Coupling Thermal and Photocatalysis in Novel Metal Oxides for CO$_2$ to Fuels

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MnOx-titania composites have the tunable bandgap, reducibility and oxidation state, predictable by theory, required for thermal and photocatalytic reduction of CO$_2$. 

increasing MnOx on TiO$_2$ 

reaction scheme 

light harvesting 

wavelength (nm) 

Temperature (°C) 

reducibility