

## Artificial photosynthesis



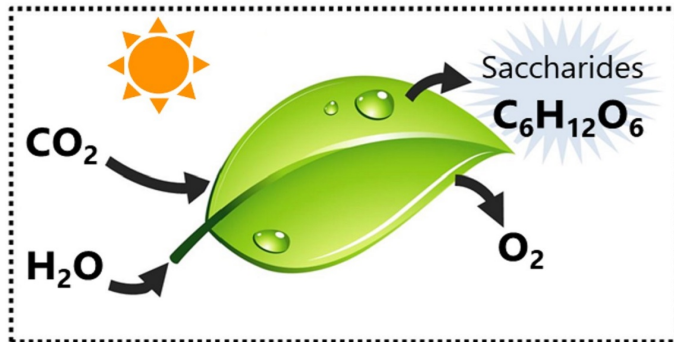
## Background

The NTT Group is promoting research and development related to IOWN and decarbonization in order to achieve carbon neutrality. In order to reduce CO<sub>2</sub> emissions, NTT is working on artificial photosynthesis technology that uses particularly long-life semiconductor photocatalysts and metal catalysts.

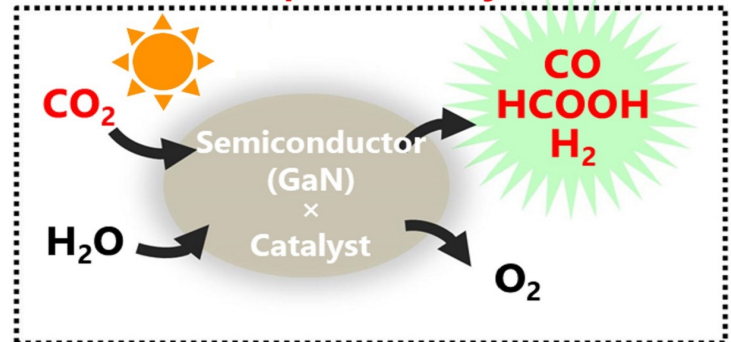
## Summary

By using a protective layer on NTT's high-quality optical semiconductors, we have achieved world-class stable continuous operation. In addition, we also discovered an electrode structure that allows CO<sub>2</sub> to be converted while it is still a gas and succeeded in converting a large amount of CO<sub>2</sub>.

## Plant photosynthesis



## Artificial photosynthesis



## Features

- By making the surface of GaN, a semiconductor photocatalyst, more uniform and forming a 2nm NiO protective layer, electrode deterioration is significantly suppressed
- By improving the quality of InGaN, which can absorb sunlight with longer wavelengths, we have succeeded in achieving both more efficient use of solar energy and stable operation
- In contrast to the method of converting dissolved CO<sub>2</sub> in liquid, we succeeded in converting more CO<sub>2</sub> by finding an electrode structure capable of converting CO<sub>2</sub> in a gaseous state

## Future\_benefits

As one of the technologies to reduce CO<sub>2</sub> in the atmosphere, it contributes to the suppression of climate change and contributes to the realization of a sustainable society.

## Exhibiting Company

NIPPON TELEGRAPH AND TELEPHONE CORPORATION

## Contact

rdforum-exhibition@ml.ntt.com