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Education and Research

- Korea Research Institute of Standards and Science (Jul. 2014 - present)
 - Principal Research Scientist
- California Institute of Technology (Apr. 2011 – Jun. 2014)
 - Postdoctoral research
 - Advisor : Prof. Keith Schwab
 - Project : Manipulating the quantum fluctuations of a mechanical structure
- California Institute of Technology (Sep.2004 – Mar. 2011)
 - Ph.D. in Physics (Mar. 2011)
 - Advisor : Prof. Michael Roukes
 - Thesis : Coupled dynamics of a nanomechanical resonator and superconducting quantum circuits
- Seoul National University, Korea (Mar. 1997 – Feb. 2001)
 - B. S. in Physics
 - Honors : Summa Cum Laude

Research Interests

- Mechanical systems in the quantum regime
- Low dissipation systems for quantum measurements
- Nonlinear dynamics of nano-mechanical devices
- Applications of micro and nano electro-mechanical systems

Publications

- M. Kim, J. Kim, Y. Hou, D. Yu, Y. J. Doh, B. Kim, K. W. Kim, J. Suh, “Nanomechanical characterization of quantum interference in a topological insulator nanowire”, *Nature Comm.* **10**, 4522 (2019).
- M. Kim, J. Kim, I. H. Lee, W. H. Han, Y. C. Park, W. Y. Kim, B. Kim, J. Suh, “Quantum transport properties of single-crystalline $\text{Ag}_2\text{Se}_{0.5}\text{Te}_{0.5}$ nanowires as a new topological material”, *Nanscale* **11**, 5171 (2019).
- J. H. Lee, J. Suh, H. Seok, “Dissipation-driven nonclassical-state generation in optomechanics with squeezed light”, *Phys. Rev. A* **98**, 043821 (2018).
- H. S. Byun, J. Jeong, K. Kim, S. G. Kim, S. B. Shim, J. Suh, H. Choi, “Measuring angular momentum of p_x+ip_y topological superfluids: A proposal”, *Phys. Rev. B* **98**, 024518 (2018).
- S. Cho, S. U. Cho, M. Jo, J. Suh, H. C. Park, S. G. Kim, S. B. Shim, Y. D. Park, “Strong Two-Mode Parametric Interaction and Amplification in a Nanomechanical Resonator”, *Phys. Rev. Appl.* **9**, 064023 (2018).
- M. Kim, J. Kim, J. Kim, S. Shim, B. Kim, J. Suh, “Surface two-level state dissipation in single-crystalline gold nanomechanical resonators”, *J. Korean Phys. Soc.* **70**, 225 (2017).
- P. D. Nation, J. Suh, M. P. Blencowe, “Ultrastrong optomechanics incorporating the dynamical Casimir effect” *Phys. Rev. A* **93**, 022510 (2016).
- C. U Lei, A. J. Weinstein, J. Suh, E. E. Wollman, A. Kronwald, F. Marquardt, A. A. Clerk, K. C. Schwab, “Quantum nondemolition measurement of a quantum squeezed state beyond the 3 dB limit” *Phys. Rev. Lett.* **117**, 100801 (2016).
- E. E. Wollman, C. U. Lei, A. J. Weinstein, J. Suh, A. Kronwald, F. Marquardt, A. A. Clerk, K. C. Schwab, “Quantum squeezing of motion in a mechanical resonator” *Science* **349**, 952 (2015).
- J. Suh, A. J. Weinstein, C. U. Lei, E. E. Wollman, S. K. Steinke, P. Meystre, A. A. Clerk, K. C. Schwab, “Mechanically detecting and avoiding the quantum fluctuations of a microwave field” *Science* **344**, 1262 (2014).
- A. J. Weinstein, C. U. Lei, E. E. Wollman, J. Suh, A. Metelmann, A. A. Clerk, and K. C. Schwab, “Observation and interpretation of motional sideband asymmetry in a quantum electromechanical device” *Phys. Rev. X* **4**, 041003 (2014).
- J. Suh, A. J. Weinstein, K. C. Schwab, “Optomechanical effects of two-level systems in a back-action evading measurement of micro-mechanical motion” *Appl. Phys. Lett.* **103**, 052604 (2013).
- J. Suh, M. D. Shaw, H. G. LeDuc, A. J. Weinstein, K. C. Schwab, “Thermally induced parametric instability in a

back-action evading measurement of a micromechanical quadrature near the zero-point level” *Nano Letters* **12**, 6260 (2012).

• J. Suh, M. D. LaHaye, P. M. Echternach, K. C. Schwab, M. L. Roukes, “Parametric amplification and back-action noise squeezing by a qubit-coupled nanomechanical resonator” *Nano Letters* **10**, 3990 (2010).

• M. D. LaHaye, J. Suh, P. M. Echternach, K. C. Schwab, M. L. Roukes, “Nanomechanical measurements of a superconducting qubit” *Nature* **459**, 960 (2009).