

**Third Order Optical Nonlinearity and Ultrafast Carrier
Dynamics in Two Dimensional Materials and their
Heterostructures in Femtosecond Regime**

A Thesis

To be submitted by

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For the award of the degree

of

Doctor of Philosophy



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Kamand, Himachal Pradesh-175005, India

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Dedicated to the memory of my father:

Mushtaq Ahmed Thaker

and

My Grandparents



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Declaration by the Research Scholar

I hereby declare that the entire work incorporated in this Thesis is the result of investigations carried out by me in the **School of Basic Sciences (Physics)**, Indian Institute of Technology Mandi, under the supervision of **Prof. Dr. Suman Kalyan Pal**, 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.

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

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Name of the Guide: Prof. Dr. Suman Kalyan Pal

Date:

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