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National Conference on
**Advance Approaches in Pure
and Applied Mathematics**

February 14-15, 2023



Organised by:
Faculty of Technology,
Kalinga University,
Atal Nagar, Raipur, Chhattisgarh

Sponsored By:
All India Council for Technical Education (AICTE),
New Delhi

{Letter No. 66-11/IDC/GOC/POLICY-2/2022-23 dated 02/09/2022}

Dr. Subhashish Biswas



National Conference
On
***Advance Approaches in Pure and Applied
Mathematics***

February 14-15, 2023

Editor

Dr. Subhashish Biswas
Department of Mathematics
Kalinga University, Naya Raipur, Chhattisgarh, INDIA,

Organiser

Faculty of Technology,
Kalinga University,
Atal Nagar, Raipur, Chhattisgarh, India

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Dr. Subhashish Biswas

Department of Mathematics

Kalinga University, Naya Raipur, Chhattisgarh, INDIA

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Kotni, Near Mantralaya, Naya Raipur, Chhattisgarh, INDIA – 492101

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Raipur, 01 February, 2023

MESSAGE

I am delighted to know that Kalinga University, Faculty of Technology is organizing National Conference on Advance Approaches in Pure and Applied Mathematics (NCAAPAM-2023), scheduled on February 14th-15th, 2023.

In the present era, the applications of recent advancements in the field of science are enormous. The conference aims to bring together the experts and beginners from academia and industry at a common platform so that they are updated about the latest trends in the vast field of sciences. I hope that the conference offers immense exposure to the delegates, in particular, the younger ones to the latest developments in the field of sciences and related areas.

Once again, I on behalf of the organizing committee extend a warm welcome to all the participants of NCAAPAM-2023. I wish the conference a grand success and I am confident that all of us, especially the younger generation would be benefited immensely from the deliberations.

Dr. Rajeev Kumar
Chairman
Kalinga University





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Raipur, 01 February, 2023

MESSAGE

It is a matter of great pride and honor to organize and host the National Conference on Advance Approaches in Pure and Applied Mathematics (NCAAPAM-2023), scheduled on February 14th-15th, 2023. It is my privilege to convey affectionate greetings to all the participants. The University is marching ahead to be a distinguished center of excellence for scientific, technical, and job-oriented education and innovative research. I am very much happy to note that the conference keeps in its ambit all branches of science. I am pretty sure that it will provide the eminent scientists/young scientists from India and abroad with a wonderful platform for the exchange of innovative ideas and research issues. The subject of science has assumed great importance in recent times and has spread its wings to many spheres of human endeavor.

I wish the Faculty of Technology grand success for the National Conference on Advance Approaches in Pure and Applied Mathematics (NCAAPAM-2023) to be held on February 14th-15th, 2023. I believe that our university will rise to the occasion and make the conference a cherished academic event.

Dr. Sandeep Arora
Chancellor
Kalinga University





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Raipur, 01 February, 2023

MESSAGE

I am delighted to know that Faculty of Technology, Kalinga University, Atal Nagar, Raipur (C.G.) is going to organize a National Conference on Advance Approaches in Pure and Applied Mathematics (NCAAPAM-2023), scheduled on February 14th-15th, 2023. Recent advancement in science research plays an important and relevant role in the development of society. The research in this field has important application and the conclusions of scientific research get culminated in useful products for society.

I am highly elated that the entire proceedings in the conference would be published in the form of Souvenir to conserve the records.

I further, believe that all those conclusive and applicable outcomes of the conference would be properly communicated to the fields of application including industry, as to get implemented and further steps to contribute to overall development.

I take the opportunity to congratulate the organizers of the conference and wish them great success.

Dr. R. Shridhar
Vice-Chancellor
Kalinga University





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Raipur, 01 February, 2023

MESSAGE

The foundation stones of Kalinga University are laid on the essence of academic pursuit and excellence. Research and development form the backbone of our curriculum at Kalinga University. The staff and students are engaged in various innovative research activities all throughout the year. Every department of our university organizes conferences and seminars frequently on contemporary and relevant topics in order to facilitate research in those areas which will lead to necessary metamorphosis in the academia as well. I am extremely happy to note that of the Faculty of Technology of Kalinga University is organizing a National Conference on Advance Approaches in Pure and Applied Mathematics (NCAAPAM-2023), scheduled on February 14th-15th, 2023.

I am sure that the conference of this type will inculcate the much-needed research culture among the students and teachers and trigger interactions among researchers to exchange the ideas of recent advances in this area.

I hope that this conference would certainly induce innovative ideas among the participants paving way for new inventions and technologies. I congratulate to the organizers for conducting such conference in our esteemed University.

I wish the conference a grand success.

Professor Byju John
Director General
Kalinga University





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Raipur, 01 February, 2023

MESSAGE

I am happy that a National Conference on Advance Approaches in Pure and Applied Mathematics (NCAAPAM-2023), scheduled on February 14th-15th, 2023 is being Organized by Faculty of Technology, Kalinga University, Atal Nagar, Raipur (C.G.). I hope that the conference provides an interdisciplinary forum to present the most recent advancement in science. On this occasion, I am happy to extend my greetings and best wishes to all the participants of this important international conference and also to the organizers. Expecting to have a synergetic discussion and meaningful meeting of the participants with the Researchers, Scientists, Professor and Students of varied interests.

I wish the conference a grand success.

Dr. Sandeep Gandhi
Registrar
Kalinga University





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Raipur, 01 February, 2023

MESSAGE

I am extremely happy to note that the Faculty of Technology, Kalinga University Naya Raipur is organizing a National Conference on Advance Approaches in Pure and Applied Mathematics (NCAAPAM-2023), scheduled on February 14th-15th, 2023. I am also happy to know that the University is bringing out a souvenir on this occasion.

I hope this conference will provide an opportunity for all participants to interact with each other and discuss the issues related to the future of Science. The deliberation at this conference will enable the participants to play an important role in strengthening the department and academics.

I wish the conference a great success.

Rahul Mishra
Dean of Academic Affairs
Kalinga University





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Raipur, 01 February, 2023

MESSAGE

It gives me immense pleasure and a sense of great pride that Faculty of Technology is organizing “**Advance Approaches in Pure and Applied Mathematics (NCAAPAM) -2022-23**” from 14th-15th February 2023.

An awareness of current practices and learning about future trends in the industry from the perspective of latest applications and secure technologies is critical for the growth of Indian industries. It is necessary that as a nation we keep innovation new computing technology to have a competitive advantage at a world stage.

I am sure that the deliberation in the National Conference will meet the objective of creating awareness in the context of new Technologies in field of mathematics in the industry and will also ignite a flame of curiosity in the young minds so that they step forward for development of these technologies.

I sincerely believe that the outcome of this conference will strengthen culture of research and innovation and will facilitate meaningful interactions among all stakeholders in faculty of Technology.

I Congratulate the organizing committee for taking this initiative and extend my sincere wishes for the success of National Conference (NCAAPM).

With Best wishes

Dr. Asha Ambhaikar

Professor

(Department of Computer Science & Engineering)

& Dean Students Welfare

Kalinga University





CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY, BHILAI

छत्तीसगढ़ स्वामी विवेकानंद तकनीकी विश्वविद्यालय, भिलाई

No. 017/CSVТУ/H'VC Sectt./2023

Date: 10/02/2023

Bhilai



Message From Chief Guest

It's matter of pleasure that the Kalinga University, Naya Raipur, is organizing the "National Conference on Advance Approaches in Pure and Applied Mathematics (NCAAPAM-2023), scheduled on February 14th-15th, 2023".

Certainly, this type of conference not only brings all the faculties researchers, students at one platform, but is also includes the research culture among the entire fraternity of Education in the country, thereby, contributing to the development of nation. I hope that this conference would certainly induce innovative ideas among the participants. Recent advancement in science research plays an important and relevant role in the development of society. The research in this field has important application and the conclusions of scientific research get culminated in useful products for society.

I would like to express my appreciation to all the committee members of NCAAPAM-2023 for initiating the conduction of such a conference in the state of Chhattisgarh.

I wish the conference a grand success.

Dr. M. K. Verma
Vice-Chancellor
CSVТУ, Bhilai, Durg



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Raipur, 01 February, 2023

MESSAGE

It is indeed a pride that the Faculty of Technology, Kalinga University is organizing a National Conference on "Advance Approaches in Pure and Applied Mathematics (NCAAPAM 2022-23) on 14th and 15th February 2023.

This conference intends to provide a common platform to researchers for expanding academic collaboration. I am sure that the invited talks and technical papers presented at the conference will encompass the latest research and developments pertaining to advancements in Technology.

This event will also generate awareness among the young minds on the current status of practices and help them to learn about future trends in these areas. I am sure that the outcomes, as a result of deliberations made during the conference by learned scientists, academia and the industry would be productive and valuable to one and all.

I wish the conference a grand success.

Dr. C. P. Jawahar
Dean, Faculty of Technology
Kalinga University





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Raipur, 01 February, 2023

MESSAGE

I am extremely happy to note that the Faculty of Technology, Kalinga University, Naya Raipur is organizing a National Conference on Advance Approaches in Pure and Applied Mathematics (NCAAPAM-2023), scheduled on February 14th-15th, 2023. I am also happy to know that the University is bringing out a souvenir on this occasion.

Mathematicians and Technocrat's play a key role in the development of countries. They contribute to and enable initiatives that drive economic progress and inspire the changes that improve our quality of life. Recent advancement in science research plays an important and relevant role in the development of society. The research in this field has important application and the conclusions of scientific research get culminated in useful products for society.

I wish the conference a great success.

Dr. Vijayalaxmi Biradar
Director - IQAC
Kalinga University





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Message From The Organizers



Coordinator

Dr. G. V. V. Jagannadha Rao

HOD Applied Science

It is well known that workshops, conferences, and seminars are very important to keep one aware of the latest happenings in the concerned research field globally. The “NCAAPAM-2023” aims to provide a common platform to young researchers to interact and share their valuable views with famous names in their respective fields. We are confident that the scientific and technical deliberations made in this mega event will be thought-provoking, stimulating and inspiring to our young generation, scientists and researchers. It would have a long impact in strengthening the research in the field of sciences.



Co-coordinator

Dr. Subhashish Biswas

Associate. Professor,
Mathematics

It gives us immense pleasure to welcome the participants of “NCAAPAM-2023” at Raipur, who have come all the way from different parts of India. Indeed, it is a matter of pride that eminent scientists are among the renowned invited speakers. The Conference consists of a number of technical sessions on a wide range of topics on sciences. We thank the speakers and presenters for their sincere efforts for quality abstracts.



Organizing Secretary

Mr. Satpal Panika

Asst. Professor, Mathematics

The organizing committee of NCAAPAM-2023 has put its best efforts to make it a grand success. However, we request you to kindly bear with us in case of any inconvenience. We wish all the participants NCAAPAM-2023 a comfortable and enjoyable stay in Raipur, an academically satisfying experience and a bouquet of memories of NCAAPAM-2023.



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Message From The Organizers



Organizing Secretary

Mr. Nigama Prasan Sahoo

Asst. Professor, Mathematics

It is great honor to me, be a part of the NCAAPAM-2023. I wish all the participants all the best. It would be best memorable event for us. We wish all the participants NCAAPAM-2023 a comfortable and enjoyable stay in Raipur, an academically satisfying experience and a bouquet of memories of NCAAPAM-2023.



Member of Local Organizing
Committee

Dr. Alope Verma

Asst. Professor, Physics

It has really been a wonderful experience to host such a prestigious event were pioneers from all branches sciences and related areas have gathered to review the advancements in the promising field of sciences.



Joint Secretary

Dr. Avinash Singh

Asst. Professor, Physics

I would like to thank all Researchers, Scientists, Industry Professionals and Students for their participation and making this international conference a grand Success. I hope all participants had a knowledgeable experience and made best use of this opportunity to connect with experts in these emerging fields.



A brief retrospective History, Advancement and Applications on the Metric Fixed Point Theory

Dr. Dhananjay Gopal

Guru Ghasidas Vishwavidyalaya (A Central University)

Bilaspur, Chhattisgarh, India

Email: gopal.dhananjay@rediffmail.com

Abstract

In this talk, we discuss on the history and recent developments of metric fixed point theory, we also discuss on the some of recent existing problems in this field.

---==00==---

Development in Fixed Point Theory and Applications

Penumarthy Parvateesam Murthy

Department of Mathematics
Guru Ghasidas Vishwavidyalaya
Bilaspur, Chhattisgarh, India

Abstract

The main purpose of this talk is to know about the existence theory i.e. Fixed Point Theory and Application which comes under the broader area of Nonlinear Functional Analysis. The Metric Fixed Point Theory immense applications and the area of Deferential Equations, Integral Equations, Game Theory, etc. The historical Metric Fixed Point Theory proposed to be remarkable result discussed by S. Banach. In this talk, I will discuss various important tools which is going to eorts the common xed point theorem in various spaces such as the concept of continuity, commutativity, containment of ranges etc. I will also discuss a few applications of the established theorem in the area of Deferential Equations, Integral Equations and Simulation, etc.

---==00==---

Basic Concept of Mathematical Modeling in Science & Engineering

Sharada Nandan Raw
Department of Mathematics
National Institute of Technology
Raipur, Chhattisgarh, India
Email: sharaw.maths@nitrr.ac.in

Abstract

In most of branches of science and engineering, there is a need of knowledge of mathematical modeling. In this talk, we focus on the basic concept of the mathematical modeling. We see the glimpse of the field where mathematical modeling is going on. With help of a real world problem, we try to understand the important steps of the process of the mathematical modeling. At end of this talk, we will be able to know the some important aspect of mathematical modeling and its application.

---==00==---

Infectious Disease Dynamics: A Modeling Perspective

Dr. Govind Prasad Sahu

Center for Basic Sciences,

Pt Ravishankar Shukla University,

Raipur, Chhattisgarh, India

Govind3012@gmail.com, gpsahu.cbs@prsu.ac.in

Abstract

Despite advancements in science and technology, infectious diseases still continue to pose a great burden on public health, causing millions of deaths annually. Mathematical modeling has become an important tool in analyzing the spread and control of infectious diseases. Mathematical models take into account the main factors that govern the development of a disease, such as transmission and recovery rates, and predict how the disease will spread over a period of time. Models' ability to guide public health responses to infectious diseases is being strengthened by the expanding availability of data on pathogen genetics and human ecology as well as by methodological and computational advancements. Historical development of mathematical modeling of infectious diseases to current opportunities and challenges have been discussed.

---==00==---



Editorial Board Member's
of
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February 14-15, 2023

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Atal Nagar, Raipur, Chhattisgarh, INDIA

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Dean, Faculty of Technology

Dr. Vijayalaxmi

Director IQAC

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Dr. Subhashish Biswas

Associate Professor & Head,
Dept. of Mathematics

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