

NANO KOREA 2020

July 1~3, KINTEX, Korea

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EDUCATION

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|---|------|-----------------------|-------------|
| Tohoku University | Ph.D | Department of Physics | 1996 |
| POSTECH, Pohang, Korea | MS | Department of Physics | 1991 |
| Seoul National University, Seoul, Korea | BS | Department of Physics | 1989 |

PROFESSIONAL ACTIVITIES

- **Vice Chair**, Presidential Advisory Council for Science and Technology of Korea (2017 ~ present)
- **Director**, Center for Artificial Low Dimensional Electronic Systems, Institute for Basic Science (2013 ~ present)
- **Director**, Center for Low Dimensional Electronic Symmetry, POSTECH (2012 ~ 2013)
- **Director**, Center for Atomic Wires and Layers, Yonsei University and POSTECH (2003 ~ 2012)
- **Professor**, Department of Physics, POSTECH (2010 ~ present)
- **Professor**, Institute of Physics and Applied Physics, Yonsei University (2000 ~ 2010)
- **Lecturer**, Department of Applied Chemistry, the University of Tokyo (1999 ~ 2000)
- **Guest Researcher**, Linköping University, Sweden (1997).
- **Research Associate**, Faculty of Science, the University of Tokyo (1996 ~1999)

AWARD AND HONORS

- **Fellow**, The Korean Academy of Science and Technology (2020)
- **Fellow**, Americal Physical Society (2017)
- **Kyung-Am Award for Natural Science**, Kyung-Am Foundation (2017)
- **The 30th Incheon Prize for Science and Technology**, The Incheon Memorial Foundation (2016)
- **Korea Science Award**, President of Korea (2015)
- **NanoKorea 2013 Minister of Science Award for Scientific Achievement**, Ministry of Science (2013)
- **Leading Korean Research Scientist**, Korean Academy of Science and Technology (2012)
- **Outstanding Referee (Lifetime honor)**, American Physical Society (2010)
- **Academic Achievement Award**, Korean Physical Society (2007)
- **Scientist and Engineer of the Month**, Ministry of Science and Technology of Korea (2006)
- **Outstanding Faculty of the Year**, Yonsei University (2006)
- **Young Researcher of the Year**, Japanese Society for Synchrotron Radiation Research (1999)

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MAIN SCIENTIFIC PUBLICATION

- **Chiral solitons in a coupled double Peierls chain**, Sangmo Cheon, Tae-Hwan Kim, Sung-Hoon Lee, and Han Woong Yeom, *Science* **350**, 182 (2015)
- **Switching chiral solitons for algebraic operation of topological quaternary digits**, Tae-Hwan Kim, Sangmo Cheon, and Han Woong Yeom, *Nature Physics* **13**, 444 (2017)
- **Topological Solitons versus Nonsolitonic Phase Defects in a Quasi-One-Dimensional Charge-Density Wave**, Tae-Hwan Kim and Han Woong Yeom, *Phys. Rev. Lett.* **109**, 246802 (2012)
- **Instability and charge density wave of metallic quantum chains on a silicon surface**, H. W. Yeom, S. Takeda, E. Rotenberg, I. Matsuda, C.M. Lee, J. Shaefer, K. Horikoshi, S.D. Kevan, T. Ohta, T. Nagao, and S. Hasegawa, *Phys. Rev. Lett.* **82**, 4898 (1999)
- **Coexistence of two different Peierls transition distortions within an atomic scale wire; Si(553)-Au**, J. R. Ahn, P. G. Kang, K. D. Ryang, and H. W. Yeom, *Phys. Rev. Lett.* **95**, 196405 (2005)
- **Self-Assembled Nanowires with Giant Rashba Split Bands**, Jewook Park, Sung Won Jung, Min-Cherl Jung, Hiroyuki Yamane, Nobuhiro Kosugi, and Han Woong Yeom, *Phys. Rev. Lett.* **110**, 036801 (2013)
- **Metal-insulator transition in Au atomic chains on Si with two proximal bands**, J. R. Ahn, H. W. Yeom, H. S. Yoon, and I.-W. Lyo, *Phys. Rev. Lett.* **91**, 196403 (2003)
- **Band-structure engineering of gold atomic wires on silicon by controlled doping**, W. H. Choi, P. G. Kang, K. D. Ryang, and H. W. Yeom, *Phys. Rev. Lett.* **100**, 126801 (2008)
- **Nanoscale manipulation of the Mott insulating state coupled to charge order in 1T-TaS₂**, D. Cho, S. Cheon, K.-S. Kim, S.-H. Lee, Y.-H. Cho, S.-W. Cheong, and H. W. Yeom, *Nat. Commun.* **7**, 10453 (2016)
- **Correlated electronic states at domain walls of a Mott-charge-density-wave insulator 1T-TaS₂**, D. Cho, G. Gye, J. Lee, S.-H. Lee, L. Wang, S.-W. Cheong, and Han Woong Yeom, *Nature Commun.* **8**, 392 (2017)

RESEARCH INTERESTS

- Solitons for robust infomatics or solitronics
- Topological excitations in correlated 2D materials
- Artificial structures on correlated 2D materials