



Vabilo na Forum40 / Invitation to the Forum40

dr. Vikram Sagar Tatiparthi

D09, Department of Inorganic Chemistry and Technology

Četrtek / Thursday, 7.5. 2020 ob / at 13:00 / on WEBEX

Meeting link: <https://ki-si.webex.com/ki-si/j.php?MTID=mbc3a07edc287f4c9b8e81ee46dac3445>

Meeting number: 141 557 229 / Password: forum40

Catalytic conversion of carbon dioxide to value-added products

Carbon dioxide utilization reactions such as CO₂ reforming of methane, and CO₂ hydrogenation to ethanol and dimethyl ether are a possible solution to the sustainable route to high value-added products. However, the main focus of this lecture was dedicated to CO₂ reforming of methane over Ni/CeO₂ catalysts. MnO_x doped CeO₂ catalysts were studied to minimize the carbon formation during reaction. MnO_x doping into the CeO₂ lattice is confirmed by XRD and Raman studies. MnO_x doping induces both lattice defects and restricts CeO₂ crystal growth. The restriction of crystal growth correspondingly exhibited a huge impact on specific surface area of MnO_x-doped catalyst. The oxygen vacancies generated due to the lattice defects in CeO₂ played a huge role in enhancing coke resistance. The carbon accumulation reduced from 8.6 to 1.7 wt.% with MnO_x doping. A possible reaction mechanism has been deduced with the help of *in-situ* DRIFTS experiments.



Vljudno vabljeni / Kindly invited