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Nagoya Institute of Technology

NGK INSULATORS, LTD.

Nagoya Institute of Technology and NGK Establish “NGK Environment Innovation Laboratory”

Nagoya Institute of Technology (hereinafter, “NITech”) and NGK INSULATORS, LTD. (hereinafter, “NGK”), both based in Nagoya, Japan, have established the NGK Environment Innovation Laboratory on the NITech campus. This collaboration between the private sector and academia will work on creating innovative next-generation products that contribute to a significant reduction of greenhouse gases, such as materials for next-generation power semiconductors and high-performance storage batteries.

The NGK Environment Innovation Laboratory is headed by Professor Tomokatsu Hayakawa of the NITech with Project Professor Hideki Mori and NGK’s Shinji Kawasaki as deputy directors. Five NITech professors with different fields of expertise will initially engage in three research and development with NGK’s R&D division. The project will run for five years from April 1, 2021.

In its mid-to long-term vision NGK Group Vision: Road to 2050 formulated in April 2021, NGK identified carbon neutrality (net zero volume of greenhouse gas emissions) as one of its priority social issues. Since 2009, the NITech and NGK have engaged in a comprehensive collaboration program including joint research and technological exchange. The NGK Environment Innovation Laboratory was established as part of this collaboration under the NITech’s project laboratory program* to focus on development related to carbon neutrality. The laboratory project will engage in research and development of next-generation power semiconductor wafers essential for energy-

saving electronic devices and electric vehicles (EV), ceramic solid-state electrolytes and separators with high ionic conductivity for high-performance storage batteries that are indispensable to utilize renewable energy. These research themes are included in the 39 themes identified in the Japanese Government Cabinet Office's "Environment Innovation Strategy" set in 2020 and can take advantage of NGK's ceramics technologies. The laboratory will consider taking on additional research themes that contribute to inventive environmental innovations and themes related to materials informatics* going forward.

With the private sector and academia working together, the laboratory aims to drive innovation in energy and environmental fields that help us substantially reduce greenhouse gas emissions.

* Project laboratory program:

The project laboratory program promotes interdisciplinary research to pioneer new fields of study and research through collaboration between the private sector and academia to create new industries.

* Materials informatics (MI):

Method of analyzing big data from experiments and academic papers using artificial intelligence (AI) and other technologies for use in materials development.



Next-generation power semiconductor wafer prototype (2-inch wafer)