Role of atomic ordering in tuning physical properties of $K_{0.5}Na_{0.5}NbO_3$-based smart materials

Thesis submitted in partial fulfillment
for the Award of
DOCTOR OF PHILOSOPHY
in
PHYSICS

by

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Under the supervision of

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I would dedicate this thesis to my loving parents, my sisters, and my amazing family-like friends, whose support and motivation kept me going through the tough times.

Certificate

It is certified that the work contained in the thesis titled **"Role of atomic ordering in tuning physical properties of $K_{0.5}Na_{0.5}NbO_3$-based smart materials"** by **Mr. Anuvrat Tripathi**, Roll Number **19171006**, has been carried out under my supervision and that this work has not been submitted elsewhere for a degree.

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I, **Anuvrat Tripathi**, certify that the work embodied in this thesis is my own bona-fide work and carried out by me under the supervision of **Dr. Saurabh Tripathi** from July 2019 to June 2025 at the **Department of Physics**, Indian Institute of Technology (BHU), Varanasi. The matter embodied in this thesis has not been submitted for the award of any other degree/diploma. I declare that I have faithfully acknowledged and given credits to the research workers whenever and wherever their works have been cited in my work in this thesis. I further declare that I have not willfully copied any others' work, paragraphs, text, data, results, etc., reported in journals, books, magazines, reports, dissertations, theses, etc., or available at websites and have not included them in this thesis and have not cited as my own work.

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It is certified that the above statement made by the student is correct to the best of my knowledge.

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