

GIST student Yeonji Yuk wins Korean Sensor Society 'Lee Jong-heun Paper Award'

- *Established to honor the late Honorary Chairman Jong-heun Lee and foster the next generation in the gas sensor field... Awarded a certificate and a prize of 1 million won*
- *Recognized for research achievements in a gas sensor that detects nitrogen dioxide using only visible light without heating... Participated as a co-first author of the paper*



▲ (From left) Professor Lee Sang-han of the Department of Materials Science and Engineering at GIST (Advisor) and Yuk Yeon-ji, a student in the Integrated Master's and Doctoral Program.

The Gwangju Institute of Science and Technology (GIST, President Kichul Lim) announced that Yeonji Yuk, a student in the integrated master's and doctoral program in the Department of Materials Science and Engineering (Advisor Professor Sanghan Lee), received the "Lee Jong-heun Paper Award" at the "2026 Fall Conference of the Korean Sensor Society" held from September 16 to 18.

The "Lee Jong-heun Paper Award" was established to commemorate the research achievements and dedication of the late Jong-heun Lee, Honorary President of the Korean Sensor Society, and to encourage the nurturing of the next generation in the field of gas sensors. The award selects recipients from among authors of papers in the field of gas sensors that have been published or confirmed for publication in domestic or international academic journals, presenting them with a certificate and a prize of 1 million won.

Student Yeonji Yuk was selected as a recipient in recognition of her research achievement in developing a gas sensor that detects even very small amounts of the air pollutant nitrogen dioxide (NO₂) using only visible light without separate heating, and operates stably for a long period.

Existing gas sensors have typically suffered from poor detection performance at room temperature, so methods utilizing heating or ultraviolet light to enhance performance have been employed. However, these methods faced limitations, such as high power consumption and difficulties in long-term stable operation due to changes in the surface and bonding structures of the sensor materials.

To address this, the research team developed a gas sensor that operates solely on visible green light at room temperature. This sensor detected trace amounts of nitrogen dioxide as low as 0.105 ppb—approximately 127 times lower than the World Health Organization (WHO) recommended air quality standard (13.3 ppb)—and operated stably for over five weeks.

Student Yeonji Yuk participated as a co-first author of the paper alongside Dr. Dokyum Kim, a postdoctoral researcher at the GIST Advanced Photonics Research Institute. The paper was published online on March 12, 2026, in the international materials science journal *Advanced Functional Materials* and was selected for the back cover of Volume 36, Issue 37.

Student Yeonji Yuk said, “It is a great honor to receive an award honoring the late Professor Jong-heun Lee, who pioneered the field of gas sensors.” She added, “I would like to thank Professor Sanghan Lee for his guidance and my colleagues for their research, and I will continue my research to contribute to the commercialization of low-power, high-sensitivity gas sensors that can be used in everyday life.”