Call for Papers

1st International Career Outreach Conference
"Trends in Sustainable Design, Technology and Innovation"
Technically sponsored by Confederation of Education Excellence (CEE)



26th -28th November 2022, 10:00 AM-4:00 P.M IST Organized by the Microsystem Design-Integration Lab, Bidhan Chandra College, Asansol, WB, India

A series of career outreach workshops, by Microsystem Design-Integration Lab, Dept. of Physics, Bidhan Chandra College, Asansol, West Bengal, India, was organized in last two years, intended to help students thrive in a world of constant change, providing exposure, career-readiness and internship opportunities and professional career advisories at domestic and international level. Bidhan Chandra College, Asansol, West Bengal, is proud to enable Advanced Research, Design, Computational Facilities, and Google Workspace for Education, for its all faculties, staffs and above all students, during this difficult time of pandemic, facilitating the teaching and learning with cloud based collaborative tools. We are pleased to take a leap further by inviting the students, scholars, and faculties for two-day International Career Outreach Conference on "Trends in Sustainable Design, Technology and Innovation", technically sponsored by Confederation of Education Excellence (CEE), in blended mode.

Esteemed Keynote Speakers



Prof. Mrinal Kanti Musib, Sr. Lecturer, Dept. of Biomedical Engineering, National University of Singapore, Singapore



Prof. Sourangshu Mukhopadhyay,
Professor,
Dept. of Physics,
The University of Burdwan,
India



Prof. Chandan Kumar Sarkar,
Professor,
Dept. of Electronics and Telecom.,
Jadavpur University,
India



Prof. Hiroshi Inokawa,
Professor,
Research Institute of Electronics,
Shizuoka University,
National University Corporation,
Japan
(Virtual Talk)



Prof. Tapas Sen,
FRSC, FHEA,
Reader,
School of Natural Sciences,
Central Lancashire university,
UK
(Virtual Talk)



Prof. Wong Kin Shun, Terence,
Professor,
School of Electrical & Electronic
Engineering, Nanyang
Technological University,
Singapore
(Virtual Talk)

Scope

Technical papers, under the following broad subject areas describing original, previously unpublished research related to Sustainable Design, Technology and Innovation, not currently under review by another conference or journal, are solicited. The specific topics of the conference include, but are not limited to:

Track I: Applied and Natural Sciences: Physical, Chemical, Mathematical, Biological and Material Sciences. Track II: Design and Engineering: Concepts in Electronics, Electrical, Biomedical, Computational Engineering, e.g. Microelectronics and Devices, Optoelectronics and photonics, Thin Film Electronics, Material and Process Engineering, Emerging Memories, Interconnect-3D Integrations-MEMS, Power-High-speed Devices and Materials, Quantum information Systems and Devices, Organic-Molecular-Bio-electronics, Hybrid and Renewable Energy Sources, Photovoltaics-Energy Harvesting-Battery-related Technology, Biomaterials-Biomedicine, Medical Imaging, Biomechanics, Computational Bioengineering, Integrated Microfluidics.

Cyber-physical Systems, Communication Systems, Signal Analysis, Data Science, Artificial Intelligence and Machine Learning, Optical and Communication Systems, Cloud and Mobile Computing, Deep Learning, Networks & Securities, Intelligent Systems and Robotics, Internet of Things.

Publication

For timely publication, completed texts of abstract and manuscripts must be prepared according guidelines below.

Abstract Submission Deadline: 15th Nov. 2022

Submission Email: seminar@bccollegeasansol.ac.in
Subject of Email: Abstract_Second Name_Track

Abstract Format: English, Open format, 200 words, 12 point, Single Spacing

Acceptance Notification: 20th Nov, 2022 Camera Ready Submission: Dec 15th, 2022

Proceeding Format: English, Open format, Max 6 Pages, 12 point, Single Spacing

(to be submitted with plagiarism report< 10%)

All accepted papers will be e-published in: Conference Proceedings (Edited Volume with ISBN).

Copyrights

Authors who are registered will be provided with the Consent and Release Form. These forms allow the organizers right to use, distribute, publish, exhibit, digitize, broadcast, reproduce and archive, in any format or medium, whether now known or hereafter developed any materials, including written, audio and visual works. One of these forms are required by each speaker in order to present at the conference.

Registration

Online Registration: 1st Nov to 21st Nov, 2022

Online Registration Link: https://forms.gle/kTTV5JhiCrpoFtwY8

Payment details may be submitted to Email: seminar@bccollegeasansol.ac.in

Subject of Email: Registration_Second Name_Track

Registration Fees:

Participants type	Participant On-site: Day I Virtual: Day II	Participant Virtual: Day II	Participant On-site: Day I	Participant Virtual: Day II
	With	Paper	Virtual: Day II	
Faculty /Academics/Industry	1000 INR	500 INR	500 INR	500 INR
Research Scholars	500 INR	500 INR	500 INR	200 INR
UG Students/PG students	200 INR	200 INR	200 INR	Free

Payment Details:

Bank Name : SBI Branch Name: Asansol, Burdwan
IFSC Code : SBIN0000011 Account Number : 11214097180
Beneficiary Name: BIDHAN CHANDRA COLLEGE, ASANSOL

Refund Policy: Conference Fee once paid would not be refunded under any circumstance.

Organizing Committee

Patron: Prof. Falguni Mukhopadhyay, Hon'ble Principal, Bidhan Chandra College

Chair: Dr. Goutam Mukherjee, Convener, NAAC Committee;

HOD, Dept. of Physics, Bidhan Chandra College

Coordinator, IQAC: Dr. Saumen Chakraborty, Dept. of Physics, Bidhan Chandra College

Treasurer: Dr. Sujit Kr. Bera, Dept. of Chemistry, Bidhan Chandra College **Convener: Dr. Amit Banerjee,** Dept. of Physics, Bidhan Chandra College

Organizing Secretaries: Dr. Sudipta Roy, Dr. Ajay Kr. Sharma, Mr. Apurba Paramanik,

Dept. of Physics, Bidhan Chandra College

Organizing Committee Members:

Mr. Sreemanta Sarkar, Dept. of Economics, Bidhan Chandra College

Dr. Tapan Kr. Si, Dept. of Chemistry, Bidhan Chandra College

Dr. Indubaran Mandal, Dept. of Mathematics, Bidhan Chandra College

International Advisory Committee

Prof. Dr. Hiroshi Inokawa, Research Institute of Electronics, Shizuoka University, Japan

Prof. Tapas Sen, School of Natural Sciences, Central Lancashire university, UK

Prof. W.K.S. Terence, School of Electrical & Electronic Eng., Nanyang Technological University, Singapore

Dr. Mrinal Kanti Musib, Dept. of Biomedical Engineering, National University of Singapore, Singapore

Dr. Goutam K. Dalapati, Sunkonnect Pte Ltd, Singapore; National University of Singapore, Singapore

Dr. Daksh Agarwal, Lam Research, California, United States

Prof. Joel J. P. C. Rodrigues, Federal University of Piauí, Brazil; Instituto de Telecomunicações, Portugal

Prof. Manas Mukherjee, Centre for Quantum Technologies, National University of Singapore, Singapore

Technical Committee

Prof. Sourangshu Mukhopadhyay, Dept. of Physics, The University of Burdwan

Prof. Sudip K. Batabyal, Amrita Center for Industrial Research and Innovation, Amrita Vishwa Vidyapeetham

Dr. Amartya Chowdhury, Centre for Energy & Environment, Malaviya National Institute of Technology

Dr. Arup Samanta, Dept. of Physics, Indian Institute of Technology Roorkee

Dr. Mrinal Dutta, National Institute of Solar Energy

Dr. Arindam Biswas, Department of Mining Engineering, Kazi Nazrul University

Dr. Debabrata Samanta, Rochester Institute of Technology, Kosovo

Dr. Tanmoy Basu, TCG Centres for Research and Education in Science and Technology

Dr. Subhashis Samanta, Forensic Science & Technology, Maulana Abul Kalam Azad University of Technology

Publication Committee

Prof. Joel J. P. C. Rodrigues, Federal University of Piauí, Brazil; Instituto de Telecomunicações, Portugal; Editor-in-chief, International Journal on E-Health and Medical Communications;

Editorial board member of IEEE Network, IEEE Wireless Communications, IEEE IoT Journal, IEEE Open Journal of the Communications Society.

Dr. Basudev Pradhan, Dept. of Energy Engineering, Central University of Jharkhand, Ranchi, India; Associate Editor, Applied Physics A, Springer Journal; Guest Associate Editor, Frontiers in Materials.

Organized by Microsystem Design-Integration Lab, Dept. of Physics, Bidhan Chandra College,

Partially supported by the Device Development Programme (DDP),

Department of Science & Technology (DST), Government of India.

For further information on Collaboration, Scope of Research and Internship

Website: www.bccollegeasansol.ac.in || Email: amit@bccollegeasansol.ac.in

Active Research Project Currently:

Competitive Research Grant under Device Development Programme,

by the Department of Science & Technology (DST), Ministry of Science and Technology, Government of India.

Microsystem Design-Integration Lab Resources and Design Capabilities:

COMSOL Multiphysics with following packages: Wave Optics Module, Ray Optics Module, RF Module, AC/DC Module, Semiconductors Module, MEMS Module, Heat Transfer Module, Design Module, Material Library module;

NI Multisim Software; NI Ultiboard Software; NI LabVIEW Software and DAQs;

Siemens Solid Edge Software for 3D Design, Simulation;

Advanced Design and Computation Facility;

Active collaboration:

Advanced Device Research Division, Research Institute of Electronics, Shizuoka University,

National University Corporation, Hamamatsu, Japan

Dept. of Electrical and Computer Engineering, National University of Singapore

Organic Electronics Research Center (OERC), Ming Chi University of Technology, Taipei, Taiwan

Career Outreach Conference Supported by



Technical expertise in PV, Energy storage and Hydrogen info@sunkonnect.co | www.sunkonnect.co



Innovation Training | Internship | Mentoring contact@cimotechedu.com | www.cimotechedu.com



Deals in: COMSOL Multiphysics, Siemens EDA, National Instruments, S2CInc, SPRUT Technology, Texas Instruments s.chatterjee@tridenttechlabs.com | www.tridenttechlabs.com



Authorized Education Partner of STMicroelectronics | Bitlismen | Industrial Shields ramesh@digitoadtech.com | www.digitoadtech.com



Retailers of HP, Acer & Asus Asansol, Raniganj, Durapur, asansolunitel@gmail.com



Deals in: Solid Edge, Femap, Cam Express, Teamcenter Express sroy@unique-solutions.in | www.unique-solutions.in

	Technical Program								
Abstract ID	Presentation Mode	Title	Presenting Author	Institute	Faculty/Student	Corresponding Email			
PP-1		Graphene Oxide as promising electrochemical senor	Shrabani Mondal	Department of Physics, Banwarilal Bhalotia College, West Bengal, India	Faculty	shrabaniph@gmail.com			
PP-2		Selective Sensing Of Nitro Phenols Using A Manganese Based 3d Metal Organic Framework Compound	Debabrata Saha	Department of Chemistry, Suri Vidyasagar College, Suri, Birbhum,	Faculty	mathur2583@gmail.com			
PP-3		Observation of doube Electromagnetically Induced Transparency in 87Rb vapour	Kalan Mal	Dept. of Physics, Suri Vidyasagar College, Suri, Birbhum, West Bengal ,India	Faculty	kmsvc08@gmail.com			
PP-4		A sustainable approach for the synthesis of highly stable silver nanoparticles using Ginger extract	Tatan Ghosh	Physics Balarampur College, Purulia, W. B.	Faculty	tatanghosh83@gmail.com			
PP-5		Design & Development of flue gas sensor based stack SPM control & Design by IoT.	Debyendu Chakroborty	Electrical and Instrumentation Department, Crescent Power Limited, Asansol	Scholar	debyenduc@gmail.com			
PP-6		GC-FAME analysis of bacterium present in domestic fowl in Bardhaman region of West Bengal	Sreenita Ghosh	Department of Zoology, B. C. College, Asansol	Faculty	tukai.sr@gmail.com			
PP-7		Magnetocaloric effect in manganites: A sustainable method of cooling	Moumita Patra	Department of Physics, Raghunathpur College, Raghunathpur, Purulia-723133	Faculty	mpatra.phys@raghunathpurcollege.ac.in			
PP-8		Study on Soft I^p Spaces	Indubaran Mandal	Dept. of Mathematics B.C.College, Asansol	Faculty	indubaran707@gmail.com			
PP-9		Corrosion Inhibition behavior of Yellow Olender flower extracts against mild steel in 1M hydrochloric acid: Electrochemical and Gravimetric investigations	Sutapa Adhikari Mazumder	Department of Chemistry, Bidhan Chandra College, Asansol, West Bengal, India	Faculty	sutapashuchi1@gmail.com			
PP-10		Molecular mechanism of Helicobacter pylori infection through in silico study	Sriparna Ray	Department of Zoology, Bidhan Chandra College, Asansol, West Bengal, India	Faculty	sriparnaray041984@gmail.com			
PP-11		Porous Silica Nanoparticles (SiO2-NPs) by a Green Microbiological Technique: A material of future era	Shilpi Show Mandal	Department Of Physics, Banwarilal Bhalotia College, Asansol, West Bengal, India	Faculty	sssurosa@gmail.com			
PP-12		Aziridines - An overview and recent advancements in asymmetric synthesis	Sk Md Samim Akhtar	Department of Chemistry, Bidhan Chandra College, Asansol-713304, West Bengal, India	Faculty	samimakhtar00@gmail.com			
PP-13		Lattice Energy of A^I B^III C_2^VI and A^II B^IV C_2^V Ternary Chalcopyrite Semiconductors	Ajay Kumar Sharma	Department of Physics, Bidhan Chandra College, Asansol, Asansol-713304, West Bengal, India	Faculty	ajay@bccollegeasansol.ac.in			
PP-14		A New Approach to Find Feasible Solution of a Transportation Problem	Utpal Majee	Department of Mathematics, Bidhan Chandra College, Asansol, Asansol	Faculty	utpalmajee2012@gmail.com			
PP-15		Calculation of lattice thermal expansion coefficient of RXO4 (R=Rare Earth, X=P,As) compounds with Monazite and Zircon structure	Guruprasad Parida	Postgraduate Department of Physics, Tata College Chaibasa, Kolhan University, Westsingbhum-833201, Jharkhand, India	Scholar	shreyagorai@gmail.com			
PP-16		All-optical hybrid encoded inverter and NAND gate using non-linear polarization rotation effect in SOA	Sahazada Aziz	Department of Physics, Ramananda Centenary College, Laulara-723152, Purulia	Faculty	sahazada@outlook.com			
PP-17		Trends in Sustainable Design, Technology and Innovation	RAJDIP CHATTERJEE	Dept of Professional Studies. Bidhan chandra College. Asansol.	Faculty	rajdip@bccollegeasansol.ac.in			
PP-18		Studies on rich dynamics of filter based chaotic oscillators	Saumendra Sankar De Sarkar and Saumen Chakraborty	Department of Physics, Raniganj Girls' College Searsole Rajbari-713358, West Bengal, India ; 2Department of Physics, Bidhan Chandra College Asansol-713303, West Bengal, India ;	Faculty	ssdesarkar@gmail.com; saumenbcc@gmail.com			
PP-19	Poster, DAY I: 26th Nov'2022 Technical Session II: 02:45 pm - 3:30 pm	A brief overview of the materials used for solar cell	Sudipta Roy	Department of Physics, Bidhan Chandra College, Asansol, India	Faculty	roysudipta2050@gmail.com			
PP-20	reclinical session it. 92.43 pm - 3.30 pm	Hybrid clustered Route planning in WSN for Environment Monitoring	Apurba Das, Gitanjali Roy	Department of Computer Application, Bidhan Chandra College, Asansol	Faculty	groyasn@gmail.com			
PP-21		LINEAR PROGRAMMIMG PROBLEM AND ITS LIMITATION	BHASKAR CHATTERJEE	DEPARTMENT OF MATHEMATICS BIDHAN CHANDRA COLLEGE, ASANSOL	Faculty	bhaskar.rcpur@gmail.com			
PP-22		Geometry of *-Einstein soliton on Kenmotsu manifolds	Santu Dey	Department of Mathematics, Bidhan Chandra College, Asansol-4, West Bengal	Faculty	santu@bccollegeasansol.ac.in			
PP-23		Smith degradation coupled with ESI-MS a commanding tool for providing critical structural information of polysaccharides-A review	Kanika Ghosh	Department of Chemistry, Bidhan Chandra College, Asansol	Faculty	kanika@bccollegeasansol.ac.in			
PP-24		Advanced trends for the energy storage application of 2D MoS2 nanomaterial	Apurba Paramanik	Physics, Bidhan Chandra College, Asansol, West Bengal	Faculty	apurbaphysics3@gmail.com			
PP-25		Exploration of Dipole Polarizabilities of Impurity Doped GaAs Ouantum Dots	Surajit Saha	Department of Chemistry, Bidhan Chandra College, Asansol	Faculty	surajitchem11@gmail.com			
PP-26		Luminescent Lanthanide Complexes and Applications – A Brief Review	Sujit Kumar Bera	Department of Chemistry, Bidhan Chandra College, Asansol	Faculty	sujit@bccollegeasansol.ac.in			
PP-27		Combining Situation Calculus and Event Calculus	Abhijit Konar	Mathematics Department Bidhan Chandra College Asansol	Faculty	akonar202@gmail.com			
PP-28		Water quality and pollution status of River Nunia, at Asansol, West Bengal	Sagarika Mukherjee	Epidemiology, Vector biology and Environmental monitoring Research Units, Entomology Laboratory, Department of Animal Science, Kazi Nazrul University, Asansol, Paschim Bardhaman, West Bengal, India; Department of Zoology, Bidhan Chandra College, Asansol, Paschim Bardhaman, West Bengal, India	Faculty	sagarika@bccollegeasansol.ac.in			
PP-29		Impact of air pollution and soil pollution on some plants with special reference to their morphological, anatomical and biochemical studies.	Kasturi Chatterjee	Department of Botany, Bidhan Chandra College, Asansol-713304, West Bengal, India	Faculty	kasturi@bccollegeasansol.ac.in			

	_					
PP-30		Mononuclear Mn(III) Complex of Chiral Schiff base (R,R)-N,N di-salicylidene cyclohexane 1,2-diamine and Azide Ligands: Synthesis, Structural Characterization and Studies of DNA Nuclease Activity	Tapan Kumar Si	Department of Chemistry, Bidhan Chandra College, Asansol-713304, India	Faculty	tapansi68@gmail.com
PP-31		A New Approach for Transmission of Resistivity Survey Data with the purpose of Underground Water Layer Detection	Animesh Ghosh	Department of Electrical Engineering, Techno Polytechnic Durgapur, West Bengal	Scholar	animesh.mechatronics@gmail.com
PP-32		Medical Imaging : Journey From Past to Future for Better Diagnosis and Management	Mahua Karmakar	Department of Physics, Raghunathpur College, Raghunathpur, Purulia-723133, West Bengal	Faculty	mahua_apc@yahoo.com
PP-33		DNA damage response in plants: similarities and dissimilarities with animals	Anwesha Bandyopadhyay	Department of Botany, Bidhan Chandra College, Asansol	Faculty	anwesha@bccollegeasansol.ac.in
PP-34		Ill Effects of Synthetic Pesticide and Their Possible Replacement with Biological Eco-friendly Pesticide	Amarnath Shit	Department of Zoology Balarampur College, Purulia (WB) India	Faculty	amarnath.shit@gmail.com
PP-35		Effect of Joule heating on rotating electro-osmotic flow in a sinusoidally varying micro-channel	Amit Mondal	Department of Mathematics, Bidhan Chandra College, Asansol-713304, India	Faculty	amitmondal009@gmail.com
OP-2	Oral, Google Meet, DAY II: 28th Nov'2022 Technical Session III 11:00 am - 12:30 pm	The effect of Si-C bond density on the structural and optoelectronic characteristics of a-SiOC films	Subhashis Samanta	Department of Forensic Science and Technology, School of Applied Science & Technology, Maulana Abul Kalam Azad University of Technology, West Bengal.	Faculty	subhashis.samanta@makautwb.ac.in
OP-3		Influence of particle size on electrical and dielectric properties of co-precipitated NiSnO 3 nanoparticles	Mamotaj Khatun	Department of Physics, TheUniversity of Burdwan, Burdwan, West Bengal-713104, India	Scholar	mamotajkhatunwb@gmail.com
OP-4		Cryptographic encryption of optical frequency encoded Tri-state serial data by systemetaic interchangeing of frequencies.	Tanmay Mondal	Department of Physics, The University of Burdwan, Burdwan	Scholar	tanmay.bu.phy@gmail.com
OP-5		Gestational Diabetes Mellitus: The fatal fetal consequence	Udita Mukhopadhyay	Medical College Kolkata, Kolkata	Student	uditamukhopadhyay@gmail.com
OP-6		An all-optical memory using quantum optical Toffoli gate with frequency encoding principle	Snigdha Hazra	Department of Physics The University of Burdwan, Golapbag, Burdwan	Scholar	snigdhahazra29@gmail.com
OP-7		Non-reciprocal heat flow in quantum trimer	Gobinda Chakraborty	Centre for Quantum Engineering Research and Education (CQUERE), TCG Centres for Research and Education in Science and Technology (TCG CREST), Sector V, Salt Lake, Kolkata	Student	gobindachak8119@kgpian.iitkgp.ac.in
OP-1	Oral, Google Meet, DAY II: 28th Nov'2022 Technical Session III 12:30 pm - 01:30 pm	Application of Metal Nanoparticles in Forensic Science	Koyel Ghosh	Department of Forensic Science and Technology, School of Applied Science & Technology, Maulana Abul Kalam Azad University of Technology, West Bengal.	Student	subhashis.samanta@makautwb.ac.in
OP-8		Use of Nanotechnology in the Detection of Forensic Drugs	Riya Das	Department of Forensic Science and Technology, School of Applied Science & Technology, Maulana Abul Kalam Azad University of Technology, West Bengal.	Student	subhashis.samanta@makautwb.ac.in
OP-9		Detection of Toxic Chemical Compounds and Drugs by Terahertz Spectroscopy: a Review	Shrestha Mondal	Department of Forensic Science and Technology, School of Applied Science & Technology, Maulana Abul Kalam Azad University of Technology, West Bengal.	Student	subhashis.samanta@makautwb.ac.in
OP-10		Explosive Identification Using Terahertz (THz) Spectroscopy	Saikat Panda	Department of Forensic Science and Technology, School of Applied Science & Technology, Maulana Abul Kalam Acad University of Technology, West Bengal.	Student	subhashis.samanta@makautwb.ac.in
OP-11		Investigation on secondary transfer of Gunshot residue carried out with sem-edx Analysis	Anjitha Mol S	Department of Forensic Science and Technology, School of Applied Science & Technology, Maulana Abul Kalam Acad University of Technology, West Bengal.	Student	anjithamols2000@gmail.com
OP-12		The Physics of Projectile-Living Target Interaction and Forensic Significance: A Review	Sk Yeaser Ali	Department of Forensic Science and Technology, School of Applied Science & Technology, Maulana Abul Kalam Azad University of Technology, West Bengal.	Student	subhashis.samanta@makautwb.ac.in
OP-13		Role of Nano Forensic in Prevention of Crime	Ankita Chakraborty	Department of Forensic Science and Technology, School of Applied Science & Technology, Maulana Abul Kalam Azad University of Technology, West Bengal.	Student	ankitachakraborty2147@gmail.com
OP-14		Automated nanorobotic manipulation system inside of Scanning electron microscope	Jayita Banerjee	Department of Forensic Science and Technology, School of Applied Science & Technology, Maulana Abul Kalam Azad University of Technology, West Bengal.	Student	jayitabanerjee9259@gmail.com
OP-15		The Significance of Ricochet of a Bullet	Sayan Sadhu	Department of Forensic Science and Technology, School of Applied Science & Technology, Maulana Abul Kalam Azad University of Technology, West Bengal.	Student	sayansadhu8918637807@gmail.com
OP-16		Prediction Model for Signal Attenuation in 5G and Beyond Communication	Pia Sarkar	B.P. Poddar Institute of Management and Technology, Kolkata	Scholar	amitbanerjee.nus@gmail.com

Registration: International Career Outreach Conference							
SL NO	Name	Email	Affiliation (Dept., Institution, City/State, Country)	Designation	Signature		
1	Mayukh Chatterjee	mayukhchatto1@gmail.com	Department of Forensic science and technology, Maulana	Student UG	On-line		
2	Disha Biswas	biswasdisha573@gmail.com	Forensic Science and Technology, MAKAUT,	Student UG	On-line		
3	Anumita Pal	anumitapal12@gmail.com	Department of Forensic Science and technology, MAKAUT,	Student UG	On-line		
4	Md Khalid nasim	ajr75936@gmail.com	West Bengal Asansol	Student UG			
5	Prokriti Saha	prokritisahamsd@gmail.com	Department of Forensic Science and Technology	Student UG	On-line		
6	Piyali Sarkar	sarkarpiyali2002@gmail.com	Dept- Forensic science and technology, Institution - Maulana	Student UG	On-line		
7	Shreyashi Ghosh	noshshreyashi2019@gmail.co	Dept. Of Forensic Science MAKAUT West Bengal	Student UG	On-line		
8	Simantini Thakur	simantinithakur7@gmail.com		Student UG	On-line		
9	ATRI SINHA	sinhaatri856@gmail.com	Physics department, Bidhan Chandra College	Student UG			
10	DEBASHISH	ashishmukherjee486@gmail.	Physics Department, Bidhan Chandra College, Asansol, West	Student UG			
11	Shazia Naaz	shaziahayat2003@gmail.com	Bidhan Chandra college	Student UG			
12	SAROJ MANDAL	saroj.jongpur1@gmail.com	Bidhan college asansol	Student UG			
13	Sudip Laha	sudiplaha108@gmail.com	BB College	Student PG			
14	ARNAB GHOSH	arnab4750@gmail.com	Dept. :- physics (hons.); Institution :- Bidhan Chandra	Student UG			
15	TARANNUM	annumparween718@gmail.co	W.B(INDIA)	Student PG			
16	ARITRA BANERJEE	aritra960966@gmail.com	Physics Department, B. B. College, Asansol/West Bengal,	Student UG			
17		mamtashrestha64@gmail.com		Student UG			
18	Rishikesh Choudhury	rishikeshch7890@gmail.com	KNU BC College Asansol, west bengal, India.	Student UG			
19	Tatan Ghosh	tatanghosh83@gmail.com	Department of Physics, Balarampur College, Purulia,	Faculty			
20	Ashis Soren	sorenashis5@gmail.com	Physics Honours, Bidhan Chandra Collage, Asansol/West	Student UG			
21	RAVITHAKUR	ravithakur102003@gmail.con		Student UG			
22	Avinaba shaw	avinabashaw173@gmail.com	DEPT- PHYSICS (HONS),BIDHAN CHANDRA	Student UG			
23	Sazia parween	saziapaween062@gmail.com	Bidhan chandra college asansol west bengal india	Student UG			
24	DR. SREENITA	tukai.sr@gmail.com	Zoology Dept., Bidhan Chandra College, Asansol. West	Faculty			
25	Nayan Das	nayandas00111@gmail.com	Physics (Hons)	Student UG			
	BIJENDRA KUMAR						
26	PASWAN	pijendarkumarp44@gmail.com	Physics,BC college, Asansol,/West Bengal, India	Student UG			
20	DR. AMARNATH	ijendarkamarp i ragman.eon	Thysico, Be conege, Thumson, West Bengui, maid	Student 00			
		1 110					
27	SHIT	amarnath.shit@gmail.com	Balarampur College, Balarampur, Purulia, WB, India	Faculty			
28	Arnab Nandi	rnab6291180399@gmail.com		Student UG			
29	Biren Roy	imbirenyesms@gmail.com	Physics, BB College	Student PG			
			Dept :-Physics Hon's; Institution:- Bidhan Chandra college;				
30	Mantu yadav	intuyadav01052002@gmail.co		Student UG			
- 50	Ankita Chakraborty,	in the state of th	Maulana Abul Kalam Ajad University of technology,	zaucii e e			
2.		2 1 1 1 2 2147		Gr. 1 ATTO			
31	Mrittika Paul	kitachakraborty2147@gmail.c		Student UG	On-line		
			Physics department, Bidhan Chandra college, Asansol, West				
32	Souvik chakraborty	ıvikchakraborty415@gmail.c	Bengal, India	Student UG			
			PHYSICS,BC COLLEGE,ASANSOL,WEST				
33	Himangshu Mandal	mandal8372089720@gmail.c		Student UG			
34	Debabrata Saha	mathur2583@gmail.com	Suri Vidyasagar College	Faculty			
35	Jayita Banerjee	ayitabanerjee9259@gmail.com	• 0	Student PG			
33	Jayna Danei Jee	aynavancijec9239@gman.com	iviauiana Auui Kaiani Azau University of Technology.	Student PU			
36	Romit Pal Chowdhury	alchowdhuryromit@gmail.com	Physics, BB college, West Bengal, India	Student UG			

37	Shreya Mondal	shreyamondal315@gmail.com	Physics, BB College, West Bengal, India	Student UG	
38	Mousumi Kundu	ousumikundu.bnd@gmail.co	Physics, BB College, West Bengal, India	Student UG	
39	MAMPI MONDAL	mampi2213@gmail.com	Physics,BB College, West Bengal, India	Student UG	
40	ABHIJIT KONAR	akonar202@gmail.com	MATHEMATICS	Faculty	
41	Dr A K Mukherjee	akm phy@yahoo.com	B B COLLEGE, ASANSOL W.B	Faculty	
42	Koushik hazra	hazrakoushik604@gmail.com	BB college Asansol	Student UG	
			DEPARTMENT OF FORENSIC SCIENCE, MAULANA		
			ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY,		
43	SAIKAT PANDA	saikatdd4@gmail.com	WEST BENGAL	Student PG	On-line On-line
44	Sujoy maji	sujoymaji1626@gmail.com	KNU, ASANSOL	Student UG	
45	Kasturi Chatterjee	asturi@bccollegeasansol.ac.i	Bidhan Chandra College	Faculty	
46	DOYEL ROY	roydoyel02@gmail.com	B.B.College , Asansol	Student UG	
	Abida Parveen				
47	Chowdhury	abida082002@gmail.com	Physics	Student UG	
			Physics, Banwarilal Bhalotia College, Asansol, West		
48	Rima Debnath	debnathrimahoj@gmail.com	Bengal	Student UG	
49	Farheen Khanum	hanumfarheen257@gmail.com	physics,BB college, Asansol	Student UG	
50	ASHOK GORAI	goraiashok13@gmail.com	Physics ,BB college, Asansol	Student UG	
			Forensic Science, Maulana Abul Kalam Azad University Of		
51	Shruti Das	hrutidas11042018@gmail.com	Technology, West Bengal, India	Student PG	On-line On-line
			Dept. Of Physics, Bidhan Chandra College, Asansol, WB,		
52	Saumen Chakraborty	aumen@bccollegeasansol.ac.i	India	Faculty	
53	Dr. Sriparna Ray	riparnaray041984@Gmail.com	Department of zoology, Bidhan Chandra College, Asansol	Faculty	
54	SHREYA BARNWAL	email2shreya6@gmail.com	PHYSICS , BB COLLEGE, WEST BENGAL, INDIA	Student UG	
55	Sagarika Mukherjee	ıgarika@bccollegeasansol.ac.	Dept of Zoology, Bidhan Chandra College	Faculty	
56	Shagufta Parween	annatparween474@gmail.com		Student UG	
57	Shaika Khan	khanshaika8016@gmail.com		Student UG	
58	Sudeshna Nandy.	sudeshna.bnp@gmail.com	Zoology honours.	Student UG	
59	Dhrubojyoti Nath	rubojyotinath6178@gmail.co		Student UG	
60	Moitrayee Roy	moitrayeeroy818@gmail.com	Department of Zoology,Bidhan Chandra College	Student UG	
	GOUTAM				
61	MUKHERJEE	goutam.krishna@gmail.com	Physics	Faculty	
			Department of Chemistry, Bidhan Chandra College, Asansol-		
62	Dr. Tapan Kumar Si	tapansi68@gmail.com	4, West Bengal, India	Faculty	
			Department of Physics, Suri Vidyasagar College, West		
63	KALAN MAL	kmsvc08@gmail.com	Bengal, India	Faculty	
	Dr Saumendra Sankar		Department of Physics, Raniganj Girls' College, P.O.:		
64	De Sarkar	ssdesarkar@gmail.com	Searsole Rajbari -713358, West Bengal, India	Faculty	

	APURBA		Assistant Professor, Dept. Of Physics, Bidhan Chandra		
65	PARAMANIK	apurbaphysics3@gmail.com	College, Asansol, West Bengal, India	Faculty	
66	Dr. Sujit Kumar Bera	sujitkbera@gmail.com	Bidhan Chandra College, Asansol	Faculty	
	Dr. Ajay Kumar	3 30	Department of Physics, Bidhan Chandra College, Asansol,		
67	Sharma	ajay@bccollegeasansol.ac.in		Faculty	
		3,30		<u> </u>	
68	Dr. Kanika Ghosh	anika@bccollegeasansol.ac.in	Department of Chemistry, B C College, Asansol, WB, India	Faculty	
69	DR. SURAJIT SAHA	RAJITCHEM11@GMAIL.CO	Assistant professor, Dept. Of Chemistry, B C College	Faculty	
			Physics, Banwarilal Bhalotia College, Asansol/ West Bengal,	-	
70	Sandipan Mitra	sandipanmitra098@gmail.con	India	Student UG	
71	Soumik bose	biplabbose055@gmail.com	India	Student UG	
			Forensic Science, MAKAUT, Haringhata, West Bengal,		
72	Koyel Ghosh	ghosh2001slg@gmail.com	India	Student PG	On-line On-line
			Maulana Abul Kalam Azad University of Technology,		
73	SK YEASER ALI	yeaserali11@gmail.com	Department of Forensic Science	Student PG	On-line On-line
			Department of forensic science and technology, Maulana		
74	Riya Das	riyadas20005@gmail.com	Abul Kalam Azad University of Technology, WB, India	Student PG	On-line On-line
75	GITANJALI ROY	groyasn@gmail.com	BCA, B.C.COLLEGE, ASANSOL, WEST BENGAL, INDIA	Faculty	
76	Apurba das	purbadas2221105@gmail.cor	BCA department, B.C.College,asansol, west Bengal, India	Faculty	
			Department of Physics, The University of Burdwan,		
77	Snigdha Hazra	snigdhahazra29@gmail.com	Golapbag, Burdwan, West Bengal India.	Researcher	
			Physics, Bidhan Chandra College, Asansol, West Bengal,		
78	Dr.Sudipta Roy	roysudipta2050@gmail.com	India	Faculty	
			Kazi Nazrul University, Department of Physics, Bidhan	-	
79	Debjyoti bhattacharya	hattacharyajeet58@gmail.cor	Chandra College, Asansol, West Bengal, India	Student UG	
			Dept. of Physics, Raghunathpur College , Raghunathpur,		
80	Dr. Moumita Patra	sspmpiacs@gmail.com	Purulia	Faculty	
81	Gargi paul	rockerrudra2007@gmail.com	Phy dept, bb college, asansol, west bengal, India	Student UG	
82	Tandra Mondal	andramondal2002@gmail.com		Student UG	
83	Subham shaw	ıbhamshaw002020@gmail.co	West Bengal	Student UG	
			Physics Department, Bidhan Chandra College, Asansol,	<u></u>	
84	Diya Das	diyadaspiya@gmail.com	West Bengal , India	Student UG	
85	Udita Mukhopadhyay	ditamukhopadhyay@gmail.co	Medical College Kolkata	Student UG	On-line
	RAJDIP				
86	CHATTERJEE	rajdip@bccollegeasansol.com		Faculty	
			Dept. Of Physics, Raghunathpur College, Raghunathpur,		
87	Dr. Mahua Karmakar	mahua1973malda@gmail.com		Faculty	
			Department of Physics, RAMANANDA CENTENARY		
88	DR. SAHAZADA AZIZ	sahazada@outlook.com	COLLEGE, Laulara, Purulia, West Bengal,India	Faculty	

			Department of Physics, Kazi Nazrul University, Asansol -		
89	ASHIF RAJA	ashifphysics@gmail.com	713340, West Bengal, India	Researcher	
90	AVIK MAJUMDER	avik.rpe@gmail.com	Nit Silchar	Researcher	On-line
	DEBAMITA	a viki ipe (o ginameem	PHYSICS,BIDHAN CHANDRA COLLEGE,ASANSOL	researence	on me
91	CHATTERJEE	bamitachatterjee30@gmail.co		Student UG	
92	Prithwiraj Nandan	prithwirajnandan@gmail.com	Maulana Abul Kalam Azad University of Technology	Student UG	
	, .	pgg	Electrical Engineering Department, Techno Polytechnic	51000111 5 5	
93	Animesh Ghosh	mesh.mechatronics@gmail.co	Durgapur, Panagarh/West Bengal, India	Student PG	
		gg	Physics department, Asansol Girls' College, Asansol, West		
94	Arpita Das	adarpita065@gmail.com	Bengal, India	Student UG	
	1		Department of Physics, The University of Burdwan,		
95	Tanmay Mondal	tanmay.bu.phy@gmail.com	Burdwan/West Bengal, India	Researcher	On-line
		7 1 708	Department of Chemistry, Bidhan Chandra College, Asansol,		
96	Sk Md Samim Akhtar	samimakhtar00@gmail.com	India	Faculty	
97	SHREYA ROY	royshreya072002@gmail.com	Physics(Hons.), B.B. College, Asansol, West Bengal, India	Student UG	
			Dept of Chemistry		
			B. C College		
	Dr. Sutapa Adhikari		Asansol		
98	Mazumder	sutapashuchi1@gmail.com	India	Faculty	
			Department of Mathematics, Bidhan Chandra College,		
99	Indubaran Mandal	indubaran707@gmail.com	Asansol, West Bengal, India	Faculty	
	BHASKAR		Mathematics, BIdhan Chandra College, Asansol, West		
100	CHATTERJEE	bhaskar.rcpur@gmail.com	Bengal, India	Faculty	
			Dept- Electronics amd Cpmmunication Engineering,		
			Institution-B P Poddar Institute Of Management ans		
			Technology		
			City-Kolkata		
			State-West Bengal		
			Country-India		
101	PIA SARKAR	pia.sarkar@bppimt.ac.in		Faculty	On-line
102	SUBHAJIT MSNDAL	hajitmandal869714@gmail.c	Physics, bb college, West Bengal, India	Student UG	
			Department of Physics, University of Burdwan, Burdwan,		
			West Bengal, India		
103		namotajkhatunwb@gmail.com		Researcher	On-line
	DEBYENDU		CIS, JISASR,JIS UNIVERSITY, ASANSOL,WEST		
104	CHAKROBORTY	debyenduc@gmail.com	BENGAL	Researcher	
4.5-	***		N 1 1 PH CL 1 CH WAS		
105	Umm e Humaira	ımmehumaira335@gmail.con		Student UG	
106	Shrestha Mondal	hresthamondal02@gmail.con	MSc Forensic science, MAKAUT, West Bengal	Student PG	On-line

107	D. Chili Ch. Maralal	0 4	Department of Physics, Banwarilal Bhalotia College,	- L	
107	Dr. Shilpi Show Mandal	<u></u>	Asansol, West Bengal, India	Faculty	
108	Debasmita Chatterjee	debasmitachatt@gmail.com	Asansol Girls' College, Asansol, India	Student UG	
			Assistant Professor,		
			Department of Forensic Science and Technology,		
			School of Applied Science and Technology,		
			Maulana Abul Kalam Azad University of Technology, West		
109	Dr. Subhashis Samanta	hashis.samanta@makautwb.a		Faculty	On-line
	Anwesha				
110	Bandyopadhyay	wesha@bccollegeasansol.ac.	Bidhan Chandra College, Asansol	Faculty	
111	Dr. Arindam Biswas	ailarindambiswas@yahoo.co.		Faculty	



Bidhan Chandra College

[Govt. Sponsored], ESTD: - 1961, NAAC Accredited

Recognized by U.G.C. (Govt. of India) and affiliated to Kazi Nazrul University

Inauguration of Central Computer Lab

1st International Career Outreach Conference

"Trends in Sustainable Design, Technology and Innovation"

Organized by

Microsystem Design-Integration Lab

Bidhan Chandra College, Asansol, WB, India

26th -28th November 2022

WELCOME

1st International Career Outreach Conference "Trends in Sustainable Design, Technology and Innovation" 26th -28th November 2022

Organized by Microsystem Design-Integration Lab



Bidhan Chandra College

[Govt. Sponsored], ESTD: - 1961, NAAC Accredited Recognized by U.G.C. (Govt. of India) and affiliated to Kazi Nazrul University

Esteemed Keynote Speaker



Prof. Mrinal Musib, NUS Biomedical Engineering, College of Design and Engineering, National University of Singapore, Singapore.



Prof. Sourangshu Mukhopadhyay, Professor, Dept. of Physics, The University of Burdwan, India



Prof. Chandan Kumar Sarkar, IEEE Electron Device Society Distinguished Lecturer; Professor, Dept. of Electronics and Telecom.,

Jadavpur University, India



Prof. Hiroshi Inokawa,
Professor, Research Institute of
Electronics,
Shizuoka University,
National University
Corporation, Japan



Prof. Tapas Sen, FRSC, FHEA, School of Natural Sciences, Central Lancashire University, United Kingdom



Prof. Wong Kin Shun, Terence, School of Electrical & Electronic Engineering, Nanyang Technological University, Singapore.

Esteemed Invited Speaker



Dr. Tanmoy Basu, CQuERE, TCG-Centres for Research and Education in Science and Technology (CREST), Kolkata, WB



Dr. Subhashis Samanta, Department of Forensic Science & Technology, School of Applied Sciences & Technology, Maulana Abul Kalam Azad University of Technology (MAKAUT), WB

Event Pictures



Welcome Address and Inaugural Speech by Dr. Falguni Mukhopadhyay,
Hon'ble Principal, Bidhan Chandra College.
Opening Remarks by Shri Moloy Ghatak,
Hon'ble Minister, Govt of West Bengal
Opening Remarks by Professor Sadhan Chakraborti,
Hon'ble Vice Chancellor, Kazi Nazrul University.



Lab Visit and Keynote Talk: Prof. Mrinal Musib, NUS Biomedical Engineering, College of Design and Engineering, National University of Singapore, Singapore.

Event Pictures



Lab Visit and Keynote Talk: Prof. Sourangshu Mukhopadhyay, Department of Physics, Burdwan University, West Bengal.



Lab Visit and Invited Talk: Dr. Tanmoy Basu, CQuERE, TCG- Centres for Research and Education in Science and Technology (CREST), Kolkata, West Bengal.

Dr. Subhashis Samanta, Department of Forensic Science & Technology, School of Applied Sciences & Technology, Maulana Abul Kalam Azad University of Technology (MAKAUT), West Bengal.

BIDHAN CHANDRA COLLEGE

Govt. Sponsored (NAAC Accredited)
Estd: 1961, Affiliated to Kazi Nazrul University

1st International Career Outreach Conference
"Trends in Sustainable Design, Technology and Innovation"
Organized by

Microsystem Design-Integration Lab Bidhan Chandra College, Asansol, WB, India 26th -28th November 2022

LETTER OF GRATITUDE

This Letter of Gratitude is presented to Prof. Hiroshi Inokawa, Professor, Research Institute of Electronics, Shizuoka University, National University Corporation, Japan for delivering a Keynote Talk in the 1st International Career Outreach Conference "Trends in Sustainable Design, Technology and Innovation", organized by the Microsystem Design-Integration Lab, Department of Physics, Bidhan Chandra College, Asansol, WB. We very much appreciate your consideration to share your vast knowledge, domain expertise and opportunity to interact.

Anut Bancyu
Dr. Amit Bancrjee,

Convener,

Dept. of Physics, Bidhan Chandra College, Asansol, WB

Palerin Inspadhm

Dr. Falguni Mukhopadhyay, Principal,

Bidhan Chandra College, Asansol, WB

BIDHAN CHANDRA COLLEGE

Govt. Sponsored (NAAC Accredited)
Estd: 1961, Affiliated to Kazi Nazrul University

1st International Career Outreach Conference
"Trends in Sustainable Design, Technology and Innovation"
Organized by

Microsystem Design-Integration Lab Bidhan Chandra College, Asansol, WB, India 26th -28th November 2022

CERTIFICATE OF PARTICIPATION

This is to Certify that PIA SARKAR, Dept. of Electronics and Communication Engineering, B P Poddar Institute Of Management and Technology, City-Kolkata, State-West Bengal Country-India has participated and presented (poster/oral) in the 1st International Career Outreach Conference "Trends in Sustainable Design, Technology and Innovation", organized by the Microsystem Design-Integration Lab, Department of Physics, Bidhan Chandra College, Asansol, WB.

Dr. Amit Banerjee,
Convener,
Dept. of Physics, Bidhan Chandra College, Asansol, WB

Dr. Falguni Mukhopadhyay,
Principal,
Bidhan Chandra College, Asansol, WB

बीसी कॉलेज में तीन दिवसीय अंतराष्ट्रीय सेमिनार का आयोजन, शामिल हुए देश-विदेश के वक्ता

बर्नपुर. पश्चिम बंगाल में विधान चंद्र कॉलेज (आसनसोल) माइक्रोसिस्टम डिजाइन-एकीकरण लैब भौतिकी विभाग की ओर से तीन दिवसीय (26 से 28 नवंबर 2022 तक) प्रौद्योगिकी में सतत डिजाइन और नवविचार में रुझान पर प्रथम अंतरराष्ट्रीय करियर आउटरीच सम्मेलन आयोजित किया गया. नेशनल यूनिवर्सिटी ऑफ़ सिंगापुर, सिंगापुर के प्रो. मृणाल मुसिब और बर्दवान विश्वविद्यालय के प्रो. सौरंगश् बसु, (विज्ञान और प्रौद्योगिकी में अनुसंधान और शिक्षा के लिए टीसीजी केंद्र) और डॉ. शुभाशीष



(फॉरेंसिक साइंस टेक्नोलॉजी मौलाना अबुल कलाम आजाद प्रौद्योगिकी विश्वविद्यालय) ने 26 नवंबर को बीसी कॉलेज परिसर में सेमिनार में शामिल हुए. मुखोपाध्याय ने विदेशों के प्रख्यात इसके अलावा प्रो. हिरोशी इनोकावा वक्ताओं के साथ-साथ डॉ. तन्मय (इलेक्ट्रॉनिक्स अनुसंधान संस्थान, जापान), प्रो. वोंग किन शुन (टेरेंस, नानयांग टेक्नोलॉजिकल यूनिवर्सिटी, सिंगापुर), प्रो. चंदन

कुमार सरकार (इलेक्ट्रॉनिक्स और दुरसंचार इंजीनियरिंग, जादवपुर विश्वविद्यालय), प्रो. तापस सेन सेंट्रल लंकाशायर यूनिवर्सिटी, यूनाइटेड किंगडम) ने 28 नवंबर को सेमिनार में शामिल हुए, इस अंतरराष्ट्रीय सम्मेलन में तकनीकी सत्र में छह मुख्य वार्ता, दो आमंत्रित, 16 मौखिक और 35 पोस्टर प्रस्तृतियां शामिल की गयीं. दुनिया में हो रहे निरंतर परिवर्तन में छात्रों को मदद करना इसका उद्देश्य था. डॉ. अमित बनर्जी ने सेमिनार के आयोजन का नेतृत्व किया. विधान चंद्र कॉलेज के प्राचार्य प्रो. फाल्गुनी मुखोपाध्याय के समर्थन और प्रोत्साहन के लिए आभार व्यक्त किया.







TRENDS IN SUSTAINABLE DESIGN, TECHNOLOGY AND INNOVATION

PROCEEDINGS OF THE INTERNATIONAL CAREER OUTREACH CONFERENCE 26TH -28TH NOVEMBER, 2022

EDITED BY

DR. GOUTAM MUKHERJEE, DR. SAUMEN CHAKRABORTY, DR. SUDIPTA ROY, DR. AMIT BANERJEE, DR. AJAY KR. SHARMA, MR. APURBA PARAMANIK

Trends in Sustainable Design, Technology and Innovation

Proceedings of the International Career Outreach Conference 26th -28th November 2022

Organized by

Microsystem Design-Integration Lab Bidhan Chandra College, Asansol, WB, India



Bidhan Chandra College

[Govt. Sponsored], ESTD: - 1961, NAAC Accredited
Recognized by U.G.C. (Govt. of India) and affiliated to Kazi Nazrul University

Trends in Sustainable Design, Technology and Innovation

Proceedings of the International Career Outreach Conference 26th -28th November 2022

EDITORS

Dr. Goutam Mukherjee

Dept. of Physics, Bidhan Chandra College

Dr. Saumen Chakraborty

Dept. of Physics, Bidhan Chandra College

Dr. Sudipta Roy

Dept. of Physics, Bidhan Chandra College

Dr. Amit Banerjee

Dept. of Physics, Bidhan Chandra College

Dr. Ajay Kr. Sharma

Dept. of Physics, Bidhan Chandra College

Mr. Apurba Paramanik

Dept. of Physics, Bidhan Chandra College



TRENDS IN SUSTAINABLE DESIGN, TECHNOLOGY AND INNOVATION

by: Dr. Goutam Mukherjee, Dr. Saumen Chakraborty, Dr. Sudipta Roy, Dr. Amit Banerjee, Dr. Ajay Kr. Sharma, Mr. Apurba Paramanik

RED'SHINE PUBLICATION PVT. LTD.

Headquarters (India): 88-90 REDMAC, Navamuvada,

Lunawada, India-389 230 Contact: +91 76988 26988

Registration no. GJ31D0000034

In Association with,

RED'MAC INTERNATIONAL PRESS & MEDIA. INC

India | Sweden | UK

Text © Authors, 2023

Cover page ©RED'SHINE Studios, Inc, 2023

All rights reserved. No part of this publication may be reproduced or used in any form or by any means- photographic, electronic or mechanical, including photocopying, recording, taping, or information storage and retrieval systems- without the prior written permission of the author.

ISBN: 978-93-5879-479-3 ISBN-10: 93-5879-479-8 DIP: 18.10.9358794798

DOI: 10.25215/9358794798

Price: ₹ 580

August, 2023 (First Edition)

The views expressed by the authors in their articles, reviews etc. in this book are their own. The Editor, Publisher and owner are not responsible for them. All disputes concerning the publication shall be settled in the court at Lunawada.

www.redshine.co.in | info@redshine.in Printed in India | Title ID: 9358794798