

Curriculum Vitae

Sanghyeon Choi (최상현), Ph.D. candidate

KU-KIST Graduate School of Converging Science & Technology
Korea University, Seoul, Korea
E-mail: chl299@korea.ac.kr



Education

- Ph.D. in KU-KIST Graduate School of Converging Science & Technology, Korea University, Korea (Sep, 2019 ~) (지도교수: 왕건욱)
- M.S. in KU-KIST Graduate School of Converging Science & Technology, Korea University, Korea (Aug, 2019) (지도교수: 왕건욱)
- B.S. in Physics, Korea University, Korea (Feb, 2017)

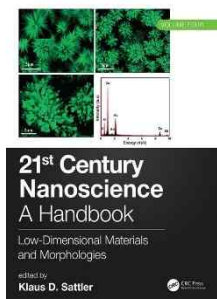
Research Publications



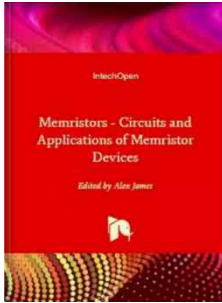
1. [S. Choi](#), J.-W. Choi, J. Shin, S. Jang, N.-D. Kim, J. Kwag and G. Wang, “Probabilistic Silicon Synapse for Brain-inspired Computing with Low-power and Learning-efficiency” *In preparation* (2019)
2. [S. Choi](#), S. Jang, J.-H. Moon, J. C. Kim, H. Y. Jeong, P. Jang, K.-J. Lee, and G. Wang, “A Self-rectifying TaO_y/Nanoporous TaO_x Memristor Synaptic

- Array for Learning and Energy-efficient Neuromorphic Systems” *NPG Asia Mater.*, 10, 1097–1106 (2018) *Feature article
3. [S. Choi](#), S. Ham, S. Jang, H. Cho and G. Wang, “Emerging Memristive Artificial Synapses and Neurons for Learning-efficient Neuromorphic Computing” in preparation, Invited review, *Adv. Mater.* (2020)
 4. S. Ham, [S. Choi](#), H. Cho, S.-I. Na and G. Wang, “Photonic Organolead Halide Perovskite Artificial Synapse Capable of Accelerated Learning at Low Power Inspired by Dopamine-facilitated Synaptic Activity” *Adv. Funct. Mater.*, 29, 1806646 (2019) *Back cover feature
 5. S. Kwon, S. Jang, J.-W. Choi, [S. Choi](#), S.-J. Jang, T.-W. Kim and G. Wang, “Controllable switching filaments prepared via tunable and well-defined single truncated conical nanopore structures for fast and scalable SiO_x memory” *Nano Lett.*, 17, 7462–7470 (2017)
 6. J. Jang, [S. Choi](#), S. Jang, S. Ham, H. Cho and G. Wang, “Ultra-stable analogue switching synaptic device for highly accurate neuromorphic calculation” in preparation (2019)
 7. H. Cho, [S. Choi](#), C.-W. Jeon, J. Jang, I.-K. Park and G. Wang, “Development of probabilistic synapse based on two-dimensional Layered double hydroxide” in preparation (2019)

Book chapters



- [S. Choi](#) and G. Wang, "Nanopore Structures and their applications" in 21st Century Nanoscience - A Handbook, Taylor&Francis (CRC Press), Spring 2020, ISBN: 9780815355281



- [S. Choi](#), S. Ham and G. Wang, "Memristor Synapses for Neuromorphic Computing" in Memristors - Circuits and Applications of Memristor Devices, IntechOpen, Fall 2019, ISBN:978-1-78984-073-5.

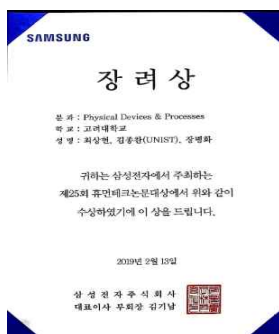
Patents

- 왕건욱, [최상현](#) & 장성훈 "나노포러스 산화물 기반 인공시냅스 소자 및 그 제조 방법" DP-2018-0506, 10-2018-0107922, 출원 (2018.09.10)

Awards



- [S. Choi](#), et al., "Gate-tunable SiO_x Artificial Synapse Inspired by Human Visual System for Neuromorphic Computation" **Third prize**, 15th Samsung electro-mechanics paper award (2019)

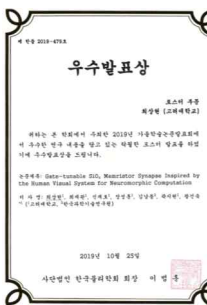


- [S. Choi](#), et al., J. C. Kim, H. Y. Jeong, "Development of Self-rectifying TaO_y/Nanoporous TaO_x Memristor Synapse for Large-scale Neuromorphic System" **Fourth prize**, 25th Samsung Humantech paper award (2019)

Presentations



- **S. Choi**, et al., "Gate-tunable SiO_x Memristor Synapse Inspired by the Human Visual System for Neuromorphic Computing" (*Poster, Poster Award: First prize), 2019 KIST converging conference (2019)



- **S. Choi**, et al., "Gate-tunable SiO_x Memristor Synapse Inspired by the Human Visual System for Neuromorphic Computation" (*Poster, Best Poster Award), KPS fall Meeting (2019)



- **S. Choi** et al., "Development of gate-tunable SiO_x memristive synapse inspired by rod-to-rod bipolar synapse of the biological visual system" (*Oral, Best Oral Award), KPS Spring Meeting (2019)

- **S. Choi**, et al., "Gate-tunable SiO_x Artificial Synapse Inspired by Human Visual System for Energy-efficient Neuromorphic Computation" (*Oral), IEEEE (2019), Korea University, Seoul, Korea, Aug 8 (Thu)- Aug 9 (Fri), 2019
- **S. Choi** et al., "Bio-inspired gate-tunable SiO_x artificial synapses imitating rod-to-rod bipolar synapses" (*Poster), NANO KOREA (2019)
- **S. Choi** et al., "Development of gate-tunable SiO_x memristive synapse

inspired by rod-to-rod bipolar synapse of the biological visual system" (*Oral), The 22nd International Conference on Solid State Ionics (SSI-22) (2019)

- **S. Choi** et al., "Development of Self-rectifying TaO_y/Nanoporous TaO_x Memristor Synapse for Suppressing Non-neural Signal in the Large-scale Neuromorphic Array System" (*Oral), American Physical Society (APS) (2019)
- **S. Choi** et al., "Development of Self-rectifying TaO_y/Nanoporous TaO_x Memristor Synapse for Suppressing Non-neural Signal in the Large-scale Neuromorphic Array System" (*Oral), The 26th Korean Conference on Semiconductor (KCS) (2019)
- **S. Choi** et al., "Development of Self-rectifying TaO_y/Nanoporous TaO_x Memristor Synapse for Suppressing Non-neural Signal in the Large-scale Neuromorphic Array System" (*Poster), Nano Convergence Conference (NCC) (2019)
- **S. Choi** et al., "Self-rectifying bilayer Ta₂O₅/Nanoporous Ta₂O_{5-x} Artificial Synaptic Device for High-Accuracy Pattern Recognition" (*Poster), KPS Fall Meeting (2018)
- **S. Choi** et al., "Self-rectifying Nanoporous Ta₂O_{5-x} Synaptic Device for High Recognition Accuracy in Artificial Neural Network" (*Poster), INPEC (2018)
- **S. Choi** et al., "Self-rectifying Nanoporous Ta₂O_{5-x} Synaptic Device for High Recognition Accuracy in an Artificial Neural Network" (*Oral), NANO KOREA (2018)
- **S. Choi** et al., "Self-rectifying Nanoporous Ta₂O_{5-x} Synaptic Device for High

Recognition Accuracy in an Artificial Neural Network" (*Oral), KPS Spring Meeting (2018)

- **S. Choi** et al., "Self-rectifying Nanoporous Ta₂O_{5-x} Memristive Device for Neuromorphic Device Applications" (*Poster), KCS (2018)