Nawal Kishor Hazarika

MSCS 432

401 Mathematical Sciences

Oklahoma State University

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Interests

Algebraic Geometry, Commutative Algebra, Group Theory and Generalizations.

Education

— **Oklahoma State University, Stillwater** *2024-Present*
Ph.D. in Mathematics

— **Tezpur University, Napaam** *2018-2023*
Integrated MSc in Mathematics
CGPA: *8.45, 1st class first*

— **Cotton College (University), Guwahati** *2016-2018*
Higher Secondary Certificate
Obtained percentage : *90.40*%

— **Gyanjyoti Academy, Narayanpur** *2013-2016*
Secondary School Certificate
Obtained percentage : *93.00*%

Master's Project

— **Title** : Rings and Modules of Fractions
Supervisor : Prof. Dhiren Kumar Basnet, Tezpur University, Napaam
Summary : In this project, first we have studied localization and integral dependence from the book *Introduction to Commutative Algebra* by Michael Atiyah and Ian G. Macdonald and discussed the proof of Noether's Normalization lemma. Then we have proved Hillbert's Nullstellensatz using Noether's Normalization lemma. An original elementary proof of the fact that localization of a finite abelian group as a $\mathbb{Z}-$module at a prime ideal of $\mathbb{Z}$ is group isomorphic to its sylow$-p$ subgroup was also given.

OTHER PROJECTS

— Reading Project in Group Theroy.   *June 2019*
   Supervisor : Prof. Dhiren Kumar Basnet, Tezpur University, Napaam.

— Reading Project in Metric Spaces.   *December 2019*
   Supervisor : Dr. Anjan Kr. Chackraborty, IIT Guwahati, Amingaon.

ACHIEVEMENTS

— Awarded University Gold Medal for securing the top rank in the Integrated M.Sc. program in Mathematics in 2023.

— Ranked 14 in the interview at the Indian Statistical Institute, Kolkata for the admission in to PhD program in 2023.

— Ranked 104 among 38002 candidates in Joint CSIR-UGC NET DECEMBER, 2022 – JUNE, 2023.

— Ranked 404 among 12463 candidates in GATE-2023 organized by Indian Institute of Technology Kanpur.

— Among the 16 students selected for the interview at the Chennai Mathematical Institute for the M.Sc. program in 2022.

— Ranked 785 among 12716 candidates in JAM-2022 organized by Indian Institute of Technology Roorkee.

— Ranked 539 among 13186 candidates in JAM-2021 organized by Indian Institute of Science Bengaluru.

— Awarded DST INSPIRE scholarship for ranking among the top 1% student of the country in 2018.

— Awarded Anundoram Borooah Award by the Govt. of Assam in 2016.

PUBLICATIONS

— Nawal Kishor Hazarika & Pijush Pratim Sarmah (2024) *On Some Localizations and Their Relation to Quotients*, **The American Mathematical Monthly**,
   DOI: 10.1080/00029890.2023.2293615
   Abstract : We describe the ring of fractions of $\mathbb{Z}/n\mathbb{Z}$ with respect to the multiplicative set $S = \{1, x, x^2, x^3, \ldots\}$, where x is any non-nilpotent element and we observe how it identifies with a quotient of the ring. Given a ring $R = \mathbb{Z}/n\mathbb{Z}$ and a multiplicative set S, we characterize all ideals I of R such that R/I is isomorphic to $S^{-1}R$ under the natural map.

Workshops Attended

— Attended National Science Camp held at IISER Kolkata in 2019.

Additional Duties Served

— Mentored a group of students in Online Foundation Course in Mathematics, 2023 organized by the Mathematics Training and Talent Search trust.

— Volunteered in the XXth convocation, 2022 of Tezpur University.

— Member of the organizing committee of InSCIgnis, 2020 - the annual Science fest of Tezpur University.

Languages

— Assamese (*Mother tongue*)

— English (*Limited working proficiency*)

— Hindi (*Fluent*)

Skills

— C/C++

— LaTeX.

Test Scores

— **TOEFL iBT**
Total score : 104/120
Reading : 25/30
Listening : 28/30
Speaking : 23/30
Writing : 28/30