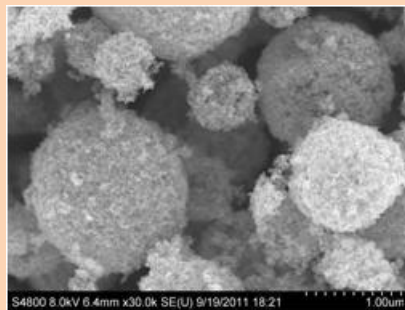
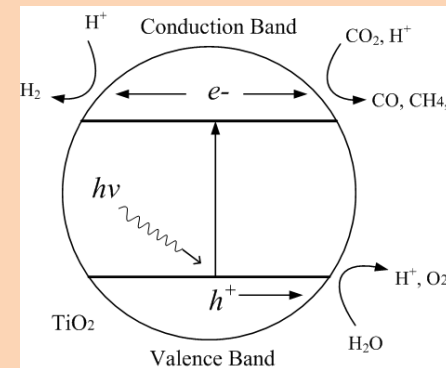


Novel Nanocomposite Materials for Efficient Photocatalytic Reduction of CO₂ to Fuels

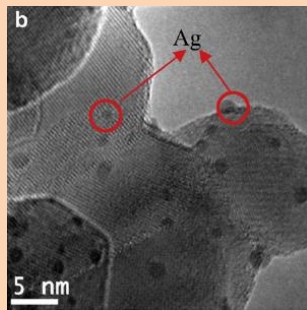
Ying Li, Mechanical Engineering Department, University of Wisconsin-Milwaukee

We aim to develop novel nanocomposite materials to convert CO₂ and H₂O to fuels (e.g., CO and CH₄) under UV-visible illumination

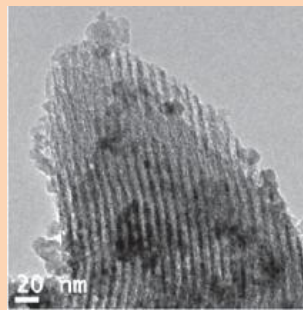
- Cu, Ag, or Ce modified TiO₂ nanoparticles as the photocatalysts
- Ordered mesoporous SBA-15 as the catalyst support
- In-situ DRIFTS analyses to understand the reaction mechanism



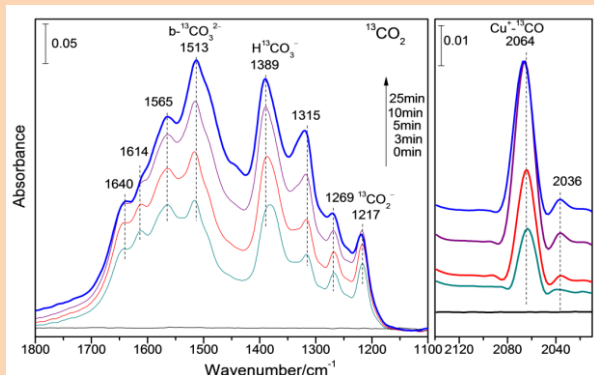
SEM of TiO₂ microsphere



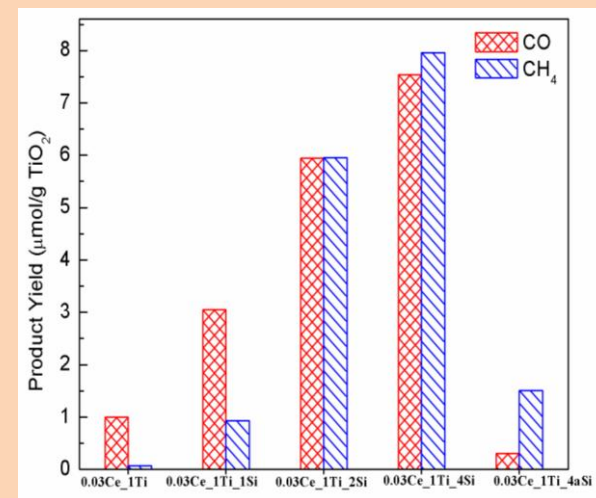
TEM of Ag/TiO₂



TEM of Ce-TiO₂/SBA-15



In situ DRIFT spectra of ¹³CO₂ interaction on the surface of Cu(I)/TiO_{2-x}



Rate of CO₂ reduction to CO and CH₄ using Ce-TiO₂/SBA15 catalyst under UV-vis illumination