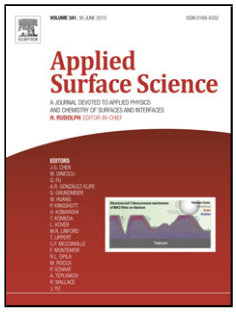

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The use of renewable energy in the form of methane via electrolytic hydrogen generation using carbon dioxide as the feedstock

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Abstract

The history reveals the continuous increase in world energy consumption and carbon emissions. For prevention of intolerable global warming and complete exhaustion of fossil fuels we need complete conversion from fossil fuel consumption to renewable energy. We have been performing the research and development of global carbon dioxide recycling for more than 25 years to supply renewable energy to the world in the form of methane produced by the reaction of carbon dioxide captured from chimney with hydrogen generated electrolytically using electricity generated by renewable energy. We created the cathode and anode for electrolytic hydrogen generation and the catalyst for carbon dioxide methanation by the reaction with hydrogen. The methane formation from renewable energy will be the most convenient and efficient key technology for the use of renewable energy by storage of intermittent and fluctuating electricity generated from renewable energy and by regeneration of stable electricity. Domestic and international cooperation of companies for industrialization is in progress.

Key Words: Renewable Energy; Electrolytic hydrogen generation, Carbon dioxide methanation; Electrodes; Catalyst; Fossil fuel exhaustion; Global warming

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