

NITISH KUMAR

Student | Mathematics major

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iamheavymetalx7.github.io

EXPERIENCE

Number Theory

Dr. Jyoti Prakash Saha

01/05/19-16/06/19

IISER Bhopal

- A Classical Introduction to Modern Number Theory by K. Ireland and M. Rosen.
- Chapters 1-6.

Real Analysis

Dr. Prahlad Vaidyanathan

December 2018

IISER Bhopal

- Principle of Mathematical Analysis by Walter Rudin (Third Edition).
- Chapters 1-4.

Spectroscopy

Dr. K.S. Viswanathan

May-June 2018

IISER Mohali

- Learned to use Gaussian 09, Gauss view, AIM2000, GAMESS.
- Performed UV-vis Spectroscopy, IR Spectroscopy and ATR Spectroscopy.

ACHIEVEMENTS

- Qualified JEE Mains and Advanced 2017
- Participated in Jawaharlal Nehru National Science, Mathematics and Environment Exhibition for Children (JNNSMEE) -2016 held in KV Calicut.
- Received MLA award for getting 10 CGPA in 2015.

SKILLS

C++, C, \LaTeX
HTML, CSS



EDUCATION

BS-MS Dual Degree

IISER Bhopal

August 2017 - Present

- Mathematics major
- CPI : 8.14

HIGHER SECONDARY EDUCATION

Kendriya Vidyalaya No.1

2015-2017

Kochi, Kerala

- PCM and Computer science
- Aggregate : 92.6 %

INTERESTS

Harmonic Analysis

Real Analysis

Algebra

Number Theory

Graph Theory

PERSONAL PROJECTS

Graph Theory and Discrete Mathematics

Referred books:

- Basic Techniques of Combinatorial Theory by Daniel I.A. Cohen.
- Introduction to Graph Theory by Douglas B. West.
- Mathematical proofs, proofs by induction, by contradiction, proving the contrapositive.
- Basic counting techniques, pigeon-hole principle, recurrence relations, generating functions, principle of inclusion and exclusion, Mobius inversion.
- Graphs, trees - definitions. Connectivity, paths, cycles, Eulerian walks, Hamiltonian cycles, cliques, colourings, graph matching, planarity.

Beta And Gamma Functions

- Definitions, Relation between Beta and Gamma Functions and problem solving.

Laplace Transform And Inverse Laplace Transform

- Definition and Laplace Transform of elementary functions.
- Laplace transform of $e^{at} * f(t)$, $t^n * f(t)$ and $f(t)/t$ (without proof), periodic functions.
- Inverse Laplace Transform - problems, Convolution theorem to find the Inverse Laplace Transform and problems.
- Solution of Ordinary Differential Equations (ODE) using Laplace Transforms.

Fourier Series

- Periodic functions, Dirichlet's condition, Fourier series of Periodic functions with period 2π and with arbitrary period $2c$. Fourier series of even and odd functions.
- Half range Fourier series, Practical Harmonic Analysis - Illustrative examples from engineering field.

Fourier Transform

- Infinite Fourier Transforms, Fourier sine and cosine transforms. Inverse Fourier Transform.

STRENGTHS

Hard-working

Problem Solving

Analytical Skills