

July 3, 2023

## The Zeon Joint Research Laboratory for Advanced Carbon-Neutral Catalysts Is Established at Osaka University, Starting Joint Research on Advanced Catalyst Technology as the Key to Achieving Carbon Neutrality

Zeon Corporation

Zeon Corporation (Zeon; head office: Chiyoda-ku, Tokyo; President and CEO: Tetsuya Toyoshima) and Osaka University (President: Shojiro Nishio) established the Zeon Joint Research Laboratory for Advanced Carbon-Neutral Catalysts (Joint Research Laboratory) within the Graduate School of Engineering Science, Osaka University, on July 1, 2023. The purpose of the Joint Research Laboratory is to research and develop advanced catalyst technology as the foundation for next-generation chemical processes and thereby promote “monozukuri” (manufacturing) for achieving carbon neutrality. This is Zeon’s first joint research laboratory to be established at Osaka University.

To achieve carbon neutrality, the chemical industry must shift away from conventional production processes that consume massive quantities of energy and resources and develop chemical processes with low energy and environmental impact. In this context, catalysts, which drive the conversion of substances, constitute a core technology that underpins sustainable, next-generation chemical processes, and demand is consequently growing for the development of highly functional catalysts.

The new Joint Research Laboratory brings together Zeon, with its unique polymer development technology, and Osaka University, with its state-of-the-art technology for developing catalysts, to co-create with society by developing advanced catalyst technology for achieving carbon neutrality. For Zeon, another purpose of the Joint Research Laboratory is the synergy effect of having it within Osaka University, and this could strengthen Zeon’s basic research capabilities, accelerate joint research, and develop human resources.

Zeon is striving to realize carbon neutrality and a circular economy by transforming its “monozukuri” as one of its strategies under the Medium-Term Business Plan, and it hopes to achieve a 50% reduction in CO<sub>2</sub> emissions by 2030.\*<sup>1</sup> The technology and knowledge that comes out of the Joint Research Laboratory are expected to contribute to achieving carbon neutrality and significantly advance innovation in the unique technology that characterizes Zeon’s research and development.

Together with Osaka University, Zeon will pursue carbon neutrality and contribute to environmental sustainability along with safe and comfortable living.

\*1: 50% reduction of Zeon Corporation’s Scope 1 and Scope 2 CO<sub>2</sub> emissions from the FY2019 level.

### Outline of Joint Research Laboratory

1. Name	Zeon Joint Research Laboratory for Advanced Carbon-Neutral Catalysts
2. Address	Graduate School of Engineering Science, Osaka University (Toyonaka City, Osaka Prefecture, Japan)
3. Duration	From July 1, 2023 to June 30, 2026
4. Research Team (Lead Researcher)	Takato Mitsudome (Associate Professor, Graduate School of Engineering Science, Osaka University) Yoshihide Yachi (General Manager, Carbon Neutral Laboratory, Research and Development Center, Zeon Corporation) Kentaro Ono (Manager, Research and Development Center, Zeon Corporation)

**Research Themes**

We plan to develop next-generation nano-catalysts by conducting precise structural control, including control over the shape of metal nano-particles, which are catalytically active species, at the nano and angstrom scales, compounding and alloying metals, and controlling the interface, toward developing polymer-modified catalyst technologies.

**Roles of the Organizations**

**Osaka University:**

Develop and evaluate new catalysts, while also conducting structural analysis with various spectroscopic techniques, to identify true catalytically active species and shed light on the mechanism of their catalytic activity.

**Zeon Corporation:**

Facilitate catalyst scale-up, optimize reaction conditions, and evaluate durability to design and develop high-performance catalysts, which are not simply extensions of conventional catalysts, based on the theories of catalytic chemistry, and create practical applications so they can be used by society.



\*Building of the Graduate School of Engineering Science, Osaka University, the location of the Joint Research Laboratory

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