

Dr. Noufal A.

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PRESENT ADDRESS Assistant Professor (Stage II)
Department Of Mathematics
CUSAT, Cochin - 682 022



DATE OF BIRTH 31-05-1983

OBJECTIVE Teaching and Research

CITIZENSHIP INDIA

PASSPORT DETAILS Valid Indian Passport No:H8725912

RESEARCH INTERESTS Wavelet Analysis, Functional Analysis, Representation Theory, Differential Geometry, Signal Processing.

PUBLICATIONS Article titled *Numerical solution of the viscous Burgers' equation using Localized Differential Quadrature Method* is published in Partial Differential Equations in Applied Mathematics, Elsevier, ISSN: 2666-8181, Volume 4, December 2021.

Article titled *Study of Multiplication operator on $\mathcal{H}_{\frac{1}{2}} \oplus \mathcal{H}_{-\frac{1}{2}}$* is published in International Journal of Applied and Computational Mathematics, Springer, ISSN: 2349-5103, Volume 4, Issue 6, December 2018.

Article titled ***Korovkin Thorem*** is published in the proceedings of the UGC sponsored National Seminar on Recent Trends in Analysis, Topology and Its Applications organized by the Department of Mathematics, Sanathan Dharma College Alappuzha in 2015.

Article titled ***Functions Analytic on the upperhalf plane*** published in the December 2010 issue of the Bulletin of Kerala Mathematical Association.

Article titled ***Study on Heisenberg group*** is published in the proceedings of the International Conference on Groupoids, Semigroups and Automata in the Department of Mathematics University of Kerala.

CONFERENCE

PRESENTATIONS Presentation titled ***Representation of affine group with Heisenberg operators as generators*** in International Conference on Analysis and its Applications in the Department of Mathematics, Aligarh Muslim University.

Presentation titled ***Study on Heisenberg group*** in International Conference on Groupoids, Semigroups and Automata in the Department of Mathematics University of Kerala.

Presentation on ***The Concept of Empirical Mode Decomposition*** in National Seminar on fuzzy and its applications to real world problems at SN College Kollam.

Presentation on ***The Research on Intrinsic Mode Function*** in National Seminar on Recent trends in Analysis and Discrete Mathematics at Mahathma Gandhi College Thiruvananthapuram.

NUMBER OF PHD/MPHIL STUDENTS

PhD : 4 (Pursuing) Mphil : 5 (Completed), 1 (Pursuing)

MPHIL PROJECTS SUPERVISED

2015-21

1. Estimation of Spectral Radius of Refinement and Subdivision Operators. (2019)
2. Refinable Vector Functions. (2018)
3. Canonical Dual of a Wavelet Frame. (2017)

4. The Optimal Coefficients in Daubechies Wavelets. (2017)
5. Refinable Splines. (2015)

MSC PROJECTS 2016-2021

SUPERVISED

1. Support Vector Machine for Data Classification (2021).
2. Detection of Sleep Spindles using Hilbert Huang Transform (2021).
3. Weierstrass Approximation Theorem (2016).

COURSES TAUGHT

M.Sc. Differential Geometry(2021), Measure Theory (2016, 2021), Topics in Applied Mathematics (2016), Harmonic Analysis (2018), Wavelet Analysis (2013, 2015, 2019), Functional Analysis I (2015, 2019, 2021), Computational Mathematical Laboratory (2016, 2017, 2018, 2019, 2020), Functional Analysis II (2016), Partial Differential Equations (2015, 2017, 2019), Real Analysis I (2019). Ordinary Differential Equations (2020), Complex Analysis I (2013), Complex Analysis II (2014), Probability Theory (2013), Abstract Algebra (2013), Topology (2012), Algebraic Topology (2011), Analytic Number Theory (2011).

Mphil/PhD. course work: Theory of Frames in Hilbert space (2017, 2019, 2020, 2021), Framelets and Wavelets (2021).

B.Sc. - Real Analysis (2013), Complex Analysis (2013), Vector Calculus (2014), Probability Theory (2014), Mathematical Economics (2011)

CONFERENCES/WORKSHOPS ORGANIZED

1. Research Workshop on Analysis,
2. Research Workshop on Analysis II
3. Residential Training Camp for the Regional Mathematical Olympiad Awardees in Kerala Region (2017, 2018, 2019).
4. National Seminar on Analysis and Geometry (2014).

EDUCATION

University of Kerala, Thiruvananthapuram, Kerala, INDIA.

Awarded Ph.D Degree for the thesis Entitled [A Study of Wavelet Analysis and its Applications](#) by University of Kerala in November 2014.

- Candidacy Exam: *PhD Entrance exam conducted by University of Kerala*

- Adviser: Dr. C. Jayasri
- Area of Study: Wavelet Analysis and its Applications.

NET, Mathematical Sciences, December 2009.

CSIR/UGC JRF, Mathematical Sciences, June 2010.

CSIR/UGC JRF, Mathematical Sciences, June 2011.

M.Phil, Mathematics, March 2008(Annamalai University)

- With a Second Class
- Thesis Topic: *Zero Divisor Graph with respect to an Ideal in a Ring*
- Adviser: Dr. K.P. Naveena Chandran
- Area of Study: Algebra

M.Sc, Mathematics, May 2005

- *Mathematics* with an aggregate of 84%
- Thesis Topic: *An Introduction to Algebraic Coding Theory*
- Adviser: Prof. M.V Sudarsanan
- Area of Study: Coding Theory

B.Sc, Mathematics, April 2003

- *Mathematics* with an aggregate of 93.6%
- Participated in Mathematics Talent Search Programme at RIE Mysore.

Plus Two, Science, May 2000

- With an aggregate of 72.2%

SSLC, Normal Scheme, March 1998

- With an aggregate of 69.8%

ACADEMIC EXPERIENCE

Govt. Brennen College Dharmadam, Thalassery

Assistant Professor in Mathematics **10-06-2014 to 18-08-2015**

Govt. Polytechnic College Kannur

Assistant Professor in Mathematics **24-09-2013 to 09-06-2014**

PSMO College Tirurangadi

Assistant Professor in Mathematics **05-03-2012 to 23-09-2013**

H.H Maharaja Govt. College for women

FIP Substitute in Mathematics **03-09-2010 to 03-03-2012**

Govt. College Kattappana

FIP Substitute in Mathematics **21-07-2010 to 02-09-2010**
Department of Mathematics, University of Kerala.
Research Scholar **November 2007 to July 2010**
Institute of Distance Education, University of Kerala
External Teaching Faculty **December 2007 to July 2010**
Mar Ivanios College Thiruvananthapuram.
Resource Person for the UGC Sponsored Programme for NET/JRF Coaching **July 2009 to July 2010**
Catholicate College Pathanamthitta.
Resource Person for the UGC Sponsored Programme for NET/JRF Coaching **July 2010 to December 2011**
MES College of Engineering, Kuttippuram, Kerala, India.
Lecturer in Mathematics **Jan 2006 to October 2007**

TECHNICAL SKILLS

Extensive Hardware and Software skill

MATLAB experience: Linear algebra, Fourier transforms, Numerical methods, Polynomials, Statistics.

MATLAB toolboxes: Signal processing, Wavelet toolbox, Image processing.

Programming: C, C++, Python, Sagemath, Maple.

Computer Applications: \LaTeX , Sage, Scilab, Geogebra and the most common productivity packages (for Windows and Linux platforms),

Operating Systems: Mac OS, Linux, Microsoft Windows.

MATHEMATICAL EXPERTISE Functional Analysis, Wavelet Analysis, Real Analysis, Complex Analysis, and Representation Theory.

ENGINEERING EXPERTISE Signals and Systems, Transform Theory.

INVITED TALKS Gave a Lecture on ***The Introduction to Wavelet Analysis*** for the Students of Majlis Arts and Science College Puramannur.

Gave a Lecture on ***Hilbert Huang Transform*** for the Research group

in the Department of Bioinformatics, University of Kerala, Thiruvananthapuram.

Gave a Lecture on *The Introduction to Real Analysis* for the Students of Govt. Arts and Science College Tirur.

Gave a Lecture on *Introduction to Geogebra 5.0* in the Faculty Enrichment Programme on Mathematical Softwares Organized by the Department of Mathematics, Statistics and Computer Applications at St. Theresas College (Autonomous) Ernakulam, 20.10.2015.

Gave a Lecture on *The Finite Dimensional Spectral Theorem* in the Two day Workshop on Functional analysis Organized by the Department of Mathematics, P.M.Govt.College Chalakkudy, 11.12.2015.

Gave a Lecture on *Korovkin Theorem* in The National Seminar on Recent Trends in Analysis, Topology and its Applications organized by the Department of Mathematics, Sanatana Dharma College, Alappuzha, during December 02-04, 2015.

Gave a Lecture on *LaTeX* in the One day Seminar organized by the Department of Mathematics, St. Mary's College, Thrissur on 19-03-2016.

WORKSHOPS ATTENDED

FLAIR Induction Training Programme Organized by the Directorate of Collegiate Education, Govt. of Kerala, at Ashir Bhavan Ernakulam, from 14-09-2015 to 16-09-2015.

21 days Inter-disciplinary Refresher course on Basic Sciences Organized by the Human Resource Development Centre, at Ranchi University Ranchi, Jharkhand, from 11-01-2016 to 31-01-2015.

95th Orientation Course Organized by the Academic Staff College, Jawaharlal Nehru University during 06-04-2015 to 01-05-2015.

Mathematics Training and Talent Search Programme Funded by the National Board of Higher Mathematics at RIE Mysore in 2003.

Fourth Annual Foundation School-Part II Funded by National Board of Higher Mathematics at University of Hyderabad in 2008.

Workshop on Harmonic Analysis Funded by National Board of Higher Mathematics at Amritha Vishwa Vidyapeetham in 2009.

Workshop on Functional Analysis and Harmonic Analysis at Kerala School of Mathematics Calicut in 2010.

Refresher Course for College Teachers in Kerala State at Kerala School of Mathematics Calicut in 2014.

Research oriented Workshop on Image Processing Organized by the Department of Computer Science and MCA MES College of Engineering Kuttippuram.

Approach to Advanced Soft Computing Concepts Organized by the Department of Electrical and Electronics Engineering and ISTE chapter MES College of Engineering Kuttippuram in 2007.

Workshop on Several Complex Variables and Complex Dynamics(Advanced Training in Mathematics Schools) Funded by National Board of Higher Mathematics at Indian Institute of Sciences in 2010.

Faculty Development Course on Free Software System Administration Organized by the Department of Information Technology MES College of Engineering Kuttippuram in 2006.

CONFERENCES ATTENDED

International conference on Semigroup algebras and Applications ICSAA-2015 organised by the Department of Mathematics, CUSAT during September 17-19, 2015.

International Congress of Mathematicians(ICM) organised by International Mathematical Union and Department of Mathematics University of Hyderabad in August 2010.

International Conference on Groupoids Semigroups and Automata Funded by the National Board of Higher Mathematics,DST, KSCSTE, UGC organized by the Department of Mathematics University of Kerala in August 2010.

Differential Geometry and Chaos Organized by St.Josephs College for Women Alappuzha and Kerala Mathematical association in 2004.

Limits and Fractal Geometry Organized by SD College Alappuzha and Kerala Mathematical association in 2004.

Algebra and Discrete Mathematics Organized by the Department of Mathematics, University of Kerala in 2007.

Functional Analysis and Applications Organized by the Department of Mathematics, Scott Christian College Nagercoil in 2007.

Algebra and Discrete Mathematics Organized by the Govt. College Kattappana in 2008.

Number Theory, PDE and Geometry Organized by the Department of Mathematics University of Calicut in 2009.

Digital Signal Processing in Computational Biology sponsored by DBT(Govt. of India) at the Centre For Bioinformatics, University of Kerala in 2009.

Mathematics Education and Computing Organized by BJM Govt. College Chavara in 2013.

Automata and Fuzzy Theory Organized by SN College Punalur in 2009.

Indian Science Congress Organized by University of Kerala and ISRO in 2010.

Lecture series in Commutative Algebra Organized by the Department of Mathematics, University of Kerala in 2010.