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Professor Chang Hyuck Choi's joint research team successfully used carbon monoxide gas to improve the performance of platinum catalysts

- Carbon monoxide gas, which is a briquet gas, can improve the activity of the solid platinum catalyst. GIST (President Seung Hyeon Moon) Professor Chang Hyuck Choi and KAIST Professor Hyungjun Kim jointly developed technology to improve the activity of platinum catalyst with carbon monoxide in 'heterogeneous catalyst' as well as 'homogeneous catalyst.'
- Platinum catalysts are used in various chemical reactions, such as the removal of harmful substances in automobile exhaust gas and hydrogen production for fuel cells. It is essential to improve the platinum catalyst performance in order to lower the economic cost of using platinum catalysts.
 - Carbon monoxide, which is a toxic substance, strongly adsorbs on the surface of platinum and inhibits its activity as a catalyst.

Interestingly, however, carbon monoxide acts as an facilitator for platinum catalysts in the case of homogeneous catalysts.

- Efforts to increase the performance of platinum catalysts by combining it with a "heterogeneous catalyst" in which the phases of carbon monoxide and platinum are different from each other have continued, but this has not been easy.
- The research team discovered that an unbalanced platinum catalyst is activated under the presence of carbon monoxide and reported this to the academic community. The presence of carbon monoxide in the electrochemical hydrogen production reaction nearly doubled the activity of the platinum catalyst.
- This phenomenon is observed when a single atom platinum is a catalyst in the form of a hydrogen sulfide surrounded by a hydrogen sulfide. As a result of spectroscopy observations, carbon monoxide breaks up some of the bonds between a single atom platinum and a yellow atom and creates a new combination of carbon monoxide. The interaction between the central metal and the rigid occurred in an asymmetric catalyst, such as a uniform catalyst.
- Professor Chang Hyuck Choi said, "We have found a phenomenon that can realize the chemical phenomena seen in the homogeneous catalyst even in heterogeneous catalysts. Furthermore, this connects the gap between homogeneous and heterogeneous catalysts which was considered to be long dream. We plan to study the development of a new type of catalyst that implements each advantage."
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