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Name of the Scholar	**:**	Farha Naaz
Name of the Supervisor	**:**	Prof. Tokeer Ahmad
Name of the Department/Centre	**:**	Chemistry
Topic of Research	**:**	Development of Oxide-based Nanoparticles for Organic Transformation Reactions

Findings

The work of my Ph.D thesis has been on designing nanostructured multifunctional heterogenous catalysts for catalytic organic transformations and photo-, electro-catalytic hydrogen evolution applications, in a broader sense, focusing mainly on synthesis and applications of metal oxide nanoparticles and their heterostructures for sustainable energy and environment. The complete work of my doctoral thesis is divided into seven chapters in which Chapter 1 is introduction which gives the brief overview of the catalysis and properties of nanostructures materials as catalysts. Also, the importance of metal-oxide based nanomaterials in catalysis. The remaining six chapters were experimental ones focusing on different metal-oxides with varied organic conversions. Chapter 2 deals with CuO nanoflowers as proficient nanocatalysts for water remediation and hydrogen generation. Chapter 3 deals with catalytic applications of pristine and Ag doped WO_3 nanoplates in catalytic glycerol acetylation, highly efficient photocatalytic and electrocatalytic H_2 evolution reactions. Chapter 4 discusses catalytic applications of Cu doped WO_3 Nanosheets for catalytic epoxidation of olefins to synthesize epoxides and for hydrogen production. Chapter 5 deals with CeO_2 nanocatalyst and its catalytic applications in selective oxidative transformation of aromatic alcohols to corresponding aldehydes. Chapter 6 deals with MoO_3@RuO_2 heterostructures and their catalytic applications in environmental remediation through tandem hydrogenolysis of polyethylene and H_2 production. Chapter 7 discusses the hierarchical TiO_2 and their catalytic applications for chemoselective nitroaromatics reduction and photoelectrocatalytic water splitting.