# $CO_2$ reforming of $CH_4$ by dielectric barrier discharge plasmas with catalyst particles

김교선*, 우엔 황 하이
강원대학교 화학공학과
(kkyoseon@kangwon.ac.kr*)

The synthesis gas, a mixture of $H_2$ and CO, is an important raw material in the chemical industry and can be manufactured from natural gas, coal, petroleum, and biomass. In recent years, many kinds of plasmas have been used for $CO_2$ reforming of $CH_4$. To reduce the energy consumption of $CO_2$ reforming of $CH_4$ by plasmas, the synergistic effects of dielectric barrier discharge plasmas and catalyst particles are investigated in different modes: the dielectric barrier discharge plasma only, the combination of the plasmas and catalyst particles. The specific energy and energy conversion efficiency are calculated under the conditions of $CH_4/CO_2$ of 1/1, total feed gases of 5 l/min. The gas products are analyzed by a gas chromatograph with pulsed discharge detector.