

Tae Whan Kim

- 2019 [연구우수교수](#)

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Profile

- 2007~Present Honorary Scholar Professor of Hanyang University
- 2006~Present Member of the Korean Academy of Science and Technology
- 2004~2016 Head Professor of Electronic Engineering at Hanyang University Graduate School of Engineering
- 2003~Present Professor of Department of Electronic Engineering at Hanyang University College of Engineering
- 1989~2003 Professor of Department of Electrical and Biological Physics at Kwangwoon University
- 1982~1988 Doctor of Science in Physics at State University of New York at Buffalo
- 1980~1981 Master of Science in Physics at Seoul National University
- 1975~1979 Bachelor of Science in Physics at Kyungpook National University

Research Topics

- Research on the development and source technology of the Memristive device
- Research on production and performance enhancement of Memory device
- Production, performance enhancement, and network formation of flexible memristor and flexible artificial synaptic device for the realization of AI Hardware
- Research on the development and the source technology of the high-efficiency organic light-emitting device
- Research on production and performance enhancement of fabric-based flexible/wearable organic light-emitting device

- Research on production and performance enhancement of graphene-based light-emitting diode
- Research on production and performance enhancement of energy harvesting device
- Research on source technology for the performance enhancement of flexible high-efficiency solar cell device
- Research on core technology for the development and performance enhancement of flexible/wearable nanogenerator

Papers

- “Reduced graphene-oxide acting as electron-trapping sites in the friction layer for giant triboelectric enhancement”, Nano Energy, 2017
<https://www.sciencedirect.com/science/article/pii/S2211285516305997>
- “Mimicking classical conditioning based on a single flexible memristor”, Advanced Materials, 2017 <https://onlinelibrary.wiley.com/doi/full/10.1002/adma.201602890>
- “Enhanced triboelectric nanogenerators based on MoS₂ monolayer nanocomposites acting as electron-acceptor layers”, ACS Nano, 2017
<https://pubs.acs.org/doi/abs/10.1021/acsnano.7b03657>
- “Flexible three-dimensional artificial synapse networks with correlated learning and trainable memory capability”, Nature Communications, 2017
<https://www.nature.com/articles/s41467-017-00803-1>
- “Ultrasoft and cuttable paper-based triboelectric nanogenerators for mechanical energy harvesting”, Nano Energy Volume, 2018
<https://www.sciencedirect.com/science/article/pii/S221128551730767X>
- “Ultrahigh-luminosity white-light-emitting devices based on edge functionalized graphene quantum dots”, Nano Energy, 2018
<https://www.sciencedirect.com/science/article/pii/S2211285518304592>
- “Capsule triboelectric nanogenerators: Toward optional 3D integration for high output and efficiently energy harvesting from broadband-amplitude vibration”, ACS Nano, 2018
<https://pubs.acs.org/doi/abs/10.1021/acsnano.8b03824>
- “Highly efficient flexible organic light-emitting devices based on PEDOT:PSS electrodes doped with highly conductive Pyronin B”, Nano Energy, 2019
<https://www.sciencedirect.com/science/article/pii/S2211285519307347>

Industry-Academia Collaboration

Industry Research / Samsung Electronics

- “Analysis on leakage current characteristic of III- V Compound Semiconductor Device” (2010~2015)
- “Development of trap model and electrical transport in nitride for improving dispersion and retention characteristics, electrical transport in polycrystalline channels of VNAND memory devices” (2015-2020)

Industry Research / SK Hynix

- “Development of Dark Current Prediction Model and System for Pixel Structural Change”

(2014-2016)

- “Theoretical Analysis on HC40 Local Layout Effect and Development of Analytical Model”
(2018-2020)

Industry Research / LG Display

- “A Study on the Side Current Leakage Mechanism for High-resolution OLED Production”
(2016-2017)

Technology transfer

- Equity transfer in seven other cases, in addition to “Design of Multiple Bit Charge Capture Flash Memory Devices with Separate Gates Using Improved Saddle Structure”. (Contract date: September 1, 2008)
- Equity transfer of “Electronic Devices Including Graphical Thin Film and One Other Manufacturing Method” to Samsung Electronics Co. (Contract date: March 11, 2010)
- “56 Cases Other than Organic Light-emitting Diodes with Internal High-polymerized Polymers Containing Quantum Dots” are sold to the Intellectual Discovery Co. (Contract date: May 28, 2013)
- Equity transfer of “Temperature Sensors and 4 Other Manufacturing Methods” to LG Display Co. (Contract date: August 1, 2015)

Patents

- Electronic device utilizing graphene electrodes and organic/inorganic hybrid composites and method of manufacturing the electronic device
<https://patents.google.com/patent/KR20110020442A/en?q=Electronic&q=device&q=utilizing&q=graphene&q=electrodes&q=organic%2finorganic&q=hybrid&q=composites&q=method&q=manufacturing&q=electronic&q=device&oq=Electronic+device+utilizing+graphene+electrodes+and+organic%2finorganic+hybrid+composites+and+method+of+manufacturing+the+electronic+device>
- Electronic device including graphene thin film and methods of fabricating the same
<https://patents.google.com/patent/US8735895B2/en?q=Electronic&q=device&q=including&q=graphene&q=thin+film&q=methods&q=fabricating&q=same&oq=Electronic+device+including+graphene+thin+film+and+methods+of+fabricating+the+same>
- Driving current output apparatus, method of manufacturing the same, display device and driving apparatus thereof
<https://patents.google.com/patent/US8816944B2/en?oq=8%2c816%2c944>
- Solar cell utilizing p-i-n nanowire
<https://patents.google.com/patent/US9059345B2/en?oq=9%2c059%2c345>
- Flash memory using fringing effects and electrostatic shielding
<https://patents.google.com/patent/WO2012077951A2/en>
- Method for detecting touch position of touch screen and touch screen using same
<https://patents.google.com/patent/US9317149B2/en?oq=9317149>
- Organic light emitting device
<https://patents.google.com/patent/US9525151B2/en?oq=9%2c525%2c151>
- ORGANIC LIGHT EMITTING DEVICE
<https://patents.google.com/patent/US9525151B2/en?oq=9%2c525%2c151>

- Solar cell having a double-sided structure, and method for manufacturing same
<https://patents.google.com/patent/US9647163B2/en?q=9%2c647%2c163>
- Apparatus for receiving non-contact energy and controlling method therefor
<https://patents.google.com/patent/US9819229B2/en?q=9%2c819%2c229>
- Refining method for microstructure
<https://patents.google.com/patent/US10166571B2/en?q=10%2c166%2c571>

Contact Information

- 연구실 URL : <http://quanta.hanyang.ac.kr>
- E-mail : twk@hanyang.ac.kr