

Theme: Environmental Technology for Sustainability

- Sub Theme: New technology for CO₂ capturing and conversion

As of the last year 2021, the Paris climate change accord started to respond to global climate change and carbon neutrality in the world. Carbon capture, use, and storage will play an important role, as the goals of various reports on global warming demonstrate strong demands in reducing the global temperatures by 1.5°C compared to those before the Industrial Revolution.

For this, we need substantial and practical changes in the way and technology of the global challenge. For carbon capture, an effective new concept of CO₂ capturing technology with high capacity and rational regeneration with low energy penalty would be needed to develop. For carbon utilization, a new concept of materials development, low energy demanding systems, and their combination are necessary to improve the performance of conversion to multicarbon products (C₂₊) with higher energy densities as more valuable chemicals.

We are aiming to find new materials and processes for effective and low-energy demanding CO₂ capturing and conversion in the CCU technology.

The topics we pursue through this GRO are as follows:

- A new material and technology for capturing CO₂
- A new liquefying and solidifying process development with a low energy penalty to recycle CO₂ captured
- A new material and technology for effective conversion of CO₂ to multicarbon products (C₂₊) as alternative fuel and chemicals such as ethylene, propane, oil, etc.
- A new technology for negative emission for carbon neutral

※ *The topics are not limited to the above examples and the participants are encouraged to propose the original idea.*

※ Fundig : Up to USD 150,000 per year