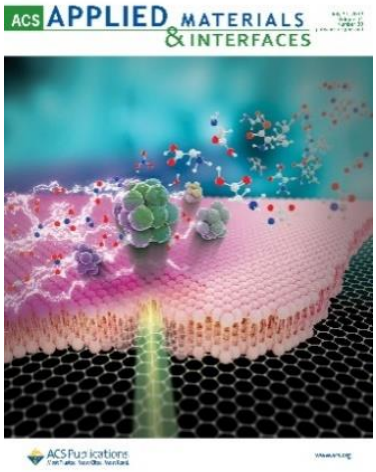


Cover picture of Small (2010)

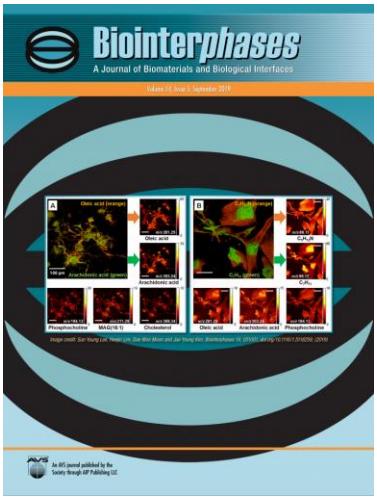
Frontispiece of Small (2011)



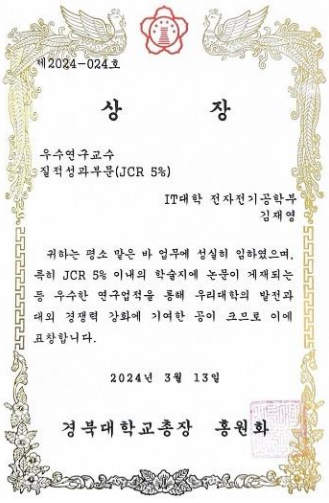
Cover picture of PPAP (2012)



Cover picture of ACS AM&I (2019)



Cover picture of Biointerphases (2019)



제2024-024호

상 장

우수연구교수
질적성과부문(JCR 5%)

IT대학 전자전기공학부
김재영

귀하는 평소 맡은 바 업무에 성실히 임하였으며, 특히 JCR 5% 이내의 학술지에 논문이 게재되는 등 우수한 연구업적을 통해 우리대학의 발전과 대외 경쟁력 강화에 기여한 공이 크므로 이에 표창합니다.

2024년 3월 13일

경북대학교총장 홍원화

Award of Outstanding Research Professor, KNU (2024)

Supplementary Report

My top 10 journals in order of highest journal impact factor

	Journal	Title	My Contribution	Impact Factor (2024/2025)	Public. Year
1	Nature Communications	Atmospheric pressure mass spectrometric imaging of live hippocampal tissue slices with subcellular spatial resolution	First author	15.7	2017
2	Small	Single cell-level microplasma cancer therapy	First author	12.1	2011
3	Small	Single-cell-level cancer therapy using a hollow optical fiber-based microplasma	First author	12.1	2010
4	Biosensors & Bioelectronics	Apoptosis of lung carcinoma cells induced by a flexible optical fiber-based cold microplasma	First author	10.5	2011
5	Biosensors & Bioelectronics	15-μm-sized single-cellular-level and cell-manipulatable microplasma jet in cancer therapies	First author	10.5	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	8.2	2019
7	Applied Surface Science	Polypyrrole film synthesis via solution plasma polymerization of liquid pyrrole	Corresponding author	6.9	2023
8	Analytical Chemistry	Biomolecular imaging of regeneration of zebrafish caudal fins using high spatial resolution ambient mass spectrometry	First author	6.7	2018
9	Polymers	Nanostructured polyaniline films functionalized through auxiliary nitrogen addition in atmospheric pressure plasma polymerization	First author	4.9	2023
10	APL Materials	Polypyrrole film formation using DC biasing of substrate in in-solution plasma process	Corresponding author	4.5	2024