Shubham Girdhar

Curriculum Vitae

National Institute Of Science Education And Research, Bhubaneswar
Odisha, India–752050
+91 8895522408
shubham.g@niser.ac.in

Education

2011 **CBSE–All India Secondary School Examination**, *Kendriya Vidyalaya Ojhar*, *CGPA – 10/10*.

2013 **CBSE–All India Senior School Certificate Examination**, *Kendriya Vidyalaya Ojhar*, *Overall Percentage – 92.4%*.

2013–Present **Integrated Msc.(Majoring In Mathematics)**, *National Institute Of Science Education And Research(NISER)*, Bhubaneswar, *Current CGPA– 8.3/10*.

Interests

Research Mathematical Analysis, Lie Groups, Differential Geometry, Topology

Research Experience

Summer 2015 **Summer Internship**, *Dr.Brundaban Sahoo*, NISER, Bhubaneswar,
Project Title: *Introduction to Prime number theorem and Riemann Zeta function* .
Aim of the project was to introduce Riemann zeta function and define it on whole complex plane and study its properties. Then outline of the proof of prime number theorem was studied as to shed light on application of the Riemann zeta function.

Summer 2016 **Summer Internship**, *Dr.Prasad Krishnan*, International Institute of Information Technology, Hyderabad,
Project Title: *Index Coding(IC) with Side information using Matroid theory* .
Information and matroid theory to understand IC problems with near extreme rates. The generalized repairable codes were also studied which turned out to be dual of IC problem.

Fall 2016 **Semester Project**, *Prof. V. Muruganandam*, NISER, Bhubaneswar,
Project Title: *Harmonic Functions and Stoke's Theorem* .
The Harmonic functions and Stoke's Theorem on $\mathbf{R}^n$ were studied. Introduction to smooth manifolds and Riemannian geometry was also done in this project.

Spring 2017 **Semester Project**, *Prof. V. Muruganandam*, NISER, Bhubaneswar,
Project Title: *Introduction to Compact Lie Groups* .
Analysis and representation theory of compact groups, Peter-Weyl Theory, and unitary dual of $SU(2)$ were studied.

Summer 2017 **Summer Project**, *Prof. Rukmini Dey*, International Centre for Theoretical Sciences, Bangalore,
Project Title: *Minimal surfaces in Euclidean space and Maximal surfaces in Lorentzian space* .
Surfaces with zero mean curvature were studied in detail with their Wierstrass-Enneper representations. Costa's minimal surface was studied as a concrete example.

Summer 2017 **Summer School and Workshop**, NISER, Bhubaneswar,
Title: *J*-holomorphic curves and Gromov-Witten Invariants.

Fellowships and Achievements

- DST-INSPIRE scholarship Fellow
- Secured All India Rank 165 out of 40000 applicants in NEST–2013
- Participated in National Science Camp 2014 conducted by KVPY and IISER, Kolkata
- Outstanding Academic Performance Award (for highest CGPA among int. M.Sc. students of School of Mathematical Sciences (SMS))
- S N Bhatt Excellence Fellowship Program 2017

Positions Held

- President of Mathematics Club,NISER (2016-17)
- Web-designer of Jijnasa, Official college magazine (2015-16)
- Student representative in the Undergraduate committee of schools(UGCS) for SMS (2016-present)

Relevant Coursework Done

Mathematics

- Real Analysis
- Measure theory
- Complex Analysis
- Differential geometry
- Multivariable calculus
- Linear Algebra
- Lie groups and Lie algebras
- Field and Galois Theory
- Probability theory
- Metric Spaces
- Functional Analysis
- Topology
- Algebraic Topology
- Differential Equations
- Combinatorics and Graph Theory
- Group Theory
- Rings and Modular theory
- Statistics

Physics Electives

- Classical Mechanics–1
- Quantum Mechanics
- Electromagnetism–1
- Special Theory of Relativity

Online Coursework

- MITx-6.00.1x Introduction to Computer Science and Programming Using Python
- LFS101x Introduction to Linux
- Introduction to Cryptography-Coursera

Computer Skills

Programming	C++, Python, Shell Scripting, mySQL, PHP
Scientific	GNUplot, SAGE, LaTeX
Other	Microsoft Office, Adobe Photoshop, Libre Office
O.S.	Linux and Microsoft Windows

References

Dr. Sarath Sasi
Assistant Professor
IIT, Palakkad
sarath@iitpkd.ac.in

Prof. V. Muruganandam
Professor
NISER, Bhubaneswar
vmuruganandam@niser.ac.in

Dr. Ritwik Mukherjee
Assistant Professor
NISER, Bhubaneswar
ritwikm@niser.ac.in

Prof. Rukmini Dey
Professor
ICTS, Bangalore
rukmini@icts.res.in