

Room Temperature Methane Conversion

Jun Hyuk Moon[†]
Sogang University
(junhyuk@sogang.ac.kr[†])

Methane is an abundant resource that accounts for more than 95% of natural gas content, but it is also reported to be the main cause of climate change. Therefore, the technology for converting methane into high value-added chemicals has a large impact on the environment as well as on industry. Traditionally, methane has been converted to a variety of chemicals by synthesizing syngas through a very endothermic wet or dry reforming process. Recent efforts have been devoted to the direct conversion of methane to products by partial oxidation of methane at relatively low temperatures. In this study, we demonstrate a room-temperature methane-to-ethanol conversion. Under optimal conditions, we achieve ethanol production of 920 $\mu\text{mol}/\text{g}_{\text{cat}}$ with an selectivity of 87%.