Research Scholars Details

Name of Scholar	UTKAL KESHARI DUTTA
Contact Details	Mobile NO: 7008199641 Email ID: utkaldutta@gmail.com Roll No: LAT -04/MATH/2017.
Registration Number	
Name of the Department & Address	Department of Mathematics, Sambalpur University, JyotiVihar,Burla, Sambalpur-768019, Odisha, India
Name of the Supervisor and Correspondence address	**Prof.Prasanta Kumar Ray**, Professor Department of Mathematics, Sambalpur University, Sambalpur, India
Details of Funding agency/scheme	UGC NATIONAL FELLOWSHIP OBC (JRF)-UGC NFOBC
Title of the research Topic	SOME ALGEBRAIC AND ANALYTIC ASPECTS OF BALANCING AND RELATED SEQUENCES

Abstract of research work (Max. 300 words)	A balancing number and its balancer are the positive integers which are the solutions of a simple Diophantine equation proposed by Behera and Panda. The companion sequence of balancing numbers is the Lucas-balancing sequence. The study of balancing and related sequences is quite interesting as they are very closely resemble some properties of trigonometric functions and natural numbers.Riemann zeta function named after Bernhard Riemann, is one of the important special function plays a pivotal role in analytic number theory, which generalization have important application to number theory, arithmetic geometry, graph theory and dynamical system, probability theory. Navasintroduced Fibonacci Dirichlet series and studied their analytic continuation. Later on, Rout and Panda developed balancing zeta function and related L-function and examined their analytic continuation. Recently, Komatsu and Panda studied the partial infinite sums of reciprocal balancing numbers and derived some identities involving sums and alternating sums of reciprocal balancing and Lucas-balancing numbers.The main aim of our research work is to study some algebraic along with some analytic properties of balancing and its related sequences.The solutions of some Diophantine equations involving balancing and it's related sequences are to be found.The modular properties of balancing and related sequences are to be studied.The analytic continuation and zeros of some specific zeta functions and their related L-functions such as balancing and Lucas-balancing zeta functions and their related L-functions are to be examined. The infinite and finite sums of reciprocal balancing and related sequences are to be obtained. The analytic continuation and properties of multiple zeta functions and multiple L-functions relating to various number sequences are to be investigated. The above mentioned proposed works are to be carried out in my research work.

Progress of the research work	Some of research works have been worked out.
Journal Publication	1. Bijan Kumar Patel, UtkalKeshariDutta and Pasanta Kumar Ray, Period of balancing sequence modulo powers of balancing and Pell numbers, AnnlesMathematicae et Informaticae, 47 (2017), 177–183. 2. DebismitaBehera, UtkalKeshariDutta and Pasanta Kumar Ray, On Lucas-balancing zeta function, Acta et CommentationesUniversitatisTartuensis de Mathematica, 2017, Accepted. 3. UtkalKeshariDutta , Bijan Kumar Patel and Pasanta Kumar Ray, A brief remark on balancing-Wieferich primes, Mathematica, 2018, Accepted.
Conference attended	1. Attended the "Conference on Modular Forms" at IISER, Bhopal during Sept. 4, 2016. 2. Attended the Workshop "Discussion Meeting on Automorphic Forms" at NISER, Bhubaneswar during 21-12-2016 to 27-12-2016. 3. Attended the workshop "School and Workshop on Modular Forms and Black Holes" at NISER, Bhubaneswar during 05-01-2017 to 14-01- 2017. 4. Attended and presented the paper “Analytic continuation of Lucas-balancing zeta function and its values at different arguments” in the OMS conference NCAMA-2017 at Ravenshaw University, Cuttack during 31-03-2017 to 01-04-2017.

Awards	5. Attended the conference on "Algebraic Geometry and Number Theory" at Indian Statistical Institute, Bangalore during 14-12-2017 to 20-12-2017. 6. Attended and presented the paper “Balancing non-Wieferich primes in arithmetic progressions” in the OMS conference ACOMS-2018 at PMEC, Berhampur during 03-02-2018 to 04-02-2018. None