

Open Graduate Research Assistant Positions at KAIST

Radiation heat transfer is critical for solar energy utilization, building thermal management, and high-temperature thermal systems. Recent advancement in micro/nanofabrication techniques has enabled the fabrication of novel structures with engineered radiative properties. Ability to tailor radiative properties is a direct result of the interaction between electromagnetic waves and surface nano/micro structures in the near-field regime (i.e., at the length scale comparable to the characteristic wavelength). It has been shown that near-field effects can lead to the realization of new technologies including subwavelength heating sources, polariton-assisted nanomanufacturing, and biomedical sensors. Particularly, near-field thermal radiation has been intensively investigated for potential applications such as a highly sensitive thermal microscopy and a near-field thermophotovoltaic energy conversion system. To facilitate these applications, it is crucial to fundamentally understand the radiative transfer at the nanometer scale.

Thermal Radiation Laboratory (<https://trad.kaist.ac.kr/>) in the Department of Mechanical Engineering at KAIST is seeking highly motivated Ph.D. students in the area of *Nanoscale Thermal Radiation*. The successful applicants must have completed B.S. or M.S. degree in Mechanical Engineering, (Applied) Physics, Materials Science, Electrical Engineering, or related disciplines. More detailed information about Graduate Admissions at KAIST can be found at <https://admission.kaist.ac.kr/international/>. Experience of using commercial software, such as COMSOL, ANSYS and Lumerical, is highly desired but not required. Applicants who have basic knowledge about programming languages, such as C/C++ and Python, as well as about spectroscopy are preferred.

Specific research topics of interest include but not limited to

- *Nanoscale Thermal Radiation and Energy Conversion*
- *Harvesting Solar Thermal Energy using Nanoscale Engineering*
- *Tailoring Radiative Properties using Optical Metamaterials*
- *Measurement of Thermophysical Properties of Nanomaterials*

Review of applications will begin immediately and will continue until positions are filled. Interested applicants should send a **CV with a list of publications** and a **research statement with future plans** to Prof. Bong Jae Lee (bongjae.lee@kaist.ac.kr).