## Tae-Woo Lee

Professor at the Department of Materials Science and Engineering Seoul National University http://www.pnel.snu.ac.kr/ e-mail : twlees@snu.ac.kr Research Areas : Display/Solid state lighting electronics, Perovskite electronics, Solar cells, Nanowire electronics, Flexible neuromorphic and bio electronics, Graphene electronics



## Short Biography and Research Interest

Tae-Woo Lee is a professor in the Department of Materials Science and Engineering at Seoul National University, Korea. He received his Ph.D. in Chemical Engineering from Korea Advanced Institute of Science and Technology (KAIST), Korea, in 2002. He joined Bell Laboratories, Lucent Technologies, USA, as a postdoctoral researcher in 2002 and then worked at Samsung Advanced Institute of Technology as a member of the research staff (2003–2008). He was an assistant and associate professor in the Department of Materials Science and Engineering at Pohang University of Science and Technology (POSTECH), Korea, until August 2016. His research interest spans organic, organic–inorganic hybrid perovskite, and carbon materials, and their applications to flexible electronics, printed electronics, displays, solid-state lightings, solar energy conversion devices, and bio-inspired neuromorphic devices. He was appointed as a regular member of Korea Academy of Science and Technology in 2021. He was honored as 2020 Materials Research Society (MRS) Fellow and 2024 SPIE Fellow. To date, he is the author and co-author of 289 papers in high-impact journals including Science, Nature, and their distinguished sister journals.

## Selected recent publications

H.-D. Lee+, S.-J. Woo+, S. Kim+, J. Kim, H. Zhou, S. J. Han, K. Y. Jang, D.-H. Kim, J. Park, S. Yoo, and T.-W. Lee\* (2024) Valley-centre tandem perovskite light-emitting diodes, Nature Nanotechnology (DOI: https://doi.org/10.1038/s41565-023-01581-2)

Y. Lee+, Y. Liu+, D.-G. Seo+, J.Y. Oh, Y. Kim, J. Li, J. Kang, J. Kim, J. Mun, A.M. Foudeh, Z. Bao\*, and T-W. Lee\* (2022) A low-power stretchable neuromorphic nerve with proprioceptive feedback, Nature Biomedical Engineering 7 (4), 511-519.

J. S. Kim+, J.-M. Heo+, G.-S. Park, S.-J. Woo, C. Cho, H. J. Yun, D.-H. Kim, J. Park, S.-C. Lee, S.-H. Park, E. Yoon, N. Greenham, and T. -W. Lee\* (2022) Ultra-bright, Efficient and Stable Perovskite Light-Emitting Diodes, Nature 611 (7937), 688-694.

Y.-H. Kim, J. Park, S. Kim, J. S. Kim, H. Xu, S.-H. Jeong, B. Hu & T.-W. Lee\* (2022) Exploiting the full advantages of colloidal perovskite nanocrystals for large-area efficient light-emitting diodes, Nature Nanotechnology 17 (6), 590-





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S.-J. Woo, J. S. Kim & T.-W. Lee\* (2021) Characterization of stability and challenges to improve lifetime in perovskite LEDs, Nature photonics 15 (9), 630-634.

Y.-H. Kim, S. Kim, A. Kakekhani, J. Park, J. Park, Y.-H. Lee, H. Xu, S. Nagane, R. B. Wexler, D.-H. Kim, S. H. Jo, L. Martínez-Sarti, P. Tan, A. Sadhanala, G.-S. Park, Y.-W. Kim, B. Hu, H. J. Bolink, S. Yoo, R. H. Friend, A. M. Rappe\* & T.-W. Lee\* (2021) Comprehensive defect suppression in perovskite nanocrystals for high-efficiency light-emitting diodes, Nature Photonics 15 (2), 148-155.

Y. Kim+, A. Chotors+, W. Xu+, Y. Liu, J. Y. Oh, D. Son, J. Kang, A. M. Foudeh, C. Zhu, Y. Lee, S. Niu, J. Liu, R. Pfattner, Z. Bao\*, T.-W. Lee\* (2018) A Bio-Inspired Flexible Organic Artificial Afferent Nerve, Science 360 (6392), 998-1003.

H. Cho+, S.-H. Jeong+, M.-H. Park+, Y.-H. Kim, C. Wolf, C.-L. Lee, J. H. Heo, A. Sadhanala, N. Myoung, S. Yoo, S. H. Im, R. H. Friend and T.-W. Lee\* (2015) Overcoming the electroluminescence efficiency limitations of perovskite light-emitting diodes, Science 350 (6265) 1222-1225.

Y.-H. Kim+, H. Cho+, J. H. Heo+, T.-S. Kim, N. Myoung, C.-L. Lee, S. H. Im\*, and T.-W. Lee\* (2015) Multicolored Organic/Inorganic Hybrid Perovskite Light-emitting Diodes, Advanced Materials 27 (7), 1248-1254.

T. -H. Han, Y. Lee, M.-R. Choi, S. H. Woo, S.-H. Bae, B. H. Hong, J.-H. Ahn, T.-W. Lee\* (2012) Extremely efficient flexible organic light-emitting diodes with modified graphene anode, Nature Photonics 6 (2), 105-110.



