Dr. Bijan Kumar Patel

CONTACT INFORMATION	Department of Mathematics Govt. Women's College, Sundargarh Sundargarh-770001, India Email: iiit.bijan@gmail.com
RESEARCH INTERESTS	Algebra & Number Theory (Diophantine Equation; Recurrence Sequences; Prime numbers), Combinatorics.

ACADEMIC EXPERIENCE

Govt. Women's College, Sundargarh, India
Assistant Professor (OES-I), 29.08.2023 onwards
Department of Mathematics
Govt. Women's College, Sundargarh
Sundargarh-770001, India

Kalinga Institute of Industrial Technology (KIIT) Bhubaneswar, India
Assistant Professor, August 2019– August 2023
Department of Mathematics
School of Applied Sciences
Kalinga Institute of Industrial Technology (KIIT)
Bhubaneswar-751024, India

RESEARCH EXPERIENCE

Indian Institute of Science Education and Research Bhopal, India

Postdoctoral Fellows, Mathematics, November 2018– July 2019
- Advisors: Dr. Karam Deo Shankhadhar

EDUCATION

International Institute of Information Technology Bhubaneswar, India

Ph.D., Mathematics, October 2018
- Thesis Title: *Some Generalizations and Modular Properties of the Balancing Sequence*
- Advisors: Prof. P. K. Ray and Dr.(Mrs) S. K. Sunanda

National Institute of Technology Rourkela, India

M.Sc., Mathematics, First Class, Aug 2014
- Topic: *Solutions Of Some Non-Linear Programming Problems*
- Advisor: Dr. Anil Kumar

Government Auto. College, Rourkela, India

B.Sc., Mathematics (Hons.), First Class with Distinction, May 2012

AWARDS AND FELLOWSHIPS

State Fellowship (IMA P.G. Fellowship) for Master Degree, 2012–2014

IIIT Bhubaneswar, Institute Doctoral Fellowship, 2014–2018

IISER Bhopal, Institute Postdoctoral Fellowship, 2018–2019

TECHNICAL SKILLS   C, C+ +, Mathematica, Latex.

TEACHING ASSISTANT	January 2015–April 2018
	    Department of Mathematics
	    International Institute of Information Technology, Bhubaneswar
	    Teaching: Undergraduate Students.
	
	November 2018–July 2019
	    Department of Mathematics
	    Indian Institute of Science Education and Research, Bhopal
	    Tutor: Undergraduate Students.
	
	August 2019– August 2023
	    Department of Mathematics
	    Kalinga Institute of Industrial Technology, Bhubaneswar
	    Teaching: Undergraduate & Master Students.
	
	August 2023– Present
	    Department of Mathematics
	    Govt. Women's College, Sundargarh
	    Teaching: Undergraduate & Master Students.

REFEREED JOURNAL PUBLICATIONS

1. **B. K. Patel** and P. K. Ray "The period, rank and order of the sequence of balancing numbers modulo m." *Mathematical Reports (Bucur.)*, 18(3): 395–401, 2016.

2. P. K. Ray and **B. K. Patel** "Uniform distribution of the sequence of balancing numbers modulo m." *Uniform Distribution Theory*, 11(1): 15–21, 2016.

3. P. K. Ray and **B. K. Patel** "Period of balancing numbers modulo product of consecutive Pell and Pell-Lucas numbers." *Mathematica*, 58(81): 78–84, 2016.

4. **B. K. Patel**, U. K. Dutta and P. K. Ray "Period of balancing sequence modulo powers of balancing and Pell numbers." *Annales Mathematicae et Informaticae*, 47(2017): 177–183, 2017.

5. **B. K. Patel**, N. Irmak and P. K. Ray "Incomplete balancing and Lucas-balancing numbers." *Mathematical Reports (Bucur.)*, **20**(1): 59–72, 2018.

6. **B. K. Patel**, P. K. Ray and M. K. Sahukar "Positive integer solutions of certain Diophantine equations." *Proceeding: Mathematical Sciences*, 128(1): 5, 2018.

7. **B. K. Patel**, T. Komatsu and P. K. Ray "Higher-order identities for the second-order sequence." *An. Ştiinţ. Univ. Al. I. Cuza Iaşi Mat. (N.S.)*, XLIV(2): 357–368, 2018.

8. U. K. Dutta, **B. K. Patel** and P. K. Ray "A brief remark on balancing-Wieferich primes." *Mathematica*, 60(83): 48–53, 2018.

9. P. K. Ray, N. Irmak and **B. K. Patel** "The rank of apparition of powers of Lucas sequences." *Turk. J. Math.*, 42(4): 1566–1572, 2018.

10. **B. K. Patel**, S. K. Sunanda and P. K. Ray "The period of balancing numbers modulo product of consecutive Lucas-balancing numbers." *Mathematica*, 60(83): 181–185, 2018.

11. **B. K. Patel** and P. K. Ray "On the convergence of second-order recurrence series." *Notes Number Theory Discrete Math.*, 24(4): 120–127, 2018.

12. P. K. Ray, **B. K. Patel**, D. P. Chowdhury and S. Kujur "A digital scrambling method based on balancing numbers." *TWMS J. of Apl. Eng. Math*, 9(2): 287–293, 2019.

13. **B. K. Patel** and P. K. Ray "On the properties of (p, q)-Fibonacci and (p, q)-Lucas Quaternions." *Mathematical Reports (Bucur.)*, 21(1): 15–25, 2019.

14. U. K. Dutta, **B. K. Patel** and P. K. Ray "Balancing non-Wieferich primes in arithmetic progressions." *Proceeding: Mathematical Sciences*, 129(2): 21, 2019.

15. **B. K. Patel** and P. K. Ray "On the properties of Horadam quaternions." *Indian Journal of Mathematics*, 61(1): 77–85, 2019.

16. T. Komatsu, **B. K. Patel** and P. K. Ray "On the periodicity of Lucas-balancing numbers and p-adic order of balancing numbers." *Iran J Sci Technol Trans Sci*, 44: 557–562, 2020.

17. **B. K. Patel** and W. C. Teh "An exponential Diophantine equation related to powers of three consecutive Fibonacci numbers." *Bull. Malays. Math. Sci. Soc.*, 44: 927–939, 2020.

18. **B. K. Patel** and A. P. Chaves "On the exponential Diophantine equation $F_{n+1}^x - F_{n-1}^x = F_m$". *Mediterr. J. Math.*, 18(5): 187, 2021.

19. **B. K. Patel** and N. Behera "On a generalization of incomplete Fibonacci quaternions". *J. Indian Math. Soc. (N.S.)*, 88(3-4): 346–354, 2021.

20. **B. K. Patel** and P. K. Ray "On balancing and Lucas-balancing quaternions". *Commun. Math.*, 29: 325–341, 2021.

21. A. Patra, C. Pita-Ruiz and **B. K. Patel** "Nonlinear identities and Diophantine equations involving balancing-like and Lucas-balancing-like numbers". *Bol. Soc. Mat. Mex*, 28:56, 2022.

22. P. K. Ray, K. Bhoi and **B. K. Patel** "Narayana numbers as sums of two base b repdigits". *Acta Comment. Univ. Tartu. Math.*, 26(2): 183–192, 2022.

23. T. Komatsu, **B. K. Patel** and C. Pita-Ruiz "Several formulas for Bernoulli numbers and polynomials". *Adv. Math. Commun.*, 17(3): 522–535, 2023.

24. B. P. Tripathy and **B. K. Patel** "Sums of three Fibonacci numbers close to a power of 2". *Integers*, 23(2023): #A4, 2023.

25. **B. K. Patel** and P. Tiwari "Diophantine equation with balancing-like sequences associated with the Shorey-Tijdeman-type problem". Accepted, *Contributions to Discrete Mathematics*, 2024.

PhD scholars supervising	Supervising one research scholar from KIIT University, Bhubaneswar (Institute Fellowship).
Event(s) Organization	• Convener: International Webinar on Recent Developments in Number Theory (RDNT-2020), Department of Mathematics, Kalinga Institute of Industrial Technology (KIIT) University Bhubaneswar, August 17th–20th, 2020 (A virtual meeting). • Convener: 2nd International Webinar on Recent Developments in Number Theory (RDNT-2021), Department of Mathematics, Kalinga Institute of Industrial Technology (KIIT) University Bhubaneswar, October 1st–4th, 2021 (A virtual meeting).

TALK AT CONFERENCES	• Delivered an invited talk on "Modular Properties of the Balancing Sequence and their Applications" in the 34th Siksha 'O' Anusandhan Weekly Academic Lecture (SOAWAL–2022) organized by the Centre for Data Science (CDS), Faculty of Engineering Technology (ITER), Siksha 'O' Anusandhan (Deemed to be University), Bhubaneswar-751030, India on March 18, 2022.
	• "On a generalization of incomplete Fibonacci quaternions", The Fifth Workshop New Trends in Quaternions and Octonions–NTQO 2021, Organized by Universidade de Tras-os-Montes e Alto Douro, Vila Real, Portugal, November 26th–27th, 2021.
	• "Modular properties of the balancing sequence", In-House Symposium 2019, Department of Mathematics IISER Bhopal, India, February 8th-9th, 2019.
	• "On the properties of convolved generalized Fibonacci numbers", International Conference in Number Theory and Applications 2017 (ICNA2017), Organized by Kasetsart University, Thailand, July 17th-July 19th, 2017.
	• "Period, Rank and Order of the Sequence of Balancing Numbers", National Conference on Advances in Mathematics and its Applications (NCAMA-2017), Organized by Department of Mathematics, Ravenshaw University, Cuttack, India, March 31-April 1, 2017.
	• "Periodicity of balancing numbers modulo product of consecutive balancing numbers", Seventeenth International Conference on Fibonacci Numbers and Their Applications, Organized by University of Caen, France, June 27th - July 2nd 2016.
	• "Application of Balancing Transformation to Image Security", International Conference on Special Functions & Applications (ICSFA-2015) & Symposium on Fractional Calculus & its Applications to Special Functions, Organized by Department of Mathematics, Amity University, Noida, India, September 10-12 (2015).
PARTICIPATION AT WORKSHOP AND CONFERENCE	• Algebraic Geometry and Number Theory conference, Indian Statistical Institute, Bangalore center, India, December 14-20, 2017.
	• Advanced Instructional School in Analytic Number Theory (2015), KIIT University, Bhubaneswar, India, June 01-20, 2015.
	• National Workshop on Cryptography (NWC-2015), LNMIIT Jaipur, India, December 14-20, 2015.
	• Summer project on *"Network Algorithms in Operations Research,"* under the supervision of Prof. S.A. Katre, Head of Dept. of Mathematics, University of Pune, India, June 1-30, 2013.
REVIEWED FOR JOURNAL	• Mathematical Reviews (AMS) • Mathematica Slovaca • General Algebra and Applications - Discussiones Mathematicae • Bulletin of the Malaysian Mathematical Sciences Society

REFERENCES

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Statistics

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Sciences

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