

List of Tables

<i>Table</i>	<i>Title</i>	<i>page</i>
2.1	An overall comparison at Standard Temperature Conditions (STC) -25° C temperature, light intensity 1000W/m ² , air mass 1.5, of some major PV technologies	7
2.2	Different material doping in TiO ₂ at varying doping percentage	11
2.3	Comparison of various photocatalyst with their optical and surface properties and their pollution degradation efficiency	13
2.4	Literature brief about synthesis of titania at low temperature	16
3.1	Different parameters of TiO ₂ nanoparticles synthesized from -40°C to -10°C	23
3.2	The surface analysis parameters and atomic ratios calculated from XPS spectra	28
4.1	The current density-voltage (J-V) parameters of DSSC with different photoanode films	38
4.2	Different parameters of TiO ₂ based photoanode films	40
4.3	Parameters of DSSC fabricated at various conditions	41
4.4	Different parameters of DSSC with different photoanode films	41
4.5	Experimental parameters of DSSC obtained by the equivalent circuit	43
4.6	The photovoltaic properties of the dye sensitized solar cells based on ZnO doped TiO ₂ solid nanospheres	44
4.7	The impedance study parameters of the ZnO doped TiO ₂ sphere dye sensitized solar cells	46
4.8	Photovoltaic performance parameters of the DSSC device fabricated from HfO ₂ -TiO ₂ and TiO ₂	48
4.9	EIS performance results of the DSSC device fabricated from H-HfO ₂ -TiO ₂ and H-TiO ₂ with R _s (series resistance), R ₁ (charge transfer resistance), C ₁ (chemical capacitance), τ _n (electron lifetime), and η _c (charge collection efficiency) as the cell parameters	50
5.1	Properties of SS with different counter electrodes	59
5.2	Comparison of SS-carbon material DSSC photovoltaic performance	60

