

Narendra Kumar

Department of Mathematics & Computing
Indian Institute of Technology (ISM) Dhanbad
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✉ narendrakumar9670@gmail.com



Curriculum Vitae

About me

I am a punctual and motivated individual who can work in a busy environment and produce high work standards. I am a good timekeeper, always willing to learn new skills. I am an excellent team worker and can take instructions from all levels and build good working relationships with colleagues. I am flexible, reliable, and possess excellent time-keeping skills.

Career Objective

To work in an organization that I can contribute to with my mathematical knowledge and skills, whereby I can responsibly aid the organization in moving towards a positive direction.

Research Topics

Algebraic Coding Theory

Education

- Current Employee **Research Associate**, Department of Mathematics & Computing, Indian Institute of Technology (ISM), Dhanbad Jharkhand.
- From October 2020 to October 2021 **Post-Doctoral Fellow**, Department of Electrical Communication Engineering, Indian Institute of Science, Bangalore Karnataka.
- 2014-2020 **Ph.D**, Department of Mathematics & Computing, Indian Institute of Technology (ISM), Dhanbad Jharkhand.
- Title** Codes over the ring $\mathbb{Z}_4 + v\mathbb{Z}_4, v^2 = v$.
- Supervisor:** Prof. Abhay Kumar Singh, Indian Institute of Technology (ISM) Dhanbad, Jharkhand
- 2011 - 2013 **Masters of Science**, Department of Mathematics, Banaras Hindu University, Varanasi, Uttar Pradesh, **78.7%**.
- 2008 - 2011 **Bachelor of Science**, Shia P.G. College, University of Lucknow, Lucknow, Uttar Pradesh, **61.33%**.
- 2006 - 2008 **Intermediate**, Krishak Inter College, Maholi, Sitapur, U.P. Board, Sitapur, Uttar Pradesh, **70%**.
- 2004-2006 **High School**, Krishak Inter College, Maholi, Sitapur, U.P. Board, Sitapur, Uttar Pradesh, **68.33%**.

Published Papers

- 1 Dinh, Hai Q., Abhay Kumar Singh, Narendra Kumar, and Songsak Sriboonchitta, On Constacyclic Codes Over $\mathbb{Z}_4[v]/\langle v^2 - v \rangle$ and Their Gray Images, IEEE Communications Letters, Vol. 22, No. 09, pp.1758-1761, 2018 (SCI, Impact Factor 3.553).
- 2 Narendra Kumar, and Abhay Kumar Singh, DNA computing over the ring $\mathbb{Z}_4[v]/\langle v^2 - v \rangle$, International Journal of Bio-Mathematics, Vol. 11, No. 06, p.1850090(18 pages), 2018 (SCI, Impact Factor 2.053).
- 3 Abhay Kumar Singh, Narendra Kumar, Pooja Mishra, Indivar Gupta, and Manoj Kumar Singh, Construction of Dual Cyclic Codes over $\mathbb{F}_2[u, v]/\langle u^2, v^2 - v, uv - vu \rangle$ for DNA Computation, Defence Science Journal, Vol. 68, No. 05, pp.467-472, 2018 (SCI, Impact Factor 0.707).

- 4 Abhay Kumar Singh, Narendra Kumar, and Kar Ping Shum, Cyclic self-orthogonal codes over finite chain ring, *Asian-European Journal of Mathematics*, Vol. 11, No. 06, p.1850078(13 pages), 2018 (ESCI, Impact Factor 0.709).
- 5 Hai Q. Dinh, Narendra Kumar, Abhay Kumar Singh, Manoj Kumar Singh, Indivar Gupta, and Paravee Maneejuk, On the symbol-pair distance of some classes of repeated-root constacyclic codes over Galois ring, *Applicable Algebra in Engineering, Communication and Computing*, Vol. 34, pp. 111-118, 2023 (SCI, Impact Factor 0.984).
- 6 Hai Q. Dinh, Narendra Kumar and Abhay Kumar Singh, A study of quantum codes obtained from cyclic codes over a non-chain ring, *Cryptography and Communications*, 14, pp. 909-923, 2022(SCI, Impact Factor 1.367).
- 7 Narendra Kumar, Siddhartha Siddhiprada Bhoi, Ruchir Gupta, and Abhay Kumar Singh, Sliding-Window Symbol-pair Constrained Codes for Energy-Harvesting, *Annals of Telecommunications*, 78, pp. 71-77, 2023 (SCI, Impact Factor 1.901).
- 8 Narendra Kumar, Siddhartha Bhoi and Abhay Kumar Singh, A study of Primer design with w -Constacyclic shift over \mathbb{F}_4 , *Theoretical Computer Science*, (Accepted), 2023 (SCI, Impact Factor 1.002).

Papers submitted

- 1 Narendra Kumar, Siddhartha Bhoi and Abhay Kumar Singh, Construction of Multiple Constrained DNA Codes over Finite Field of Prime Order, *Theoretical Computer Science*, (under review).
- 2 Narendra Kumar and Abhay Kumar Singh, Determination of distance-optimal \mathbb{Z}_4 - linear codes by using different types of cyclic codes over a non-chain ring, *Indian Journal of Pure and Applied Mathematics* (Under Review).
- 3 Narendra Kumar and Abhay Kumar Singh, A study of cyclic DNA codes over a nonchain ring, *Journal International Journal of Bio-Mathematics* (Under Review).

International Research Collaboration

Prof. Hai Quang Dinh Professor, Department of Mathematical Sciences, Kent State University, Mahoning Avenue, Warren, **USA**.

Prof. Kar Ping Shum Professor, Institute of Mathematics Yunnan University Kunming Kunming, Yunnan, P. R. **China**.

Teaching Interest

Pure Mathematics : Algebra, Linear algebra, Real analysis, Algebraic Coding Theory, Complex analysis.

Applied Mathematics : Differential Equations, Numerical Analysis, Vector Calculus, Statistics

Teaching Experience

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|---------------------------|--|
| July 2014-July 2019 | I have worked as teaching assistant for Algebra, Linear Algebra, Complex Algebra, Calculus, Fourier Transformation, Coding Theory in the department of Mathematics and Computing, Indian Institute of technology(ISM), Dhanbad Jharkhand during Ph.D. tenure |
| Aug 2019 to Nov 2019 | I have worked as Assistant Professor in the Prof Rajendra Singh (Rajju Bhaiya) Institute of Physical Sciences for study and Research in Jaunpur, U.P. |
| January 2020 to July 2020 | I have worked as Assistant Professor in the Mahamaya College of Agriculture Engineering and Technology, Akbarpur, Ambedkar Nagar, U.P. |

Honours/Distinctions

- 2018 Life time member of *Society of Applied Mathematics (SAM)*.
- 2014 Life time member of *Indian mathematical Society (IMS - India)*.
Member ID - L/2014/216

- July 2016 Senior Research Fellowship awarded by IIT(ISM) - Dhanbad.
July 2014 Junior Research Fellowship awarded by IIT(ISM) - Dhanbad.
2016 CSIR (NET), Merit rank- 62.
2015 GATE (IIT Kanpur), Merit rank- 372
2015 CSIR (NET), Merit rank- 90

Schools/Symposium/Workshop

National/ International

- 2017 *Participated in National Instructional Workshop on Cryptography organized by Department of Mathematics, THE LNM Institute of Information Technology, Jaipur.*
- 2017 *Participated in Short Term Training Program on Coding Theory and Cryptography organized by Department of Applied Mathematics. Indian Institute of Technology (ISM), Dhanbad.*
- 2016 *Participated in the Short term Course on Advance Topics In Coding Theory organized by IIT Kanpur October 13-22, 2016.*
- 2016 *Presented Paper on International Conference on Algebra and its Applications (ICAA-16) organized by Department of Mathematics Aligarh Muslim University, Aligarh, India. November 12-14, 2016.*
- 2016 *Presented Paper on International Conference of the Indian Mathematical Consortium in Cooperation with AMS organized by Department of Mathematics Institute Of Science Banaras Hindu University, Varanasi, India. December 14-17, 2016.*
- 2015 *Participated in 7th National Conference on Wave Mechanics and Vibrations organized by Department of Applied Mathematics. Indian Institute of Technology (ISM), Dhanbad.*
- 2014 *Participated in 80th Annual Conference of Indian Mathematical Society organized by Department of Applied Mathematics. Indian Institute of Technology (ISM), Dhanbad.*

Reviewer

1. Served as reviewer of International Journal of Biomathematics, SCI Journal of World Scientific.
2. Served as reviewer of Journal of Information Security, SCI Journal.
3. Served as reviewer of Advances in Mathematics of Communications, SCI Journal of Elsevier.

Languages

1. English
2. Hindi

Skills

I. Computer Skills

1. Computational Software: Mathematica, Magma Software, Sage-Maths.
2. Operating Systems: Linux, Windows 8, Windows 10.
3. Text Processors: Latex, MS-PowerPoint, MS-Excel, MS-Word.

II. Others:

My interactions with an audience belonging to a broader area of scientific discipline have most certainly benefitted me immensely by enriching my oratory skills and subject knowledge.

Personal Details

Father's Name: Manohar Lal Verma

Date of Birth: 30 Dec 1990

Gender: Male

Marital Status: Unmarried

Nationality: Indian

Correspondence Address

Narendra Kumar, Department of Mathematics & Computing , Indian institute of Technology(ISM), Dhanbad, Pin Code-826004

Permanent Address

S/O - Manohar Lal Verma, Village- Richhahi, Post - Urdauli, District- Sitapur, Uttar Pradesh - 261141

Reference

Prof. Abhay Kumar Singh Professor, Department of Mathematics & Computing, Indian Institute of Technology, Dhanbad, Jharkhand - 826004;

Email: abhay@iitism.ac.in; Mob. +918986696177

Prof. Hai Quang Dinh Professor, Department of Mathematical Sciences, Kent State University, Mahoning Avenue, Warren, USA;

Email: hdinh@kent.edu

Prof. Navin Kashyap Professor, Department of Electrical Communication Engineering Indian Institute of Science, Bangalore - 560012;

Email: nkkashyap@iisc.ac.in

Prof. Pramod Kumar Professor, Department of Mathematics & Computing, Indian Institute of Technology, Dhanbad, Jharkhand - 826004;

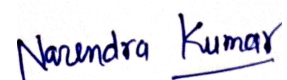
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Declaration

I hereby certify that the information furnished above are correct and complete to the best of my knowledge and belief.

Date: 30 March, 2023

Place: Dhanbad



(Narendra Kumar)