

Kim, Shinho

Contact: +82-10-8247-6890 | kimshinho0627@gmail.com

EDUCATION

- Korea Advanced Institute of Science and Technology (KAIST)** Daejeon
Ph.D., School of Electrical Engineering Sep. 2016 – Present
- Korea Advanced Institute of Science and Technology (KAIST)** Daejeon
M.S., School of Electrical Engineering Mar. 2014 – Aug 2016
- Kyungpook National University (KNU)** Daegu
B.S., School of Electronics Engineering College Mar. 2009 – Feb 2014

RESEARCH

- Research Topics in Ph.D.** 2016-Present
Electrically tunable graphene thermal emitter
Electrically tunable graphene metasurface
Robust and Efficient graphene metasurface
Ultracompact electro-optic waveguided modulator
Complex random optical structure
- Research Topics in M.S.** 2014-2016
Band-edge photonic crystal laser
Metamaterials using mechanical change of phase change material
Quantum effect in sub-nm plasmonic structure
Photothermal switch based on phase change and metal materials

MAIN PROJECTS

- Global Frontier** 2014 – 2016
Center for Advanced Meta-Materials
Mechanically reconfigurable metamaterial by phase change material
- Creative Materials Discovery Program** 2017 – Present
Center for Advanced Materials Discovery for 3D Displays
Collaboration works with research groups in department of materials science and engineering
- SAMSUNG Project** 2017 – Present
Mid-infrared electro-optic modulator based on graphene electrode

TECHNICAL SKILLS

Commerical software: MATLAB, Rhino, OriginLab, COMSOL Multiphysics, Lumerical FDTD

Fabrication: Multi-step photolithography, Graphene transfer/field effect transistor, Silicon carbide deep etching

PUBLICATION

1. KM Song, **S. Kim**, S Kang, TW Nam, GY Kim, H Lim, EN Cho, KH Kim, SH Kwon*, MS Jang*, and YS Jung*
Microcellular sensing media with ternary transparency states for fast and intuitive identification of unknown liquids
Sci. Adv. 7, eabg8013, 2021.
2. **S. Kim**, SG Menabde, JD Cox, T Low*, and MS Jang*
Ultracompact electro-optic waveguide modulator based on a graphene-covered $\lambda/1000$ plasmonic nanogap
Opt. Express 29, 938, 2021.
3. TH Im⁺, CH Lee⁺, JC Kim, **S. Kim**, M Kim, CM Park, HE Lee, JH Park, MS Jang, DC Lee, SY Choi, HS Wang, HY Jeong*, DY Jeon*, and KJ Lee*
Metastable quantum dot for photoelectric devices via flash-induced one-step sequential self-formation
Nano Energy 84, 105889, 2021.
4. GH Lee⁺, **S. Kim**⁺, YJ Kim*, MS Jang*, and YS Jung
Simulation and Fabrication of Nanoscale Spirals Based on Dual-Scale Self-Assemblies
ACS Appl. Mater. interface 12, 46678, 2020.
5. KJ Lee⁺, K Kwon⁺, **S. Kim**, W Honh, J Park, K Yu*, and SY Choi*
Gap-Mode Plasmon-Induced Photovoltaic Effect in a Vertical Multilayer Graphene Homojunction
Adv. Opt. Mater 8, 4, 1901519, 2020.
6. S Han⁺, S Kim⁺, **S. Kim**, T Low, VW Brar, and MS Jang*
Complete complex amplitude modulation with electronically tunable graphene plasmonic metamolecules
ACS Nano 14, 1166, 2020.
7. GY Kim⁺, **S. Kim**⁺, M Kim, H Lim, TW Nam, W Choi, E Cho, HJ Han, C Lee, JC Kim, HY Jeong, SY Choi, MS Jang*, DY Jeon*, and YS Jung*

Order-of-magnitude, Broadband Enhanced Light Emission from Quantum Dots Assembled in Multi-scale Phase-Separated Block Copolymers
Nano Lett. 19, 6827, 2019.

8. KJ Lee⁺, **S. Kim**⁺, W Hong, H Park, MS Jang, K Yu*, and SY Choi*
Observation of Wavelength-Dependent Quantum plasmon tunneling with Varying the thickness of Graphene spacer
Sci. Rep. 9, 1199, 2019.
9. CY Jeon⁺, KM Baek⁺, **S. Kim**, DJ Kim, MS Jang, YS Jung, and BG Park*
Plasmon-Enhanced Photodetection in Ferromagnet/Nonmagnet Spin Thermoelectric Structures
Adv. Funct. Mater. 28, 1802936, 2018.
10. KM Baek⁺, CY Jeon⁺, **S. Kim**, SH Cho, MS Jang, J Oh*, and YS Jung*
Engraving High-Density Nanogaps in Gold Thin Films via Sequential Anodization and Reduction for Surface-Enhanced Raman Spectroscopy Applications
Chem. Mater. 30, 6183, 2018.
11. G Seo, JB You, BJ Kim, J Shin, **S. Kim**, K Yu*
Facile photothermal synthesis of localized vanadium oxide capable of extraordinary phase transition
Opt. Mater. Express 7, 2860, 2017.
12. J Park, G Hwang, **S. Kim**, J Seo, H Park, K Yu, T Kim, and K Lee*
Flash-Induced Self-Limited Plasmonic Welding of Silver Nanowire Network for Transparent Flexible Energy Harvester
Adv. Mater. 29, 1603473, 2017.