

## Changhoon Park, Ph.D

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### Professional Experiences

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2024 – Current	<b>Drexel University</b> Postdoctoral researcher., Material Science and Engineering Advisor: Prof. Y. Gogotsi	Philadelphia, USA
2022 – 2024	<b>Korea University</b> Korea Research Professor., KU-KIST graduate school Advisor: Prof. M.-K. Kim	Seoul,
2021 – 2022	<b>Korea University</b> Korea Postdoctoral Scholar., KU-KIST graduate school Advisor: Prof. M.-K. Kim	Seoul,
2021 – 2021	<b>Institute for basic science (IBS) at Korea University</b> Korea Postdoctoral Scholar Advisor: Prof. Q-Han Park	Seoul,

### EDUCATION

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2014 – 2020	<b>Yonsei University</b> Korea Ph.D., Mechanical Engineering Thesis: <i>Integrated infrared signature management with multispectral selective absorber engineered with vectorial diffraction</i> Advisor: Prof. Jae W. Hahn	Seoul,
2010 – 2014	<b>Yonsei University</b> Korea B.S., Mechanical Engineering	Seoul,

### RESEARCH INTERESTS

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- Thermal engineering with MXenes, and metamaterial for energy and stealth applications
- Plasmon confinement with MXenes and ultrathin metal
- Nonlinear optics and its applications with MXenes

### Skills

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- Experimental skills: Thermal evaporator, AFM, SEM, Spectrometer (FT-IR / Visible-NIR), SWIR/MWIR/LWIR camera, Ellipsometer
- Computer skills: MATLAB, FDTD (optical simulation), RCWA (optical simulation), DEVICE (thermal simulation)

## PAPERS IN REFEREED JOURNALS

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### Publications and In Press

1. **Changhoon Park\***, Nu-Ri Park\*, Jisung Kwon, Hyerim Kim, Yury Gogotsi, Chong Min Koo and Myung-Ki Kim, "Ultrahigh nonlinear responses from acoustic MXene plasmons in the short-wave infrared range," *Adv. Mater.* 36, 2309189 (2024).
2. Jisung Kwon, **Changhoon Park**, Hyerim Kim, Nu-Ri Park, Chong Min Koo, and Myung-Ki Kim, "Shortwave infrared surface plasmons in multilayered two-dimensional  $Ti_3C_2T_x$  MXenes," *2D mater.* 10, 035028 (2023).
3. Jagyeong Kim\*, **Changhoon Park\***, and Jae W. Hahn, "Metal-semiconductor-metal metasurface for multiband infrared stealth technology using camouflage color pattern in visible range," *Adv. Opt. Mater.* 10, 202101930 (2022).
4. **Changhoon Park**, Jagyeong Kim, and Jae W. Hahn, "Integrated infrared signature management with multispectral selective absorber via single-port grating resonance," *Adv. Opt. Mater.* 9, 202002225 (2021).
5. **Changhoon Park**, Jagyeong Kim, and Jae W. Hahn, "Selective emitter with engineered anisotropic radiation to minimize dual-band thermal signature for infrared stealth technology", *ACS Appl. Mater. Interfaces* 12, 43090 (2020).
6. **Changhoon Park**, Seonghyeon Oh, and Jae W. Hahn, "Theoretical analysis of high-efficient dielectric nanofocusing for the generation of a brightness light source", *Sci. Rep.* 9, 8207 (2019).
7. Dandan Han, **Changhoon Park**, Seonghyeon Oh, Howon Jung, and Jae W. Hahn, "Quantitative analysis and modeling of near-field lithography: toward high quality pattern in nanofabrication", *Nanophotonics* 8, 879 (2019).
8. Howon Jung\*, **Changhoon Park\***, Seonghyeon Oh, and Jae W. Hahn, "Nanoscale 2.5-dimensional surface patterning with plasmonic lithography", *Sci. Rep.* 7, 9721 (2017).
9. **Changhoon Park**, Howon Jung, and Jae W. Hahn, "Characterization of three-dimensional field distribution of bowtie aperture using quasi-spherical wave and surface plasmon polaritons", *Sci. Rep.* 7, 45352 (2017).
10. Dandan Han, **Changhoon Park**, Howon Jung, and Jae W. Hahn, "Calibration of exposure dose for nanoscale plasmonic lithography with microsized far-field spot patterns", *J. Micromech. Microeng.* 26, 095001 (2016).
11. **Changhoon Park**, Jinhee Jang, and Jae W. Hahn, "Analysis of line edge roughness due to the stick/slip motion of a contact-mode scanning probe in plasmonic lithography", *J. Micro Nanolithogr. MEMS MOEMS* 13, 043020 (2014).

\*equally contributing first authors

## International CONFERENCE

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1. **Changhoon Park**, Hyerim Kim, Jisung Kwon, Chong Min Koo, and Myung-Ki Kim, "Thermal radiation engineering with MXene based selective emission for thermal camouflage", *SPIE Optics and Photonics*, San Diego, USA (2022).
2. **Changhoon Park**, Nu-Ri Park, Jisung Kwon, Hyerim Kim, Chong Min Koo, and Myung-Ki Kim, "Extreme light localization from MXene plasmons in short-wave infrared range", *CLEO-PR*, Sapporo, Japan (2022).
3. **Changhoon Park**, Nu-Ri Park, Jisung Kwon, Hyerim Kim, Chong Min Koo, and Myung-Ki Kim, "Giant non-linear response from MXene plasmon in short-wave infrared range", *Nano Korea*, Ilsan, Korea (2022).
4. **Changhoon Park**, Jae W. Hahn, Chong Min Koo, and Jae. W. Hahn "Scalable visible-infrared

## CURRICULUM VITAE

- camouflage with multispectral selective absorber”, *KPS Fall meeting*, Virtual Conference (2021).
5. **Changhoon Park**, and Jae W. Hahn, “Light focusing with three-dimensional bowtie antenna suppressing Ohmic loss”, *SPIE Photonics West*, Sanfrancisco, USA (2019).
  6. Dandan Han, **Changhoon Park**, Howon Jung, and Jae W. Hahn, “Rapid determination of calibration curve of exposure dose for nanoscale plasmonic lithography with optical microscope image of spot patterns”, *SPIE Optics and Photonics*, San Diego, USA (2016).