

Perovskite Oxide Based Photocatalysts for Energy and Environment Oriented Applications

A thesis

submitted by

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(D16016)

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Doctor of Philosophy



School of Basic Sciences

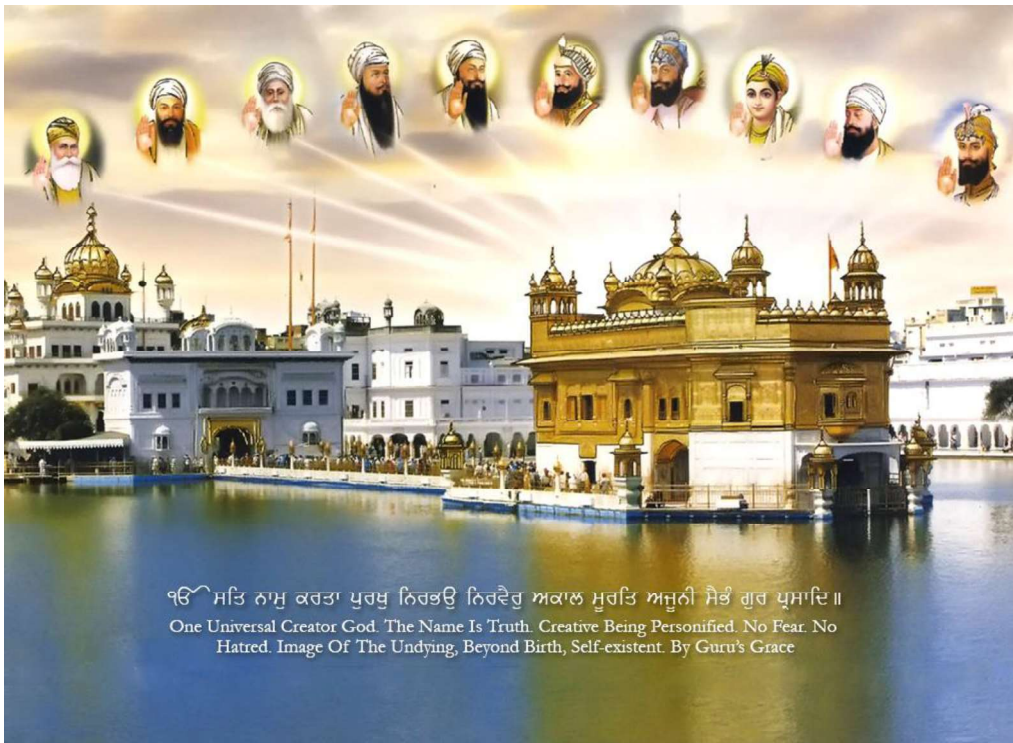
Indian Institute of Technology Mandi

Sep. 2021

Dedicated to Almighty God

and

My Beloved Parents





Declaration by the Research Scholar

I hereby declare that the entire work embodied in this thesis is the result of investigations carried out by me in the **School of Basic Sciences**, Indian Institute of Technology Mandi, under the supervision of **Dr. Venkata Krishnan**, and it has not been submitted elsewhere for any degree or diploma. In keeping with the general practice, due acknowledgements have been made wherever the work described is based on finding of other investigators.

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Declaration by the Research Advisor

I hereby certify that the entire work in this thesis has been carried out by **Mr. Ashish Kumar (D16016)**, under my supervision in the **School of Basic Sciences**, Indian Institute of Technology Mandi, and no part of it has been submitted elsewhere for any Degree or Diploma.

Place: Mandi, Himachal Pradesh, INDIA

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Abbreviations

PXRD.....	Powder X-ray diffraction
FTIR.....	Fourier-transform infrared spectroscopy
FESEM.....	Field emission scanning electron microscopy
HRMS.....	High resolution mass spectrometry
HRTEM.....	High resolution transmission electron microscopy
EDAX.....	Energy-dispersive X-ray analysis
TGA.....	Thermogravimetric analysis
DRS.....	Diffuse reflectance spectroscopy
BET.....	Brunauer-Emmett-Teller
PTFE.....	Polytetrafluoroethylene
XPS.....	X-ray photoelectron spectroscopy
UPS.....	Ultraviolet photoelectron spectroscopy
REELS.....	Reflected electron energy loss spectroscopy
EPR.....	Electron paramagnetic resonance spectroscopy
GC.....	Gas chromatography
HRMS.....	High-resolution mass spectrometry
ITO.....	Indium doped tin-oxide
UV.....	Ultraviolet
MB.....	Methylene blue
RhB.....	Rhodamine B
MV.....	Methyl violet
BPA.....	Bisphenol A
TBZ.....	Thiabendazole
BBR.....	Brilliant blue R
CFX.....	Ciprofloxacin
TEOA.....	Triethanolamine
BQ.....	Benzoquinone
GO.....	Graphene oxide
RGO.....	Reduced graphene oxide

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