

# Professor Hobeom Kim of GIST School of Materials Science and Engineering, selected for the 7th Korea Toray Fellowship... 3-year research funding support

- Awarded to a young scientist who is challenging new and promising research in the fields of chemistry and materials... Professor Hobeom Kim proposes perovskite defect control technology and is selected as an application field research project - This can secure original technology and open a new chapter in red light-emitting diode research... Expected to contribute to the growth of related industries such as hyper-realistic displays and micro displays



▲ Professor Hobeom Kim of the School of Materials Science and Engineering, selected as the 7th Korea Toray Fellowship recipient

The Gwangju Institute of Science and Technology (GIST, President Kichul Lim) announced that Professor Hobeom Kim of the School of Materials Science and Engineering was selected as the 7th recipient of the Korea Toray Fellowship from the Korea Toray Science Promotion Foundation.

Professor Kim proposed 'Development of high-purity, high-efficiency, and high-stability perovskite light-emitting diodes through crystal polymorphism-based defect control', which was selected as a research topic in the application field.

This study aims to effectively control defects in perovskite light-emitting materials, which are attracting great attention as next-generation light-emitting materials for ultra-realistic displays, through an original method utilizing crystal polymorphism, and to develop high-purity, high-efficiency, and high-performance perovskite red light-emitting diodes (PeLEDs).

The perovskite defect control technology presented by Professor Hobeom Kim is a technology that can increase material uniformity and crystallinity and innovatively reduce defect density by using crystal polymorphs of the same chemical structure, unlike the existing method of using external chemical species. It is evaluated that it will enable preemptive acquisition of original technology and open a new chapter in red light-emitting diode research.

Single-crystal perovskites can be applied to various next-generation layered semiconductor devices such as light-emitting diodes, solar cells, and neuromorphic

devices, and are expected to contribute to the future innovative growth of related industries such as hyper-realistic displays and micro displays.

Professor Hobeom Kim said, "We expect that this research will contribute to significantly improving the performance and stability of perovskite-based light-emitting devices and open up possibilities for use in next-generation displays and semiconductor devices."

Meanwhile, the Korea Toray Science Foundation, established to promote the development of science and technology in Korea, annually selects and awards scientists who have contributed to strengthening the foundation of science and technology in the fields of chemistry and materials.

The fellowship selects five new scientists in the chemical and material basics and applications fields who are challenging new fields with original research projects, and provides research expenses of 50 million won per year for up to three years.

