

# Kim, Shinho

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

## EDUCATION

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<b>Korea Advanced Institute of Science and Technology (KAIST)</b> Postdoctoral Fellow, Information & Electronics Research Institute	Daejeon Mar. 2022 – Present
<b>Korea Advanced Institute of Science and Technology (KAIST)</b> Ph.D., School of Electrical Engineering	Daejeon Sep. 2016 – Feb. 2022
<b>Korea Advanced Institute of Science and Technology (KAIST)</b> M.S., School of Electrical Engineering	Daejeon Mar. 2014 – Aug 2016
<b>Kyungpook National University (KNU)</b> B.S., School of Electronics Engineering College	Daegu Mar. 2009 – Feb 2014

## RESEARCH

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<b>Research Topics in Postdoc</b>	2022-Present
Electrically tunable graphene thermal emitter	
Electrically tunable graphene spatial modulator	
Robust and Efficient graphene metasurface	
Phase change material-based active metasurface	
Design of light emission device	
Complex random optical structure	
<b>Research Topics in Ph.D.</b>	2016-2022
Electrically tunable graphene thermal emitter	
Electrically tunable graphene metasurface	
Robust and Efficient graphene metasurface	
Ultracompact electro-optic waveguided modulator	
Complex random optical structure	
<b>Research Topics in M.S.</b>	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

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<b>Global Frontier</b> Center for Advanced Meta-Materials Mechanically reconfigurable metamaterial by phase change material	2014 – 2016
<b>Creative Materials Discovery Program</b> Center for Advanced Materials Discovery for 3D Displays Collaboration works with research groups in department of materials science and engineering	2017 – 2022
<b>SAMSUNG Project</b> Mid-infrared electro-optic modulator based on graphene electrode	2017 – Present
<b>National Research Foundation of Korea</b> 2019 Basic Research International Exchange and Cooperation	2019-2020

## AWARDS

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Outstanding PhD Thesis Award 2021  
Kim Choong-Ki Award: Best Research Achievement Award 2019  
Excellent Paper Award COOC 2016

## PUBLICATION

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1. JY Kim, J Park, GR Holdman, JT Heident, **S Kim**, MS Jang\*, and VW Brar\*  
Full  $2\pi$  tunable phase modulation using avoided crossing of resonances  
*Nat. Commun.* 13, 2103, 2022.
2. 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.
3. **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.
4. TH Im<sup>+</sup>, CH Lee<sup>+</sup>, 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.

5. GH Lee<sup>+</sup>, **S Kim**<sup>+</sup>, 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.
6. KJ Lee<sup>+</sup>, K Kwon<sup>+</sup>, **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.
7. S Han<sup>+</sup>, S Kim<sup>+</sup>, **S Kim**, T Low, VW Brar, and MS Jang\*  
Complete complex amplitude modulation with electronically tunable graphene plasmonic metamolecules  
*ACS Nano* 14, 1166, 2020.
8. GY Kim<sup>+</sup>, **S Kim**<sup>+</sup>, 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.
9. KJ Lee<sup>+</sup>, **S Kim**<sup>+</sup>, 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.
10. CY Jeon<sup>+</sup>, KM Baek<sup>+</sup>, **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.
11. KM Baek<sup>+</sup>, CY Jeon<sup>+</sup>, **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.
12. 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.
13. 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.