Rational Design and Development of Plasmonic Photocatalysts for Environmental Remediation and Organic Transformation Reactions

A thesis submitted by

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for the award of the degree of

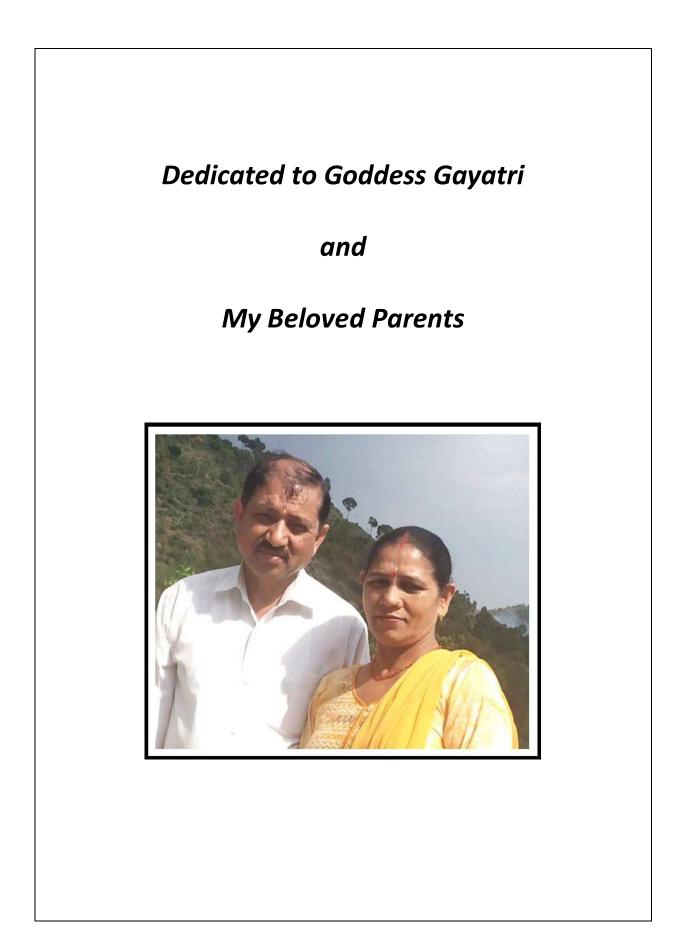
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Declaration by the Research Scholar

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 that 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.

Place: Mandi, Himachal Pradesh, INDIA Date: Sep. 11, 2021

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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. Ajay Kumar**, under my supervision in the **School of Basic Sciences**, Indian Institute of Technology Mandi, and that no part of it has been submitted elsewhere for any Degree or Diploma.

Place: Mandi, Himachal Pradesh, INDIA Date: Sep. 11, 2021

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Name: Dr. Venkata Krishnan

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Abbreviations

BET	Brunauer-Emmett-Teller
BQ	Benzoquinone
CFX	Ciprofloxacin
DRS	Diffuse reflectance spectroscopy
EDAX	Energy-dispersive X-ray analysis
FESEM	Field emission scanning electron microscopy
FTIR	Fourier-transform infrared spectroscopy
GCN	Graphitic Carbon Nitride
GO	Graphene oxide
HRMS	High resolution mass spectrometry
HRTEM	High resolution transmission electron microscopy
ITO	Indium doped tin-oxide
MB	Methylene blue
NIR	Near Infrared
NMR	Nuclear Magnetic Resonance
NP	Nanoparticles
NR	Nanorods
NS	Nanosheets
NST	Nanostars
PEC	Photoelectrochemical cell
PTFE	Polytetrafluoroethylene
RGO	Reduced graphene oxide
тс	Tetracycline
TEA	Triethanolamine
TGA	Thermogravimetric analysis
ТОС	Total organic carbon
UCNP	Upconversion Nanoparticles
UV	Ultraviolet
XRD	X-ray diffraction
XPS	X-ray photoelectron spectroscopy

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