

Workshop on “Metamaterial and Metamaterial Assisted Vacuum Electronic Devices”

Report

The workshop on “Metamaterial and Metamaterial Assisted Vacuum Electronic Devices” was organized by Department of Electronics and Communications Engineering of Dr. B. C. Roy Engineering College, Durgapur from 29th May to 2nd June, 2023 in association with Thinkers in Vacuum Electron Device Group, India. The workshop was in hybrid mode and was technically co-sponsored by IEEE Kolkata Section. Dr. Sanjay S. Pawar, the Principal of the college welcomed all the delegates of the workshop. The inaugural addresses by Professor Subal Kar, Ex-Professor and Head of Institute of Radio Physics and Electronics, University of Calcutta, revealed the relevance of Metamaterials in Electronics as well as in related emerging technologies. Professor Subal Kar through his scintillating lecture shared his vast knowledge in this field very nicely and inspired the delegates to work on Metamaterials. Speakers from across the Globe shared their knowledge and experience with the delegates of the workshop. The brilliant lectures of Professor Claudio Paoloni, Professor Rowdra Ghatak, Professor P P Sarkar, Professor K P Ray, Dr Chetan Joshi, Dr Tapas Mondal, Dr Suvadeep Choudhury Dr Debasish Pal, Dr Manpuran Mahato, Dr. Rajan Agrahari Mr Raktim Guha and Mr. Susruta Narayan Chaudhury were very informative and useful particularly for the young researchers. The benign presence and comments of the subject experts such as Professor Claudio Paoloni, Professor B. N. Basu, Professor S K Kak, Professor S Raghavan, Professor Sheel Aditya, Dr Lalit Kumar, Dr L M Joshi, Dr S N Joshi, to name a few, glorified the webinar. Forty four participants got registered in the workshop. Beside the registered participants many scientists from DRDO, CSIR-CEERI and other organizations also attended the workshop though Google Meet and You Tube. The interest aroused among the delegates, well reflected in the question-answer session, proved the success of the webinar. It is expected that the young researchers would accrue the advantages of MTMs learnt from this workshop in their design exploration.

Schedule and Topic of the Workshop

DATE	TIME (IST)	SPEAKER	TOPIC	CHAIR PERSON
29.05.2023	11:15 am - 12:30am	Inauguration Inaugural lecture by Prof (Dr) Subal Kar		
	12:30am – 1:30pm	Prof (Dr) Claudio Paoloni	Technology and applications of sub-THz traveling wave tubes	Prof (Dr) S K Kak
	3:00pm - 4:15pm	Prof (Dr) Rowdra Ghatak	Metamaterials and Metasurfaces: Exciting Route to Manipulate Electromagnetic Behaviour	Dr Lalit Kumar
30.05.2023	11.00am – 12:15am	Dr. Tapas Mondal	Gain Enhancement and Coupling Isolation of Antenna Using Metamaterials	Prof (Dr) P P Sarkar
	12:15am – 1:30pm	Dr Suvadeep Choudhury	Reconfigurable Metasurfaces and Liquid based reconfigurable antennas	Prof (Dr) Rowdra Ghatak
	3:00pm – 4:15pm	Mr Raktim Guha	Recent Advancements in Metamaterial Assisted Vacuum Electron Devices and its Challenges	Dr Sanjay Kumar Ghosh
31.05.2023	11.00am – 12:15am	Prof (Dr) K P Ray	Wireless Systems: Future trends	Prof (Dr) S K Kak
	12:15am – 1:30pm	Dr Chetan Joshi	Using Transformation Optics based dielectrics superstrates to control radiation pattern	Prof (Dr) S Raghavan
	3:00pm – 4:15pm	Dr Manpuran Mahato	Metamaterial-Assisted Reltron Oscillator	Prof (Dr) B N Basu
01.06.2023	11.00am – 12:15am	Dr. Rajan Agrahari	Fundamentals of Metasurface Design and Its Application in Sensing, Energy Harvesting, and Multifunctionality	Dr L M Joshi
	12:15am – 1:30pm	Dr Debasish Pal	Reconfigurable Intelligent Surface – An Overview	Prof (Dr) K P Ray
	3:00pm – 4:15pm	Prof (Dr) P P Sarkar	Microstrip Antenna and Frequency Selective Surface : Design and Analysis using ANN	Prof (Dr) Subal Kar
02.06.2023	11:00am- 1:00 pm	Mr. Susruta Narayan Chaudhury	Hands on Practice (by Ansys)	Dr Tapas Mondal & Dr Vishal Kesari
	1:00pm- 1:30pm	Valedictory Session		

PROF. (DR.) SUBAL KAR



Subal Kar obtained his B.Sc Physics (Honours) degree from St. Edmunds' College, Shillong, Meghalaya and B.Tech., M.Tech., and Ph. D (Tech.) degree from the Institute of Radio Physics and Electronics (IRPE), University of Calcutta (CU). Dr. Kar served as Professor and Head of IRPE, CU and taught Microwave Engineering and related subjects at IRPE from 1983-2016 both at B.Tech. and M.Tech. level. His field of specialization is microwave engineering, metamaterials and high energy physics. Dr. Kar has three patents to his credit and published a large number of research papers in peer-reviewed international journals.

Dr. Kar was visiting scientist to Lawrence Berkeley National Laboratory, US, as a Fulbright Scholar during 1999-2000, when he worked for the development of RF structures for Muon Collider. He was also visiting scientist to various universities and institutes in US, Europe and Asia including Oxford University, UK, Cockcroft Institute, UK, EPFL, Switzerland, Kyoto University, Japan and so forth.

Dr. Kar was the expert committee member of SAMEER, Kolkata Centre from 2006 – 2014 for the setting up of millimetre-wave experimental facility and the metamaterial measurement facility at SAMEER, Kolkata.

Dr. Kar has authored a text book entitled “Microwave Engineering—Fundamentals, Design and Applications” (2 nd Edition, 2022) first published by Universities Press in 2016. He has also to his credit another book entitled “Physics and Astrophysics—Glimpses of the Progress” published by CRC Press of Taylor and Francis Group in 2022. Recently another book of Dr. Kar has been published, the title of the book is “Metamaterials and Metasurfaces—Basics and trends” publisher is Institute of Physics (IOP), UK. Dr. Kar has also contributed a number of chapters in edited books published by Elsevier, Springer Nature, and CRC Press. Dr. Kar is reviewer of a number of peer reviewed international journals and the special project proposals of the Department of Science and Technology, Govt. of India.

He is the recipient of young scientist award of URSI and IEEE MTT and Fulbright award of the US government. Dr. Kar is Fellow of IETE, Senior Member of IEEE and Life Member of VEDA Society.

PROFESSOR CLAUDIO PAOLONI



Claudio Paoloni is Professor of Electronics and Cockcroft Chair at the School of Engineering at Lancaster University. He has been the Head of Engineering Department and first Head of School of Engineering in the period July 2015 - July 2022. He is Senior Fellow of the Higher Education Academy in the UK.

He is Distinguished Lecturer and was member at large of the Board of Governors of the IEEE Electron Device Society.

He is Associate Editor of the IEEE Transaction on Microwave Theory and Technology.

He is author of more than 260 articles in international journals and conference proceedings in the field of high frequency electronics. He holds three patents.

He is Lead Guest Editor of the Special issue "From Mega to nano: Beyond one Century of Vacuum Electronics" of IEEE Transaction on Electron Devices (June 2013).

He has been Coordinator of the Horizon 2020 project TWEETHER "Travelling wave tube based w-band wireless networks with high data rate distribution, spectrum & energy efficiency" and of the Horizon 2020 ULTRAWAVE "Ultra capacity wireless layer beyond 100 GHz based on millimeter wave Traveling Wave Tubes".

He was Chair of the IEEE Electron Devices Society Vacuum Electronics Technical Committee.

He is IEEE Senior member.

He served in the organization of many conferences and workshops.

Prof. (Dr.) Rowdra Ghatak



Rowdra Ghatak initiated his career in microwave engineering as a trainee with the CEERI Pilani, Pilani, India, in the domain of fabrication and testing of S-band magnetrons. Thereafter, he served at the National Institute of Science and Technology, Berhampur, and The University of Burdwan. He is currently a Professor with the Electronics and Communication Engineering Department, National Institute of Technology Durgapur, Durgapur, India. He has more than 250 publications in various national/international journals and conferences. His research interests include in the areas of fractal antenna, metamaterials, application of evolutionary algorithms to electromagnetic optimization problems, RFID, and computational electromagnetic and microwave passive and active circuit design. Dr. Ghatak was a recipient of the URSI Young Scientist Award in 2005. He also received support under the DST Young Scientist scheme for the development of UWB radiating systems for imaging RADAR. He has served in various selection as well as project review committees in the State as well as in the National domain. He has also served as a reviewer for a NPTEL course on antennas. He is a member of the board of studies at UG and PG level at various state and central Universities. He is also serving as a Research Advisor to the TCS Research in the domain of mmWave radio design and radiating systems.

Dr. Tapas Mondal



Tapas Mondal received the B.E. degree in Electronics and Telecommunication Engineering from Dr. B. A. M. University, Aurangabad (Maharashtra), M.E. degree in Microwave Engineering from Birla Institute of Technology, Mesra (BIT Mesra), Ranchi, and Ph.D. in Engineering from Indian Institute of Engineering Science and Technology, Shibpur (IEST Shibpur), West Bengal, in the years 2001, 2003, and 2018, respectively. He is currently an Associate Professor in Electronics and Communication Engineering Department at Dr. B. C. Roy Engineering College, Durgapur. His research interests include planar antenna, microwave devices, wireless communication and intelligent transport systems applications. He has more than 20 publications in various national/international journals and conferences. He is a member of IEEE and life member of ISTE. He is a reviewer of IEEE Transaction, IET, Elsevier, John Wiley and PIER journals. He has organized IEEE conferences and workshops in the capacity of session chair/ Speaker.

Dr. Suvadeep Choudhury



Dr. Suvadeep Choudhury received his M.Tech from The University of Burdwan where he was awarded the University Gold medal in 2013. During his M.Tech, he was associated with the Microwave Tubes Research and Development Center, DRDO, Bengaluru. Subsequently, he earned his Ph.D. degree in the Department of Electronics and Electrical Communication Engg. from Indian Institute of Technology Kharagpur. Thereafter, he worked as Technical Lead in the R&D wing of HCL Tech. Pvt. Ltd., and as a Post-Doctoral Research Associate at IIT Kharagpur, jointly with SAC, ISRO, before joining The LNMIIT as an Assistant Professor. Currently, he is a Post-Doctoral Research Fellow at the Department of Information Engineering, University of Pisa, on-lien from The LNMIIT Jaipur.

Dr. Suvadeep expertise in design and development of low profile and high gain antennas. He has published several journals and conferences of repute and serves as an active reviewer of IEEE Transactions on Antennas and Propagation, IEEE Antennas and Wireless Propagation Letters, IEEE Access, IEEE Microwave and Wireless Component Letters, etc, to name a few. He is currently a Senior Member of URSI, Member of IEEE, and Life Member of IETE.

Raktim Guha



Raktim Guha received his B. Tech and M. Tech degrees from West Bengal Technical University in 2012 and 2015, respectively. He is currently doing his PhD (AcSIR) at CSIR-CEERI in Pilani, Rajasthan, while also benefiting from a senior research fellowship offered by CSIR. From 2017 to 2021, he served as a senior project assistant at CSIR-CEERI. His research interests include vacuum electron devices with support for metamaterials and space TWTs.

Prof (Dr.) K. P. Ray



Prof K. P. Ray (IEEE M-1993, SM-2005) is M. Tech in Microwave Electronics from University of Delhi and Ph D from IIT, Bombay. Presently he is a Director, School of Radar Technology and Head of the Dept of Electronics Engineering at Defence Institute of Advanced Technology (DIAT), DRDO, Pune. Prior to joining DIAT in 2016, he was the Programme Director of SAMEER (MeitY) Mumbai, wherein he joined SAMEER (TIFR) in 1985 and worked for over 31 years in the areas of Electromagnetics, Radars, RF and microwave systems/components and developed expertise in the design of antenna elements/arrays and high-power RF/microwave sources for RADAR, scientific and industrial applications. He has successfully executed over 55 projects sponsored by various Govt. agencies (DRDO/MOD, ISRO/DOS, DAE, DST/DSIR/TIFAC, Meity, DBT, IMD, BHEL, etc.) and many industries. He was a guest/invited//adjunct faculty in EE Dept at IIT, Bombay, Goa Engineering College, University of Mumbai and CEERI (CSIR) Pilani for post graduate courses. He has published extensively in almost all the reputed journals in his field, holds 3 patents, earned 10 Transfer of Technology (ToT) for commercialization and filed 5 patents. He is a prolific reviewer of almost all the reputed journals in his fields and is associated editor of few journals. He is a fellow of IETE, a fellow of VEDAS, a senior member of IEEE (USA), and life member of Instrument society of India and Engineers of EMI/EMC society of India. He received many awards including the most coveted IETE-Ram Lal Wadhwa Award 2018.

Goggle citation page :<https://scholar.google.co.in/citations?user=s9wU0Q8AAAAJ&hl=en>

Dr. Chetan Joshi



Dr. Chetan Joshi is M.Tech from ENSEEIHT, Toulouse and Ph.D. from University of Paris Saclay, Paris. Presently he is a Lead Product Manager at Panasonic Industry Europe. Prior to joining Panasonic in 2016, Chetan conducted research activities in the field of metamaterials with special emphasis on Transformation Optics.

Dr. Manpuran Mahto



Manpuran Mahto received the B.E. degree from VTU, Belgaum, M.Tech. degree from the IIITDM Jabalpur, and the Ph.D. degree from IIT (BHU) Varanasi. He is currently working an Assistant Professor with the National Institute of Technology Patna. He has guided 02 PhD students and 09 PhD students are working in his supervision. He has 03 India Patents and 22 reputed research journal. He is the Regional Coordinator for Space, ISRO at NIT Patna. His current research includes high-power microwaves, photonics, metamaterials, and metasurfaces.

Rajan Agrahari



Dr. Rajan Agrahari is an Assistant Professor at the National Institute of Technology Patna, Bihar. Before joining NIT Patna, he worked as a Postdoc Fellow at International Research Centre for Nanophotonics and Metamaterials, ITMO University, St. Petersburg, Russia in 2020. He completed his Ph.D. from I.I.T. (BHU) Varanasi in the field of Microwave Engineering in 2020. Dr. Agrahari was also appointed as Adjunct Research Assistant in the Department of Engineering Science and Mechanics at Pennsylvania State University, USA in 2017.

In his early career, Dr. Rajan holds two patents on multifunctional metasurface and DRA. He has published 10 SCI Journal papers and 1 Book Chapter. He is the reviewer of many journals like IEEE Sensors Journal, IEEE Transactions on Antennas & Propagation, Journal of Optics and Laser Technology, Microwave and Optical Technology Letters. His current area of research includes nanophotonics, computational electromagnetics, and metamaterials.

Dr. Debasish Pal



Debasish Pal was born in Burdwan District of West Bengal. He joined CSIR-CEERI Pilani as Junior scientist in the year 2005. He is working as a Senior Principal Scientist in the same institute. He has done B.E in Electronics and Communication engineering(with distinction) from Bangalore University. He obtained his M.Tech. (Microwaves) from University of Burdwan with 1st rank (awarded University GOLD MEDAL). He has obtained his PhD from I.I.T Roorkee in the field of Metamaterial Enhanced Antennas.

Currently he is a member of High Frequency Devices and Systems group. He is involved in the development of various Klystron which were sponsored by Bhaba Atomic Research Centre (Mumbai), Defence Research and Development Organization, Institute of Plasma Research (Gandhinagar) etc.His area of research interests are Metamaterial antenna, Photonic Band Gap structures, Defected Ground Structure Antenna, Fractal Antenna, Application of Biological optimizing techniques like P.S.O, B.F.O, A.N.N on Antenna and Microwave passive components . He has published more than 50 Conference and Journal papers in various international and national platforms.

Dr. Partha Pratim Sarkar



Dr. Partha Pratim Sarkar was felicitated with a Ph.D in engineering from Jadavpur University in the year 2002. He has obtained his M.E from Jadavpur University in the year 1994. He earned his B.E degree in Electronics and Telecommunication Engineering from Bengal Engineering College (Presently known as Bengal Engineering and Science University/Indian Institute of Engineering Science and Technology, Shibpur) in the year 1991. He was in the rank of Reader during the period January 1997 to January 2005. He is presently working in the rank of Professor since January 2005 at the Dept. of Engineering & Technological Studies, University of Kalyani. His area of research includes Microstrip Antenna, Microstrip Filter, Frequency Selective Surfaces and Artificial Neural Network. He has contributed around 349 research articles in various journals and conferences of repute. Among them 229 research articles are in peer reviewed international journals and 112 research articles are in SCI indexed journals. He has supervised 24 number of Ph.D students, 68 number of M.Tech thesis and more than 70 B.Tech projects. He is also a life Fellow of IETE and IE(India).



IEEE
KOLKATA SECTION

WORKSHOP On METAMATERIAL AND METAMATERIAL ASSISTED VACUUM ELECTRONIC DEVICES

May 29 - June 02, 2023

Organized by

**DEPARTMENT OF ELECTRONICS AND
COMMUNICATION ENGINEERING**
(NBA accredited)

DR. B. C. ROY ENGINEERING COLLEGE, DURGAPUR
Affiliated to: Maulana Abul Kalam Azad University of
Technology, West Bengal
Accredited by NBA, NIRF rank holder,
Accredited by NAAC in 5 disciplines
Jemua Road, Fuljhor, Durgapur-713206

**AND
THINKERS IN VACUUM ELECTRON DEVICE
GROUP, INDIA**

TECHNICALLY CO-SPONSORED BY
IEEE KOLKATA SECTION

OVERVIEW OF THE WORKSHOP

The objective of this Workshop on "Metamaterial and Metamaterial Assisted Vacuum Electronic Devices" is to make the target participants acquainted with the significance of advanced concepts, implementation, applications, and research opportunities in this fast growing and challenging field. The workshop will be held in hybrid mode (both on-line and off-line). The discussion shall foster interdisciplinary collaborative research and applications. This program is also expected to provide an excellent opportunity to exchange ideas on topics of importance along with thought-provoking technical sessions.

ABOUT THE COLLEGE

Dr. B. C. Roy Engineering College (BCREC), Durgapur started its journey in the year 2000 with 4 departments: Electronics and Communications Engineering (ECE), Electrical Engineering (EE), Computer Science and Engineering (CSE) and Information Technology (IT). Afterwards three more departments, Mechanical Engineering (ME), Civil Engineering (CE), Applied Electronics and Instrumentation Engineering (AEIE) were introduced. With the recent addition of three new disciplines viz. Computer Science and Design (CSD), Artificial Intelligence and Machine Learning (AIML), and Data Science (DS) BCREC now offers B.Tech. degree in 9 disciplines, M.Tech. with four specializations, MCA and MBA. Spread over a large area of about 17 acres, BCREC has several multistoried buildings, Central Library, Recreation Area, Games and Sports Complex, Multi-gyms and several hostels for boys and girls. The college is proud recipient of NBA accreditations in five departments (ECE, CSE, EE, IT and ME) and NAAC accreditation with 'B+' grade. The college has also achieved NIRF ranking. AICTE-IDEA Laboratory is a new feather to the feather of Dr. B. C. Roy Engineering College, Durgapur. The college achieved the distinction of being NPTEL local chapter of IIT-Kharagpur and nodal centre for Spoken Tutorial of Maulana Abul Kalam Azad University of Technology for South Bengal. Texas Innovation Laboratory is another research centre of Dr. B. C. Roy Engineering College, Durgapur. The college has an active IEEE student branch from 2019.

ABOUT ECE DEPARTMENT, BCREC

The Department of Electronics & Communication Engineering (ECE) was established in 2000 with a view to become the Centre of Excellence through conscious, meaningful, devoted and determined effort of all the stakeholders by synergistic application of creativity, innovation, discipline and social consciousness. The department has required modern facilities for teaching, learning and research. The department offers ample research opportunities and programs of study at undergraduate and postgraduate levels. Presently, the department is offering NBA accredited 4 years UG (B.Tech) program with 120 intakes and also 2 years PG (M.Tech) program in Communication Engineering with 18 intakes. The department has several modern laboratories like Modern Communication Engineering, VLSI, Digital, Microwave & Antenna and Innovation Laboratories. With rapidly evolving technology and continuous need for innovation, the department is grooming the students for employment, higher studies and research as well as entrepreneurship by imparting quality and value based education as per the needs of the society.

Patrons:

Dr Satyajit Bose (President, BCREC)
Mr Tarun Bhattacharya (General Secretary, BCREC)

Advisory Committee:

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Prof (Dr) K. M. Hosain (Vice-Principal, BCREC)
Prof (Dr) B. N. Basu (Ex-Professor IIT-BHU)
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Prof (Dr) K P Ray (Director, DRDO-DMAT, Pune)
Prof (Dr) P P Sarkar (Professor, Kalyani University)

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Mr Raj Singh (IPR, Gandhinagar)

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Dr Nalin Pareek (CSIR-CSIO, Chandigarh)
Dr N Purushothaman (Lancaster University, UK)
Mr P Raja Ramana Rao (DRDO-MTRDC Bengaluru)

Proceedings:

Prof (Dr) Sauri Pal (BCREC, Durgapur)
Dr Vishal Kesari (DRDO-MTRDC, Bengaluru)

Hosts:

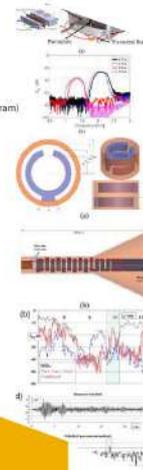
Dr Rajdeep Ray (BCREC, Durgapur)
Ms Dipita Das Choudhuri (BCREC, Durgapur)
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Resource Persons (Tentative)

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Senior Research Fellow, CSIR-CEERI, Pilani
Dr Chetan Joshi
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Prof (Dr) Subal Kar
Ex-Professor and Head, Institute of Radio Physics and Electronics, University of Calcutta
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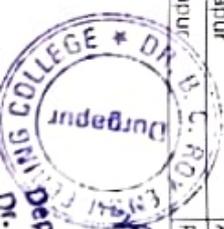
About Thinkers in Vacuum Electron Device Group, India
Thinkers in Vacuum Electron Device (VED) Group, India is an online scientific group of youngsters and experts from R&D, academia and industries. The objective of the group is to create a technical forum or platform in the area of Vacuum Electron Devices in which the young researchers can raise technical research problems asking for suggestions. The group has successfully organized thirteen webinars in which lectures were arranged in short span of two and half years from various experts of international repute.

REGISTRATION

Registration is open to the faculty members, researchers, scientific and technical officers working in Engineering colleges and Universities, Research Centres and Industries who are keenly interested and have an aptitude for working in this emerging fields of Electronics and communications. Interested candidates may register themselves through the **Google link**
<https://forms.gle/ZlQmhw5jtl3eeC5j6>
Last date of registration: 25th May, 2023
Since the seats are limited, participants will be selected on first-come first-serve basis. Selected candidates will be intimated through email.
Registration fee: Rs 250 only
Bank Account details:
Name of the A/C Holder: DR. B. C. ROY ENGINEERING COLLEGE, DURGAPUR
A/C No. 215010011265
IFSC Code: UTIB0000215
Name of the Bank: AXIS BANK LTD., DURGAPUR
Certificate will be issued to the participants having minimum 80% attendance

Timestamp	Email Address	Name of the Participant	Affiliation (Name of Institute / Organization)	Designation
5-4-2023 22 16 33	wikram@south du.ac.in	Dr Vikram Kumar	Delhi University	Assistant Professor
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5-29-2023 11 13:02	ramkrishna.rakshit@bcrec.ac.in	Dr. Ramkrishna Rakshit	Dr.B.C.Roy Engineering College, Durgapur	Asst Prof
5-29-2023 11 59:16	mrimmoy.chakraborty@bcrec.ac.in	Mrimmoy Chakraborty	Dr B C Roy Engineering College	Assistant Professor
5-29-2023 12:43:26	rvs.rk@ges-coengg.org	Dr R V S RAMKRISHNA	R H Sapal College of Engineering, Management Studies and Research, Nashik	Associate Professor
5-29-2023 14:48:19	sourav.moitra@bcrec.ac.in	Dr Sourav Moitra	Dr B C Roy Engineering College Durgapur	Assistant Professor
5-29-2023 16:33:38	deephiparamasivam@gmail.com	Deepthi P	Government College of Engineering, Salem	Assistant Professor
5-30-2023 9:11:27	raghavannit@gmail.com	DR.S.RAGHAVAN	MIT (TEX)	PROFESSOR(HAGJRETD
5-31-2023 13:02:24	moutusi.mondal@bcrec.ac.in	Moutusi Mondal	Dr B C Roy Engineering College, Durgapur	Assistant Professor
5-31-2023 17:01:32	tapas.mondal@bcrec.ac.in	Prof. (Dr.) Tapas Mondal	Dr B C Roy Engineering College, Durgapur	Associate Professor
6-2-2023 12:21:41	pal.saril@gmail.com	DR. SARIT PAL	Dr. B. C. Roy Engineering College, Durgapur	Professor
6-2-2023 14:31:25	abhijit.banerjee@bcrec.ac.in	Dr. Abhijit Banerjee	Dr. B. C. Roy Engineering College, ECE	Assistant Professor
6-2-2023 14:36:24	chattopadhyayardhendu@gmail.com	Dr.ARDHENDU SEKHARCHATTOPADHYAY	Dr. B. C. Roy college of Engineering	Assistant Professor
6-2-2023 14:44:29	pradipta.sarkar@bcrec.ac.in	PRADIPTA SARKAR	DR. B. C. ROY ENGINEERING COLLEGE, DURGAPUR	ASSISTANT PROFESSOR
6-2-2023 16:00:54	ankita.mitra@bcrec.ac.in	Dr. Ankita Mitra	Dr B.C.Roy Engineering College	Assistant Professor
6-23-2023 19:04:41	asingh.rs.ece@iitbhu.ac.in	DR ASHUTOSH	M. P. SINHA SCIENCE COLLEGE, B. R. AMBEDKAR BIHAR UNIVERSITY, MUZAFFARPUR	Assistant Professor



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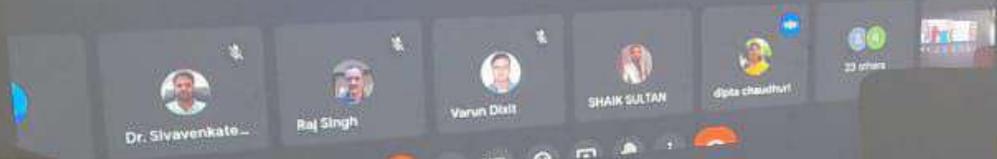
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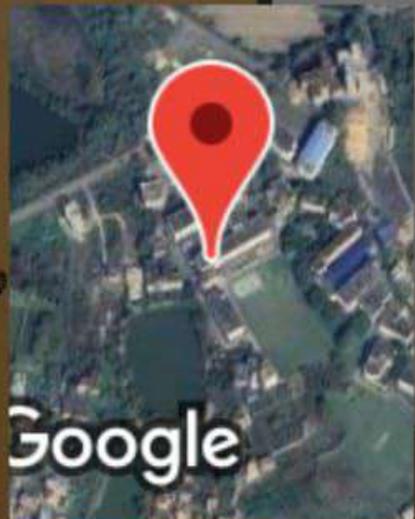
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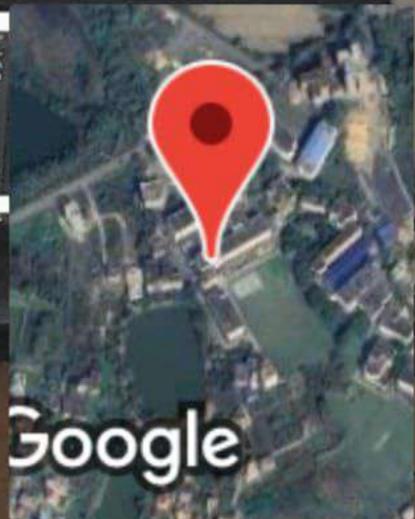
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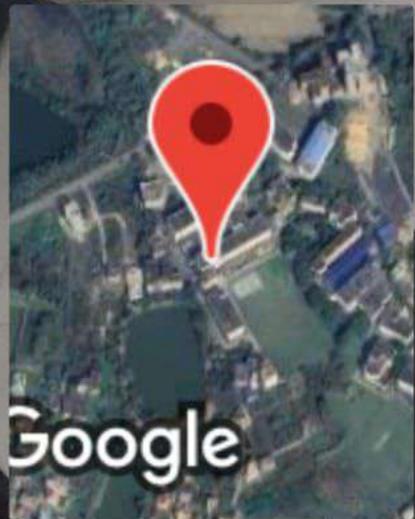


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