

Contact

Information Center for Correlated Electron Systems, Institute for Basic Science (CCES, IBS)
& Dept. of Physics and Astronomy, Seoul National University
Building Num. 18, Room # 418 (18-418)
1 Gwanak-ro, Gwanak-gu, Seoul 08826, Korea
E-Mail: mismfs@snu.ac.kr / mismfs@naver.com
Mobile: +82-10-2662-3847

Education & Career

- 2019-Present** Postdoctoral fellow, Department of physics and astronomy, Seoul National University
- 2014-2019** PhD., Department of physics and astronomy, Seoul National University
Supervisor: Prof. Tae Won Noh
- 2009-2013** Mphys (Hons), Physics with Theoretical Physics, University of Manchester, UK
Supervisor: Prof. Yang Xian
- 2007-2009** Ggyeon-Gi Science High School, South Korea

Research interests

Flexoelectricity, Oxide heteroepitaxy, Strongly correlated electron system, Ferroelectric materials, Freestanding films

Publications

- Sung Min Park**, Bo Wang, Tula Paudel, Seyoung Park, Saikat Das, Jeong Rae Kim, Eun Kyo Ko, Han Gyeol Lee, Nahee Park, Dongseok Suh, Evgeny Tsymbal, Long-Qing Chen, Tae Won Noh*, Daesu Lee*, "Colossal flexoresistance in dielectrics", *Under review in Nature Communications*
- H. G. Lee, L. Wang, L. Si, X. He, D. Porter, J. R. Kim, E. K. Ko, **S. M. Park**, B. Kim, A. T. S. Wee, A. Bombardi, Z. Zhong, T. W. Noh*, "Surface metal-insulator transition in SrRuO₃ ultra-thin films triggered by surface termination conversion", *Accepted in Advanced Materials* <https://doi.org/10.1002/adma.201905815> (2019)
- Saikat Das, Bo Wang, Tula R. Paudel, **Sung Min Park**, Evgeny Y. Tsymbal, Long-Qing Chen, Daesu Lee*, Tae Won Noh*, "Enhanced flexoelectricity at reduced dimensions revealed by mechanically tunable quantum tunneling", *Nature Communications* 10, 537 (2019)
- Sung Min Park**, Bo Wang, Saikat Das, Seung Chul Chae, Jin-Seok Chung, Jong-Gul Yoon, Long-Qing Chen, Sang Mo Yang*, Tae Won Noh*, "Selective control of multiple ferroelectric switching pathways using trailing flexoelectric field", *Nature Nanotechnology* 13, 366 (2018)

Presentations

- "Colossal flexoresistance in dielectrics". **The 26th International Workshop on Oxide Electronics, 2019 (Oral Presentation)**
- "Colossal flexoresistance in dielectrics", **Asia-pacific PFM, 2019**

3. "Manipulation of physical properties in oxide thin films by a local inversion symmetry breaking induced by flexoelectricity", **Invited seminar, UNIST, 2019**
4. "Reversible colossal flexoresistance behavior on band insulators", **The Korean Physical Society Fall meeting, 2018** ([Oral Presentation](#))
5. "Selective control of multiple ferroelectric switching pathways using trailing flexoelectric field and its implications", **The 25th International Workshop on Oxide Electronics, 2018**
6. "Selective control of ferroelectric polarization in BiFeO₃ thin film using trailing flexoelectric field", **14th International symposium on Ferroic Domains, 2018**
7. "Selective control of multiple ferroelectric switching pathways using trailing flexoelectric field", **The 24th International Workshop on Oxide Electronics, 2017** ([Oral Presentation](#))
8. "Deterministic control of ferroelectric switching via trailing flexoelectric field" **The Korean Physical Society Fall meeting, 2016** ([Oral Presentation](#))
9. "Flexoelectric switching in mono-domain BiFeO₃ film to investigate in-plane flexoelectric effect" **The Materials Research Society Spring Meeting, 2016**
10. "In-plane polarization switching in mono-domain BiFeO₃ film via flexoelectric effect" **The Korean Physical Society Fall meeting, 2015** ([Best Poster Award](#))

Awards & Fellowships

1. **Best PhD graduate award from school of natural science**, Seoul National University, 2019
2. **Selected as Brain Korea fellowship**, Frontier Physics Research Division, Seoul National University, 2018
3. **Best Poster award**, The Korean Physical Society Fall meeting, 2015

Experimental

Techniques Pulsed laser deposition (PLD) with Reflection High Energy Electron Diffraction (RHEED) monitoring system

Various Scanning probe microscopy measurement (AFM, PFM, CAFM, KPFM, etc.)

X-ray Diffractometry

Electric and magnetic measurements

Relevant Work Experience

2008-2014 Teaching mathematics and physics as a personal tutor

REFERENCE

Prof. Tae Won Noh

1Department of Physics and Astronomy, Seoul National University, Seoul 08826, Korea

2Center for Functional Interfaces of Correlated Electron Systems, Institute of Basic Science, Seoul National University, Seoul 08826, Korea

(E-mail) twnoh@snu.ac.kr

(Phone) +82-2-880-6616

(Fax) +82-2-875-1222

Prof. Daesu Lee

1 Department of Physics, Pohang University of Science and Technology (POSTECH), Pohang 37673, Korea

(E-mail) dlee@postech.ac.kr

(Phone) +82-54-279-2063

Prof. Sang Mo Yang

1Department of Physics, Sookmyung Women's University, Seoul 04310, Korea

(E-mail) sangmo.yang@sookmyung.ac.kr

(Phone) +82-02-2077-7828