** SeokJoon Yun**

 -Postdoctoral position in ORNL CNMS-

**Specialty**: synthesis and modification of 2D materials by chemical vapor deposition (CVD)

**E-mail**: Seokjoonyun1@gmail.com

**Mobile**: +1-865-249-2057

**Affiliation**: Center for Nanophase Materials Sciences in Oak Ridge National Laboratory.

**Google Scholar**: <https://scholar.google.com/citations?user=wYoik-YAAAAJ&hl=en>

**EDUCATION AND WORK EXPERIENCE**

**2nd Postdoctoral (May. 2022 ~ )**

- Center for Nanophase Materials Sciences in Oak Ridge National Laboratory.

- Research field: Growth mechanism and controlled synthesis of 2D materials.

**1st Postdoctoral (Mar. 2018 ~April. 2022 )**

- Center for Integrated Nanostructure Physics, Institute for Basic Science, Korea

- Research field: 2D magnetism, 2D diluted magnetic semiconductor, 2D heterostructure

**Integrated Ms-Ph.D (Mar. 2012 ~ Feb. 2018)**

- Prof. Young Hee Lee’s group, Department of energy science, Sungkyunkwan University, Korea

- Thesis: Synthesis and modification of transition metal dichalcogenide

**Bachelor (2006 ~ 2012)**

- Department of advanced material science, Sungkyunkwan University, Korea

**PUBLICATION SUMMARY**

Total # of papers: 65, Total # of patent: 1

First : 12 papers (1Nature communication, 1Advanced Materials, 2ACS Nano, 3Advanced science, 1Advanced Functional Materials, 1Small, 1Applied physics letters, 1Physical review B, 1Current applied physics),

Co-author : (54 papers)

Total citations: 3944, h-index: 28, i10-index: 46

**RESEARCH EXPERIENCE**

**1. Synthesis**

**1-1. Large area and high-quality monolayer 2D materials by CVD**

- 1) Graphene, 2) Hexagonal boron nitride, 3) Transition metal dichalcogenides (Mo, W, Re, Nb,V,Cr)(S, Se, Te)2 4) Black phosphorus, 5) Topological insulator (WTe2, antimonene and Bi2Se3)

- 6) Wafer-scale single crystalline Graphene and hexagonal-boron nitride by CVD.

- Low-temperature MoS2 growth by metal-organic-CVD (MOCVD)

**1-2. Synthesis of bulk single-crystalline 2D materials**

- Bulk TMD materials by solid-state reaction (by chemical vapor transport and flux method).

- Bulk 2D ferromagnetic materials (CrI3, CrGeTe3, Fe3GeTe2, MnI2) by solid-state reaction.

**1-3. Synthesis of 2D heterostructures**

**-** TMD on Graphene and hexagonal-boron nitride.

- TMD vertical and lateral heterostructure (MoS2-MoTe2, MoSe2-WSe2, NbSe2-WSe2, etc…)

**1-4. monolayer 2D substitutional alloy (magnetism or band gap engineering)**

- TMD chalcogen alloy by conversion process (MoS2-xTex, WSe2-xTex) for band gap engineering

- TMD Janus structure (MoSTe) for piezoelectricity

- TMD metal alloy (Mn, V, and Cr-doped monolayer TMD) for dilute magnetic semiconductor

**2. Operating, characterization and analysis**

**2-1. Structural**

- 1) Transmission electron microscopy, 2) x-ray diffraction, 3) atomic force microscopy, 4) scanning electron microscopy.

**2-2. Optical**

- 1) Raman spectroscopy, 2) photoluminescence, 3) x-ray photoemission spectroscopy, 4) ultraviolet-visible spectroscopy, 5) fourier-transform infrared spectroscopy system.

- Analysis only: 1) Angle-resolved photoemission spectroscopy, 2) X-ray absorption spectroscopy,

**2-3. Electrical**

- 1) Probe station, 2) closed cycle refrigerator, 3) hall measurement. 4) physical property measurement system, 5) pulsed IV system.

**2-4. Magnetism**

- 1) Magnetic force microscopy, 2) magneto optical kerr effect, 3) vibrating sample magnetometer, 4) Superconducting Quantum Interference Device

-Analysis only: X-ray magnetic circular dichroism

**3. Device fabrication and sample preparation**

**3-1. Device fabrication**

- Photo/e-beam lithography, reactive ion etcher, atomic layer deposition, dry-transfer process, e-beam evaporation, sputtering, pulsed laser deposition.

**3-2. Sample preparation**

- Know-how to prepare clean samples for sophisticated analysis tools (TEM, STM, ARPES)

**HONORS AND AWARDS**

1, Best oral presentation, 2018 DOES BK workshop, Jan. (2018)

2, Press in SKKU News (News number 36761)

3, Director's prize, Center for Integrated Nanostructure Physics, Dec. (2017)

4, Oral presentation award, 2016 DOES BK workshop, Jan. (2016)

**PUBLICATIONS**

**First author (include Co-first author)**

1. Seok Joon #Yun, Soo Ho #Choi, Ji-Won Kim, Duhee Yoon, Byeong Wook Cho, Yo Seob Won, Jae Woo Kim, Jina Lee, Yong In Kim, Young-Min Kim, Balakrishnan Kirubasankar, Soo Min Kim, Ki Kang Kim, Young Hee Lee “Internal Thermal Stress-Driven Phase Transformation in Van der Waals Layered Materials” ***ACS Nano* 16**(10), 17033-17040 (2022-09-29)
2. Seok Joon Yun, Byeong Wook Cho, Thapa Dinesh, Dae Hee Yang, Yong In Kim, Jeong Won Jin, Sang‐Hyeok Yang, Tuan Dung Nguyen, Young‐Min Kim, Ki Kang Kim, Dinh Loc Duong, Seong‐Gon Kim, Young Hee Lee “Escalating ferromagnetic order via Se‐vacancy near vanadium in WSe2 monolayer” ***Advanced Materials*** **34**(10), 2106551 (2022-03-10)
3. Frederick Osei-Tutu Agyapong-Fordjour, ***Seok Joon Yun***, Hyung-Jin Kim, Wooseon Choi, Soo Ho Choi, Laud Anim Adofo, Stephen Boandoh, Yong In Kim, Soo Min Kim, Young-Min Kim, Young Hee Lee, Young-Kyu Han, Ki Kang Kim “Substitutional VSn nanodispersed in MoS2 film for Pt-scalable catalyst” ***Advanced Science*** 8(16), 2003709 (2021-08-18) 13
4. Houcine Bouzid, R. C. Sahoo, ***Seok Joon Yun***, Kirandeep Singh, Youngjo Jin, Jinbao Jiang, Duhee Yun, Hyun Yong Song, Giheon Kim, Wooseon Choi, Young-Min Kim, Young Hee Lee “Multiple magnetic phases in van der waals Mn-doped SnS2 semiconductor. ***Advanced Functional Materials*** 31(29), 2102560 (2021-07-16) 12
5. Bumsub Song, ***Seok Joon Yun***, Jinbao Jiang, José Avila, Kory Beach, Wooseon Choi, Young-Min Kim, Duhee Yoon, Humberto Terrones, Young Jae Song, Maria C. Asensio, Dinh Loc Duong, Young Hee Lee “Evidence of itinerant holes for long-range magnetic order in tungsten diselenide semiconductor with vanadium dopants” ***Physical review B*** 103, 094432 (2021-03-22) 13
6. Gang Hwi An, ***Seok Joon Yun***, Young Hee Lee, Hyun Seok Lee "Growth mechanism of alternating defect domains in hexagonal WS2 via inhomogeneous W-precursor accumulation" ***Small*** 16(43) 2003326, (2020-09-29) 4
7. Sehwan Park, ***Seok Joon Yun***, Yong In Kim, Jung Ho Kim, Young-Min Kim, Ki Kang Kim, Young Hee Lee “Tailoring Domain Morphology in Monolayer NbSe2 and WxNb1–xSe2 Heterostructure” ***ACS Nano*** 14(7) 8784-8792, (2020-06-15) 7
8. ***Seok Joon Yun***, Dinh Loc Duong, Manh-Ha Doan, Kirandeep Singh, Thanh Luan Phan, Wooseon Choi, Young-Min Kim, Young Hee Lee “Ferromagnetic Order at Room Temperature in Monolayer WSe2 Semiconductor via Vanadium Dopant” ***Adv. Sci. 7***(9)1903076, (2020-05-06) 8
9. Sidi Fan, ***Seok Joon Yun***, Woo Jong Yu, Young Hee Lee “Tailoring Quantum Tunneling in Vanadium-Doped WSe2/SnSe2 Heterostructure” ***Adv. Sci.*** **7**(3), 1902751 (2020-02-05)
10. Dinh Loc Duong, ***Seok Joon Yun***, Youngkuk Kim, Seong-Gon Kim, Young Hee Lee “Long-range ferromagnetic ordering in vanadium-doped WSe2 semiconductor” ***Appl. Phys. Lett.* 115**(24)**,** 242406(2019-12-12)
11. ***Seok Joon Yun***, Gang Hee Han, Hyun Kim, Dinh Loc Duong, Bong Gyu Shin, Jiong Zhao, Quoc An Vu, Jubok Lee, Seung Mi Lee and Young Hee Lee “Telluriding Monolayer MoS2 and WS2 via Alkali Metal Scooter” ***Nat. commun.* 8,** 2163(2017-12-18) 10
12. ***Seok Joon Yun***, Soo Min Kim, Ki Kang Kim, Young Hee Lee. “A systematic study of the synthesis of monolayer tungsten diselenide.” ***Curr. App. Phys****.* **16**(9), 1216-1222 (2016-09-01)
13. ***Seok Joon Yun***, Sang Hoon Chae, Hyun Kim, Jin Cheol Park, Ji-Hoon Park, Gang Hee Han, Song Jo, Soo Min Kim, Hye Min Oh, Jinbong Seok, Mun Seok Jeong, Ki Kang Kim, Young Hee Lee. “Synthesis of Centimeter-Scale Monolayer Tungsten Disulfide Film on Gold Foils” ***ACS Nano*** **9**(5), 5510-5519 (2015-04-14)

**Coauthor**

1. Laud Anim Adofo, Hyung Jin Kim, Frederick Osei-Tutu Agyapong-Fordjour, Huong Thi Thanh Nguyen, Jeong Won Jin, Yong In Kim, Seon Je Kim, Jung Ho Kim, Stephen Boandoh, Soo Ho Choi, Su Jin Lee, Seok Joon Yun, Young-Min Kim, Soo Min Kim, Young-Kyu Han, Ki Kang Kim “Hydrogen Evolution Reaction Catalyst with High Catalytic Activity by Interplay Between Organic Molecules and Transition Metal Dichalcogenide Monolayers” ***Materials Today Energy*** 100976, available online 11 March 2022.
2. Jung Ho Kim, Jubok Lee, Sehwan Park, Changwon Seo, Seok Joon Yun, Gang Hee Han, Jeongyong Kim, Young Hee Lee, Hyun Seok Lee “Locally enhanced light–matter interaction of MoS2 monolayers at density-controllable nanogrooves of template-stripped Ag films” ***Current Applied Physics*** **33**, 59-65 (2022-01-01)
3. Sichen Wei, Soojung Baek, Hongyan Yue, Maomao Liu, Seok Joon Yun, Sehwan Park, Young Hee Lee, Jiong Zhao, Huamin Li, Kristofer Reyes, Fei Yao “Machine-Learning Assisted Exploration: Toward the Next-Generation Catalyst for Hydrogen Evolution Reaction” ***Journal of the electrochemical society*** **168**(12), 126523 (2021-12-22)
4. Sang‐Hyeok Yang, Wooseon Choi, Byeong Wook Cho, Frederick Osei‐Tutu Agyapong‐Fordjour, Sehwan Park, ***Seok Joon Yun***, Hyung‐Jin Kim, Young‐Kyu Han, Young Hee Lee, Ki Kang Kim, Young‐Min Kim “Deep Learning‐Assisted Quantification of Atomic Dopants and Defects in 2D Materials” ***Advanced Science*** **8**(16) 2101099 (20210818) 11
5. Sunil Kumar, Arvind Singh, Anand Nivedan, Sandeep Kumar, Seok Joon Yun, Young Hee Lee, Marc Tondusson, Jerome Degert, Jean Oberle, Eric Freysz “Sub-bandgap activated charges transfer in a graphene-MoS2-graphene heterostructure” ***Nano Select*** (2021-05-04) https://doi.org/10.1002/nano.202000159
6. Soo Ho Choi, Hyung‐Jin Kim, Bumsub Song, Yong In Kim, Gyeongtak Han, Huong Thi Thanh Nguyen, Hayoung Ko, Stephen Boandoh, Ji Hoon Choi, Chang Seok Oh, Hyun Je Cho, Jeong Won Jin, Yo Seob Won, Byung Hoon Lee, Seok Joon Yun, Bong Gyu Shin, Hu Young Jeong, Young‐Min Kim, Young‐Kyu Han, Young Hee Lee, Soo Min Kim, Ki Kang Kim “Epitaxial Single‐Crystal Growth of Transition Metal Dichalcogenide Monolayers via the Atomic Sawtooth Au Surface” **Advanced materials** **33**(15), 2006601 (2021-04-15) 22
7. Shrawan Roy, Manh-Ha Doan, Jeongyong Kim, Seon Kyeong Kang, Gwang Hwi Ahn, Hyun Seok Lee, Seok Joon Yun “Modulation of optoelectric properties of monolayer transition metal dichalcogenides placed on a metal pattern” ***Journal of the Korean Physical Society,*** https://doi.org/10.1007/s40042-021-00102 (2021-02-17)
8. Sunil Kumar, Arvind Singh, Sandeep Kumar, Anand Nivedan, Marc Tondusson, Jérôme Degert, Jean Oberlé, Seok Joon Yun, Young Hee Lee, Eric Freysz “Enhancement in optically induced ultrafast THz response of MoSe2MoS2 heterobilayer” ***Optics Express 29***(3) 4181-4190 (2021-02-01) 9
9. Jinbao Jiang, Manh-Ha Doan, Linfeng Sun, Mohan Kumar Ghimire, Hyun Kim, Seok Joon Yun, Heejun Yang, Dinh Loc Duong, Young Hee Lee “Schottky-Barrier Quantum Well in Two-Dimensional Semiconductor Nanotransistors” ***Materials Today Physics* 15** 100275 (2020-12-01) 9
10. Yiping Wang, Jesse Balgley, Eli Gerber, Mason Gray, Narenda Kumar, Xiaobo Lu, Jia-Quang Yan, Arash Fereidouni, Rabindra Basnet, Seok Joon Yun, Dhavala Suri, Hikari Kitadai, Takashi Taniguchi, Kenji Watanabe, Xi Ling, Jagadeesh Moodera, Young Hee Lee, Hugh O. H. Churchill, Jin Hu, Li Yang, Eun-Ah Kim, Davaid G. Mandrus, Erik A Henriksen\*, Kenneth S. Burch\* “Modulation Doping via a Two-Dimensional Atomic Crystalline Acceptor” ***Nano letters*** **20(12)**, 8446-8452 (2020-11-09) 24
11. Jubok Lee, Seok Joon Yun, Changwon Seo, Kiwon Cho, Tae Soo Kim, Gwang Hwi An, Kibum Kang, Hyun Seok Lee, and Jeongyong Kim\* “Switchable, Tunable, and Directable Exciton Funneling in Periodically Wrinkled WS2” ***Nano Letters 21***(1) 43-50 (2020-10-14) 9
12. Subash Adhikari, Ji‐Hee Kim, Bumsub Song, Manh‐Ha Doan, Minh Dao Tran, Leyre Gomez, Hyun Kim, Hamza Zad Gul, Ganesh Ghimire, ***Seok Joon Yun***, Tom Gregorkiewicz, Young Hee Lee “Bandgap Renormalization in Monolayer MoS2 on CsPbBr3 Quantum Dots via Charge Transfer at Room Temperature” ***Advanced Materials Interfaces 7(21)*** 2000835 (2020-09-21) 12
13. Hanyu Zhang, Jeremy R Dunklin, Obadiah G Reid, Seok Joon Yun, Sanjini U Nanayakkara, Young Hee Lee, Jeffrey L Blackburn, Elisa M Miller “Disentangling oxygen and water vapor effects on optoelectronic properties of monolayer tungsten disulfide” ***Nanoscale*** **12(15)**, 8344-8354 (2020-04-01) 8
14. Jeffrey L Blackburn, Hanyu Zhang, Alexis R Myers, Jeremy R Dunklin, David Christopher Coffey, Rebecca N Hirsch, Derek Vigil-Fowler, ***Seok Joon Yun***, Byeong Wook Cho, Young Hee Lee, Elisa M Miller, Garry Rumbles, Obadiah George Reid “Measuring Photoexcited Free Charge Carriers in Mono-to Few-Layer Transition Metal Dichalcogenides with Steady-State Microwave Conductivity” ***J. Phys. Chem. Lett*** **11**(1) 99-107 (2019-12-02) 13
15. Homin Choi, Byoung Hee Moon, Jung Ho Kim, ***Seok Joon Yun***, Gang Hee Han, Sung-gyu Lee, Hamza Zad Gul, Young Hee Lee “Edge contact for carrier injection and transport in MoS2 field effect transistors” ***ACS Nano***, **13**(11), 13169-13175 (2019-11-12) 8
16. Jung Ho Kim, Jubok Lee, Hyun Kim, ***Seok Joon Yun***, Jeongyong Kim, Hyun Seok Lee and Young Hee Lee “Optical logic operation via plasmon-exciton interconversion in 2D semiconductors” ***Sci. Rep.,*** **9** 9164 (2019-06-24), 7
17. Kang-Nyeoung Lee, Seungho Bang, Ngoc Thanh Duong, ***Seok Joon Yun***, Dae Young Park, Juchan Lee, Young Chul Choi, Mun Seok Jeong “Encapsulation of Monolayer WSe2 Phototransistor with Hydrothermally Grown ZnO Nanorods” ***ACS Appl. Mater. Interfaces,*** **11**(12). 20257-20264 (2019-05-10), 8
18. Youngbum Kim, ***Seok Joon Yun***, EunJi Lee and Jeongyong Kim “Near-field visualization of charge transfer at MoSe2/WSe2 lateral heterojunction” ***Optical Mater. Exp.,*** **9**(4) 1864-1871 (2019-04-01) 4
19. Hye Min Oh, Chulho Park, Seungho Bang, ***Seok Joon Yun***, Ngoc Thanh Duong, Mun Seok Jeong “Suppressing Ambipolar Characteristics of WSe2 Field Effect Transistors Using Graphene Oxide” ***Adv. Elec. Mater.,*** **5**(2), 1800608 (2019-02-01) 6
20. Stephen Boandoh, Frederick Osei-Tutu Agyapong-Fordjour, Soo Ho Choi, Joo Song Lee, Ji-Hoon Park, Hayoung Ko, Gyeongtak Han, ***Seok Joon Yun***, Sehwan Park, Young-Min Kim, Woochul Yang, Young Hee Lee, Soo Min Kim, Ki Kang Kim “Wafer-scale van der Waals Heterostructures with Ultraclean Interfaces via the aid of Viscoelastic Polymer” ***ACS Appl. Mater. Interfaces,* 11**(1)**,** 1579-1586 (2018-12-10) 14
21. Dinh Hoa Luong, Hyun Seok Lee, Ganesh Ghimire, Jubok Lee, Hyun Kim, ***Seok Joon Yun***, Gwang Hwi An, Young Hee Lee “Enhanced Light–Matter Interactions in Self‐Assembled Plasmonic Nanoparticles on 2D Semiconductors” ***Small***, 14(47) 1802949 (2018-11-22) 8
22. Joo Song Lee, Soo Ho Choi, ***Seok Joon Yun***, Yong In Kim, Stephen Boandoh, Ji-Hoon Park, Bong Gyu Shin, Hayoung Ko, Seung Hee Lee, Young-Min Kim, Young Hee Lee, Ki Kang Kim, Soo Min Kim “Wafer-scale single-crystal hexagonal boron nitride film via self-collimated grain formation” ***Science***, **362**(6416), 817-821 (2018-11-16) 13
23. Seong-Yeon Lee, Tae-Young Jeong, Ji-Hee Kim, ***Seok Joon Yun***, Ki-Ju Yee “Self-consistent dielectric constant determination for monolayer WSe2” ***Optics Express***, **26**(18), 23061-23068 (2018-09-3) 5
24. Chanwoo Lee, Byeong Geun Jeong, ***Seok Joon Yun***, Young Hee Lee, Seung Mi Lee, Mun Seok Jeong “Unveiling Defect-Related Raman Mode of Monolayer WS2 via Tip-Enhanced Resonance Raman Scattering” ***ACS Nano*, 12**(10), 9982-9990 (2018-08-24) 6
25. Jung Ho Kim, ***Seok Joon Yun***, Hyun Seok Lee, Jiong Zhao, Houcine Bouzid, Young Hee Lee “Plasma-Induced Phase Transformation of SnS2 to SnS” ***Sci. Rep.*** **8,** 10284 (2018-07-6) 6
26. Gang Hee Han, Dinh Loc Duong, Dong Hoon Keum, ***Seok Joon Yun*** and Young Hee Lee “Van der Waals Metallic Transition Metal Dichalcogenides” ***Chem. Rev.*, 118**(13), 6297-6336 (2018-06-29) 5
27. Shrawan Roy, Wooseon Choi, Sera Jeon, Do-Hwan Kim, Hyun Kim, ***Seok Joon Yun***, Yongjun Lee, Jaekwang Lee, Young-Min Kim, Jeongyong Kim “Atomic Observation of Filling Vacancies in Monolayer Transition Metal Sulfides by Chemically Sourced Sulfur Atoms” ***Nano lett.***, **18**(7), 4523-4530 (2018-06-20) 10
28. Won Tae Kang, Il Min Lee, ***Seok Joon Yun***, Young Il Song, Kunnyun Kim, Do-Hwan Kim, Yong Seon Shin, Kiyoung Lee, Jinseong Heo, Young-Min Kim, Young Hee Lee, Woo Jong Yu “Direct Growth of Doping Controlled Monolayer WSe2 by Selenium-Phosphorus Substitution” ***Nanoscale***, **10(24)**, 11397-11402 (2018-03-30) 12
29. Seungho Bang, Ngoc Thanh Duong, Jubok Lee, Yoo Hyun Cho, Hye Min Oh, Hyun Kim, ***Seok Joon Yun***, Chulho Park, Min-Ki Kwon, Ja-Yeon Kim, Jeongyong Kim, Mun Seok Jeong “Augmented Quantum Yield of a 2D Monolayer Photodetector by Surface Plasmon Coupling” ***Nano lett.***, **18**(4), 2316-2323 (2018-03-21) 12
30. Duc Anh Nguyen, Hye Min Oh, Ngoc Thanh Duong, Seungho Bang, **Seok Jun Yoon**, and Mun Seok Jeong “Highly Enhanced Photoresponsivity of a Monolayer WSe2 Photodetector with Nitrogen-Doped Graphene Quantum Dots” ***ACS Appl. Mater. Interfaces,* 10**(12)**,** 10322-10329 (2018-03-06) 6
31. Qingming Deng, Quoc Huy Thi, Jiong Zhao, ***Seok Joon Yun***, Hyun Kim, Guibin Chen, Thuc Hue Ly “The Impact of Polar Edge Terminations of the Transition Metal Dichalcogenide Monolayers During Vapor Growth” ***J. Phys. Chem. C.,* 122**(6), 3575-3581 (2018-01-24) 7
32. Dinh Loc Duong, ***Seok Joon Yun***and Young Hee Lee “van der Waals Layered Materials: Opportunities and Challenges” ***ACS Nano*****11**(12)**,** 11803-11830(2017-12-08) 3
33. Hyun Kim, Gang Hee Han, ***Seok Joon Yun***, Jiong Zhao, Dong Hoon Keum, Hye Yun Jeong, Thuc Hue Ly, Youngjo Jin, Ji-Hoon Park, Byoung Hee Moon, Sung-Wng Kim and Young Hee Lee “Role of alkali metal promoter in enhancing lateral growth of monolayer transition metal dichalcogenides” ***Nanotech****.* **28**(36), 36LT01-1-36LT01-8 (2017-08-08) 12
34. Thuc Hue Ly, ***Seok Joon Yun***, Quoc Huy Thi, Jiong Zhao “Edge Delamination of Monolayer Transition Metal Dichalcogenides.” ***ACS Nano*** **11**(7), 7534-7541 (2017-07-11) 4
35. Krishna P. Dhakal, Shrawan Roy, ***Seok Joon Yun***, Ganesh Ghimire, Changwon Seo and Jeongyong Kim. “Heterogeneous modulation of exciton emission in triangular WS2 monolayers by chemical treatment” ***J. Mater. Chem. C* 5**(27), 6820-6827 (2017-06-15) 6
36. Hyun Jeong, Hye Min Oh, Anisha Gokarna, Hyun Kim, ***Seok Joon Yun***, Gang Hee Han, Mun Seok Jeong, Young Hee Lee, Gilles Lerondel. “Integrated Freestanding Two-dimensional Transition Metal Dichalcogenides.” ***Adv. Mater.* 29**(18), 1700308-1-1700308-9 (2017-05-10) 9
37. Hye Yun Jeong, Youngjo Jin, ***Seok Joon Yun***, Jiong Zhao, Jaeyoon Baik, Dong Hoon Keum, Hyun Seok Lee, and Young Hee Lee. “Heterogeneous defect domains in single-crystalline hexagonal WS2.” ***Adv. Mater.*** **29**(15), 1605043 (2017-04-18), 8
38. Guru P. Neupane, Minh Dao Tran, ***Seok Joon Yun*,** Hyun Kim, Changwon Seo, Jubok Lee, Gang Hee Han, Ajay K. Sood, and Jeongyong Kim. “Simple Chemical Treatment to N-dope Transition-Metal Dichalcogenides and Enhance the Optical and Electrical Characteristics.” ***ACS Appl. Mater. Interfaces*** **9**(13), 11950 -11958 (2017-03-17), 9
39. Yongjun Lee, ***Seok Joon Yun***, Youngbum Kim, Min Su Kim, Gang Hee Han, A. K. Sood, Jeongyong Kim. “Near-field spectral mapping of individual exciton complexes of monolayer WS2 correlated with local defects and charge population.” ***Nanoscale*** **9**(6), 2272-2278 (2017-01-13) 7
40. Chanwoo Lee, Sung Tae Kim, Byeong Geun Jeong, ***Seok Joon Yun***, Young Jae Song, Young Hee Lee, Doo Jae Park, Mun Seok Jeong. “Tip-Enhanced Raman Scattering Imaging of Two-Dimensional Tungsten Disulfide with Optimized Tip Fabrication Process.” ***Sci. Rep.*** **7,** 40810-1-40810-7 (2017-01-13) 8
41. Jiong Zhao, Honggi Nam, Thuc Hue Ly, ***Seok Joon Yun***, Sera Kim, Suyeon Cho, Heejun Yang, Young Hee Lee. “Chain vacancies in 2D crystals.” ***Small*** **13**(1), 1601930-1-1601930-10 (2017-01-4) 8
42. Shrawan Roy, Guru P. Neupane, Krishna P. Dhakal, Jubok Lee, ***Seok Joon Yun***, Gang Hee Han, and Jeongyong Kim. “Observation of Charge Transfer in Heterostructures Composed of MoSe2 Quantum Dots and a Monolayer of MoS2 or WSe2.” ***J. Phys. Chem. C.*** **121**(3), 1997-2004 (2017-01-03) 7
43. Hyun Seok Lee, Dinh Hoa Luong, Min Su Kim, Youngjo Jin, Hyun Kim, ***Seok Joon Yun***, Young Hee Lee “Reconfigurable exciton-plasmon interconversion for nanophotonic circuits” ***Nat. Commun.*** **7**, 13663 (2016-11-28) 7
44. Min-Kyu Joo, Yoojoo Yun, ***Seok joon*** Yun, Young Hee Lee, Dongseok Suh “Strong Coulomb scattering effects on low frequency noise in monolayer WS2 field-effect transistors***” Appl. Phys. Lett.*** **109**(15), 153102 (2016-10-10) 5
45. Min Su Kim, Shrawan Roy, Jubok Lee, Byung Gu Kim, Hyun Kim, Ji-Hoon Park, ***Seok Joon Yun*,** Gang Hee Han, Jae-Young Leem and Jeongyong Kim. “Enhanced Light Emission from Monolayer Semiconductors by Forming Heterostructures with ZnO Thin Films.” ***ACS Appl. Mater. Interfaces*** **8**(42), 28809-28815 (2016-10-10) 10
46. Bong Gyu Shin, Gang Hee Han, ***Seok Joon Yun***, Hye Min Oh, Jung Jun Bae, Young Jae Song, Chong-Yun Park and Young Hee Lee. “Indirect Bandgap Puddles in Monolayer MoS2 by Substrate-Induced Local Strain.”***Adv. Mater.*** **28**(42), 9378-9384 (2016-10-09) 8
47. Hyun Jeong, Hye Min Oh, Seungho Bang, Hyeon Jun Jeong, Sung-Jin An, Gang Hee Han, Hyun Kim, ***Seok Joon Yun***, Ki Kang Kim, Jin Cheol Park, Young Hee Lee, Gilles Lerondel, and Mun Seok Jeong. “Metal–Insulator–Semiconductor Diode Consisting of Two-Dimensional Nanomaterials.” ***Nano Lett****.* **16**(3), 1-5 (2016-02-17) 13
48. Min Su Kim, ***Seok Joon Yun***, Yongjun Lee, Changwon Seo, Gang Hee Han, Ki Kang Kim, Young Hee Lee and Jeongyong Kim. “Biexciton Emission from Edges and Grain Boundaries of Triangular WS2 Monolayers.” ***ACS Nano*** **10**(2), Jan. 2399-2405 (2016-01-13)
49. Hye Yun Jeong, Si Young Lee, Thuc Hue Ly, Gang Hee Han, Hyun Kim, Honggi Nam, Zhao Jiong, Bong Gyu Shin, ***Seok Joon Yun***, Jaesu Kim, Un Jeong Kim, Sungwoo Hwang, Young Hee Lee. “Visualizing Point Defects in Transition-Metal Dichalcogenides Using Optical Microscopy.” ***ACS Nano* 10**(1), 770-777 (2015-12-08)
50. Soo Min Kim, Allen Hsu, Min Ho Park, Sang Hoon Chae, ***Seok Joon Yun*,** Joo Song Lee, Dae-Hyun Cho, Wenjing Fang, Changgu Lee, Tomas Palacios, Mildred Dresselhaus, Ki Kang Kim, Young Hee Lee, and Jing Kong. “Synthesis of Large-Area Multi-layer Hexagonal Boron Nitride for High Material Performance.” ***Nat. Commun.*** **6,** 8662 (2015-10-28)
51. Kyungjune Cho, Misook Min, Tae-Young Kim, Hyunhak Jeong, Jinsu Pak, Jae-Keun Kim, Jingon Jang, ***Seok Joon Yun***, Young Hee Lee, Woong-Ki Hong and Takhee Lee. “Electrical and Optical Characterization of MoS2 with Sulfur Vacancy Passivation by Treatment with Alkanethiol Molecules.” ***ACS Nano*** **9**(8), 8044-8053 (2015-08-11)
52. Jin Cheol Park, ***Seok Joon Yun***, Hyun Kim, Ji-Hoon Park, Sang Hoon Chae, Sung-Jin An, Jeong-Gyun Kim, Soo Min Kim, Ki Kang Kim and Young Hee Lee. “Phase-Engineered Synthesis of Centimeter-Scale 1T′- and 2H-Molybdenum Ditelluride Thin Films” ***ACS Nano*** **9**(6), 6548-6554(2015-06-04) 10
53. Hyun Kim, ***Seok Joon Yun***, Jin Cheol Park, Min Ho Park, Ki Kang Kim and Young Hee Lee. “Seed growth of tungsten diselenide nanotubes from tungsten oxides.” ***Small*** **11**(18), 2192-2199 (2015-05-13) 6
54. Ji-Hoon Park, Jin Cheol Park, ***Seok Joon Yun***, Hyun Kim, Dinh Hoa Luong, Soo Min Kim, Soo Ho Choi, Woochul Yang, Jing Kong, Ki Kang Kim, and Young Hee Lee. “Large-Area Monolayer Hexagonal Boron Nitride on Pt Foil” ***ACS Nano*** **8**(8), 8520-8528 (2014-08-05) 11
55. Dinh Loc Duong, Gang Hee Han, Seung Mi Lee, Fethullah Gunes, Eun Sung Kim, Sung Tae Kim, Heetae Kim, Quang Huy Ta, Kang Pyo So, ***Seok Jun Yoon***, Seung Jin Chae, Young Woo Jo, Min Ho Park, Sang Hoon Chae, Seong Chu Lim, Jae Young Choi and Young Hee Lee. “Probing graphene grain boundaries with optical microscopy.” ***Nature* 450,** 490 (2012-10-03)