- c. Statement of research achievements, if any, on which any award has already been received by the applicant. Please also upload brief citation(s) on the research work(s) for which the applicant has already received the award(s) (not to exceed 2000 words
 - (i) Concept and Novel ideas in HIV Research Award (CNIHR, National Institute of Health, USA)

Measuring glutathione redox potential of HIV-infected macrophages:

HIV-1 also persists inside the host's immune cells such as lymphocytes and macrophages while infecting millions around the world. HIV-1 causes AIDS (acquired immunodeficiency syndrome), a disease which compromises the patient's immune system, and one that still has no complete cure. Our group is interested in molecular dissection of redox-based event associated with persistence of HIV-1 in macrophages and lymphocytes. To understand these mechanisms, our group has engineered an HIV-GFP biosensor whose functioning is very similar to the *Mtb*-specific redox biosensor; the difference being that instead of measuring mycothiol levels (as is in the case of *Mtb*), this biosensor measures the levels of a different antioxidant – glutathione – in HIV infected macrophages. Using this biosensor, we report that only limited oxidative stress is capable of reactivating HIV from its silent form. Also, the study reveals, that active HIV replication is associated with a massive increase in oxidative stress, whereas latency is mediated by high anti-oxidative potential. (See annexure 1 for the citation).

(ii) Innovative Young Biotechnologist Award (DBT India)

Developing genetically encoded redox sensors for *Mycobacterium tuberculosis***:** Tuberculosis field lacks some of the most basic tools to image bacterial physiology during infection. We have recently filled this technological gap by developing a novel biosensor (Mrx1-roGFP2) to image the physiology of *Mtb* inside the human host during infection and upon chemotherapy. We exploited this bioprobe and identified the role of *Mtb*-specific redox-based mechanisms in alleviating toxicity caused by host-imposed antimicrobial stresses and anti-TB drugs. See annexure 1 for the citation).

(iii) Merck Millipore Innovation Award

Express path analysis identifies a tyrosine kinase Src-centric network regulating divergent host responses to Mycobacterium tuberculosis infection: Global gene expression profiling has emerged as a major tool in understanding complex response patterns of biological systems to perturbations. However, a lack of unbiased analytical approaches has restricted the utility of complex microarray data to gain novel system level insights. Here we report a strategy, express path analysis (EPA), that helps to establish various pathways differentially recruited to achieve specific cellular responses under contrasting environmental conditions in an unbiased manner. We propose that EPA could prove extremely useful in understanding complex cellular responses for a variety of perturbations, including pathogenic infections. (See annexure 1 for the citation).

- (iv) 10th NASI-Scopus Award in the Area of Biotechnology
- (v) S. Ramachandran Award- National Bioscience award for Career Development.

Mycobacterial persistence and drug tolerance

A central question in tuberculosis (TB) research is to identify the mechanisms that allow the organism to persist for long periods of time in humans. In this context, my laboratory is focused on the metabolic

events associated with maintaining redox homeostasis in *Mtb* during infection. Redox signals such as nitric oxide (NO), reactive oxygen species (ROS), acidic pH, carbon-limitation, and oxygen (O₂) have been proposed to be main signals that induce a change in the metabolism of *Mtb* to facilitate its entry into a drug-tolerant persistent state. However, the precise contribution of these signals in manipulating *Mtb*'s internal redox state and identity of a sensor(s) that precisely monitors pathogen's growth, metabolism and cell division in response to O₂ and NO remains unknown. Our group is actively characterizing the role of two Fe-S cluster dependent redox sensors (WhiB3 and WhiB4) in *Mtb*. Additionally, we are examining the role of hydrogen sulfide (H₂S) gas produced by *Mtb* in coordinating persistence, redox homeostasis, and antibiotic resistance. Using multiple analytical techniques such as microarrays, network biology, redox biosensor, macrophage infection and animal models, we investigated the role of WhiB3 and WhiB4 in facilitating pathogen's persistence in response to pH and antibiotic stress, respectively. (See annexure 1 for the citation).

(vi) CDRI Awards-2019 for Excellence in Drug Research

Developing Drugs to Target Redox Metabolism of Mycobacterium tuberculosis

Tuberculosis (TB) remains the most devastating cause of human deaths despite the availability of a vaccine (BCG) and multiple drugs combination therapy. Although chemotherapy can be highly successful, drugs must be administered for 6-12 months to provide an effective cure. It is believed that long term multiple drug therapy is required to eliminate a small sub-population of TB-causing bacteria (Mycobacterium tuberculosis [Mtb]), which is refractory to current anti-TB drugs. Such noncompliant bacteria are referred to as "persisters" and the phenomenon is known as "persistence". Persisters are genetically similar to their drug susceptible counterparts but are able to survive the lethal effects of antibiotics, indicating that they are physiologically/phenotypically different. Despite their clinical importance, research in this field is hampered due to the lack of innovative technologies to capture phenotypic and/or physiological diversity within Mtb population during infection. This represents a major technological gap in our understanding of TB disease and drug-resistance. Therefore, understanding the physiological state of drug-tolerant persisters is one of the foremost challenges in shortening current drug regimens, and developing new drugs or diagnostics against TB. We filled this major gap by discovering several new redox-oriented candidates targeting Mtb. (See annexure 1 for the citation).

(vii) Shanti Swarup Bhatnagar Prize- Biological Sciences, 2021

The Shanti Swarup Bhatnagar Prize for the year 2021 in Biological Sciences has been awarded for outstanding contributions to our fundamental understanding of host-pathogen interactions underlying infections caused by human pathogens, *Mycobacterium tuberculosis* (*Mtb*), and human immunodeficiency virus(HIV). Our work led to an understanding of the intricate connection between redox mechanisms conferring drug resistance and their long-range physiological impact on host and pathogen.





Government of India
Ministry of Science & Technology
Department of Biotechnology

Presents

Innovative Young Biotechnologist Award (IYBA) 2010

To

DR. AMIT SINGH

ICGEB, NEW DELHI

in recognition of his outstanding contributions in the field of Biotechnology. Through this award, Dr. Amit shall pursue an innovative project on Measuring intrabacterial redox potential of Mycobacterium tuberculosis by genetically encoded redox sensitive fluorescent indicators

K. Wrestledaws

K. VijayRaghavan
Secretary
Department of Biotechnology

S. JAIPAL REDDY
Minister for Science & Technology
Govt. of India









Creative and Novel Ideas in HIV Research

Amit Fingh

has been awarded a research grant for the outstanding research proposal:

Measuring Intracellular Redox Potential of HIV-1 Infected Macrophages

at the XVIII International AIDS Conference in Vienna, Austria - July 18-23, 2010











NASI-SCOPUS YOUNG SCIENTIST AWARDS 2016

Presented to Dr. Amit Singh

Indian Institute of Science, Bangalore

for his meritorious contributions in the field of Biological Sciences

15th September 2016

Achi kesh K. Troge

Prof. Akhilesh K. Tyagi President - National Academy of Sciences, India

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Mr. Youngsuk Chi Chairman Elsevier



Certificate of Merit

2nd Prize

First runner-up of India Innovation Awards 2012 is the work on

Express path analysis identifies a Tyrosine Kinase Src-centric network regulating divergent host responses to mycobacterium tuberculosis infection

Dhiraj Kumar Ahmad F Karim Pallavi Chandra Aanchal Chopra Zaved Siddiqui Ashima Bhaskar Amit Singh

K-A. Dovember

Dr. Karl-Heinz Derwenskus Sr. Vice President, RED, Merck KGaA Dr. Claus-Dieter Boedecker

Managing Director, Merck India



Amitabha Mukhopadhyay

Convener : 09810887164

Kanury V. S. Rao Co-Convener

2: 09810627255

Sudhanshu Vrati Co-Convener

2: 09811007944

To, Dr. Amit Singh, Indian Institute of Science, Bangalore. Email:asingh@mcbl.iisc.ernet.in

12th Dec, 2017

Dear Dr. Singh,

It is a great pleasure to inform you that you have been elected as a member of Guha Research Conference in the General Body meeting of GRC 2017 held on 5th December, 2017 in Lakesong Resort, Kumarakom, Kerala. It is my privilege to welcome you as a member of GRC family.

You are possibly aware that GRC organized annual meeting to bring the community of active researcher in different areas of modern biology to provide intellectual stimulation through free and frank in depth discussion in a favorable environment, unconstrained by formalities and conventions. GRC will look forward for your active participation.

Please accept my warmest congratulation.

Best wishes,

Sincerely yours, Amitabha Mukhopadhyay,

Authorized Signatory Convener/Co-Convener GUHA RESEARCH CONFERENCE-2017

<u>LIST OF SELECTED AWARDEES FOR NATIONAL BIOSCIENCE</u> <u>AWARD FOR CAREER DEVELOPMENT (2017 & 2018)</u>

Sl. No.	Name of Awardees
1.	Dr. Manas Kumar Santra, National Centre for Cell Science (NCCS), Pune
2.	Dr. Dipyaman Ganguly, CSIR-Indian Institute of Chemical Biology (IICB), Kolkata
3.	Dr. Subhadeep Chatterjee, Centre for DNA Fingerprinting and Diagnostics (CDFD), Telangana
4.	Dr. Soumen Basak, National Institute of Immunology (NII), New Delhi
5.	Dr. Manoj Majee, National Institute of Plant Genome Research (NIPGR), New Delhi
6.	Dr. Arun Kumar Shukla, Indian Institute of Technology (IIT), Kanpur
7.	Dr. Amit Singh, Indian Institute of Science (IISc), Bengaluru
8.	Dr. Maddika Subha Reddy, Centre for DNA Fingerprinting and Diagnostics (CDFD), Telangana
9.	Dr. Beena Ramakrishnan Pillai, CSIR- Institute of Genomics and Integrative Biology (IGIB), New Delhi
10.	Dr. Ashwani Kumar, CSIR- Institute of Microbial Technology (IMTECH), Chandigarh
11.	Dr. Mohammad Zahid Ashraf, Jamia Millia Islamia, Delhi
12.	Dr. Ranjith Padinhateeri, Indian Institute of Technology (IIT), Bombay, Powai, Mumbai
13.	Dr. Rayala Suresh Kumar, Indian Institute of Technology (IIT), Madras, Chennai
14.	Dr.Prabhu B. Patil, CSIR-Institute of Microbial Technology (IMTECH), Chandigarh
15.	Dr. Pritam Deb, Tezpur University, Tezpur



सी.एस.आई.आर.-केन्द्रीय औषधि अनुसंधान संस्थान, लखनऊ (बैज्ञानिक तथा औद्योगिक अनुसंधान परिषद) सेक्टर 10. जानकीपुरम विस्तार, सीतापुर रोड. लखनऊ – 226 031 (भारत)

CSIR - Central Drug Research Institute

(Council of Scientific & Industrial Research)
Sector 10, Janakipuram Extension, Sitapur Road, Lucknow - 226 031 (India)



17-02-2019

CDRI AWARDS- 2019 for Excellence in Drug Research

Announcement

The prestigious CDRI Awards 2019 for Excellence in Drug Research in Life Sciences category has been awarded jointly to Dr. Amit Singh, Associate Professor, IISc, Bengaluru & Dr. Dipyaman Ganguly, Senior scientist, CSIR-IICB, Kolkata.

In the **Chemical Sciences** category, the award has gone jointly to **Dr. Seergazhi Gopalan Srivatsan**, Associate Professor, IISER, Pune & **Dr. T Govind Raju**, Associate Professor, JNCASR, Bengaluru.

Our heartiest congratulations to both the awardees!

The Award Oration and Felicitation Ceremony will be held on 26 September 2019 during CSIR Foundation Day Celebrations.

Dr. Anand Kulkarni Senior Scientist Scientific Directorate



डॉ. शेखर चि. मांडे

वैज्ञानिक और औद्योगिक अनुसंधान विभाग तथा महानिदेशक

> Dr. Shekhar C. Mande Secretary

Department of Scientific & Industrial Research and Director General



विज्ञान और प्रौद्योगिकी मंत्रालय

वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद

वैज्ञानिक और औद्योगिक अनुसंधान विभाग Government of India

Ministry of Science and Technology

Council of Scientific & Industrial Research

Department of Scientific & Industrial Research

DG/HRD/SSB-21/Awardee(1) 26 September 2021

Dear Dr. Singh,

I am happy to inform that you have been selected for the award of "Shanti Swarup Bhatnagar (SSB) Prize" for the year 2021 in Biological Sciences.

Please accept my heartiest Congratulations!

It is a rare distinction conferred upon scientists, who have demonstrated exceptional potential in Science and Technology. The award derives its value from its rich legacy of those who won this award before and added enormous value to Indian Science. I am certain that this recognition would encourage you and your group to scale new heights in the years to come. Now, the Nation will look upon you with higher expectation.

The SSB Prize comprising a citation, a plaque and cash prize of Rs. 500000/- (Five lakh rupees) would be presented to you at a formal function, generally presided over by the Hon'ble Prime Minister of India, who is the President, CSIR. In addition, CSIR will grant a special honorarium of Rs 15000/- p.m. with effect from 1st January 2022. I enclose a draft citation to be read at the Award Ceremony. Kindly verify the citation for factual accuracy. In case there is any inaccuracy in it, please intimate the same immediately.

On behalf of CSIR and on my own behalf, I extend to you very best wishes for a glorious future.

With warm regards,

Yours sincerely,

[Shekhar C Mande]

Dr. Amit Singh Department of Microbiology and Cell Biology Indian Institute of Science Bengaluru 560 012 Email: asingh@iisc.ac.in

Citation

The Shanti Swarup Bhatnagar Prize for the year 2021 in Biological Sciences has been awarded to **Dr Amit Singh of the Indian Institute of Science, Bengaluru.** Dr Singh has made outstanding contributions to our fundamental understanding of host pathogen interaction in Mycobacterium tuberculosis and HIV, the causative viral agent of human acquired immunodeficiency syndrome (AIDS). His work led to an understanding of the intricate connection between genetic mutations conferring drug resistance and their long-range physiological impact.



ಮಾನವಸಂಪನ್ಮೂಲವಿಭಾಗ/मानवसंसाधनअनुभाग/HUMAN RESOURCES SECTION ಭಾರತೀಯವಿಜ್ಘಾನಸಂಸ್ಥೆ/भारतीयविज्ञानसंस्थान/INDIAN INSTITUTE OF SCIENCE ಬೆಂಗಳೂರು/बेंगलुर/BANGALORE – 560012

JOHNSOUJ 4-IQ BANGALOKE - 300012

ದೂರವಾಣಿ/दूरभाष/TELEPHONE : 2293 2231 / 2232 / 2941

ಇ–ಮೇಲ್/E-mail/ईमेल : office.hr@iisc.ac.in

R(HR)R&S Chair/2021

5 November 2021

Prof. Amit Singh Microbiology & Cell Biology Through Chair, MCB

Dear Sir,

I am happy to inform you that the Council of the Institute, while recognizing your academic achievement has decided to invite you to accept the *Revati and Satya Nadham Atluri Chair*. Selection for appointment to this distinguished Chair, from among the nominations received, was carried out by a duly constituted committee.

The benefits of this Chair includes a top-up of Rs. 50,000/- (rupees fifty thousand only) to your monthly salary, and an annual research grant of Rs.6.00 lakhs for a period of **three** years with effect from 01.11.2021.

The terms of appointment against this chair also require the submission of a brief annual report to the Director on the research activities conducted with the financial support provided.

I would appreciate if you could kindly convey your acceptance of this invitation.

Yours faithfully,

REGISTRAR

Copy to: The Chair, MCB

Financial Controller

Files: SR /PV/DIGITS

The National Academy of Sciences, India

Fellows elected in the year 2021

SI. No. Names and addresses of the Fellows

- Agrawal, Anurag (b 1972), PhD, FNA, FASc, Director, CSIR-Institute of Genomics and Integrative Biology, Mall Road, New Delhi-110 007
- Ateeq, Bushra (b 1976), PhD, Associate Professor, Department of Biological Sciences & Bioengineering, The Mehta Family Centre for Engineering in Medicine, Indian Institute of Technology Kanpur, Kanpur, 208016
- Balani, Kantesh (b 1978), PhD, Professor, Department of Material Science & Engineering, Indian Institute of Technology Kanpur, Kanpur-208016
- Basak, Durga (b 1966), PhD, Senior Professor, School of Physical Sciences, Indian Association for the Cultivation of Science, Jadavpur, Kolkata-700032
- Bhat, Navakanta (b 1968), PhD, FNAE, Dean, Division of Interdisciplinary Sciences, Professor, Centre for Nano Science & Engineering, Indian Institute of Science, Bangalore-560012
- Bhattacharyya, Sriman Kumar (b 1957), PhD, FNAE, Vice-Chancellor, Shiv Nadar University Chennai, Kalavakkam, Tamil Nadu – 603 110
- Bhattacharyya, Tirthankar (b 1968), PhD, FASc, Professor, Department of Mathematics, Indian Institute of Science, Bangalore-560012
- Chakrabarti, Oishee (b 1975), PhD, Associate Professor, Biophysics & Structural Genomics Division, Saha Institute of Nuclear Physics, Sector – I, Block – AF, Bidhannagar, Kolkata – 700064
- Chauhan, Manmohan Singh (b 1960), PhD, FNAAS, Director, ICAR-National Dairy Research Institute, Karnal, Haryana - 132001
- Chhuneja, Parveen (b 1966), PhD, Director, School of Agricultural Biotechnology, Punjab Agricultural University, Ludhiana-141 004, Punjab
- Chilla, Malla Reddy (b 1975), PhD, Professor, Department of Chemical Sciences, Indian Institute of Science Education and Research (IISER) Kolkata, Mohanpur - 741246
- Das Sarma, Jaysri (b 1965), PhD, Professor, Department of Biological Sciences, IISER Kolkata, Mohanpur, Nadia, West Bengal - 741246
- Dethe, Dattaraya Hanumant (b 1976), PhD, Professor, Department of Chemistry, Indian Institute of Technology, Kanpur, Kanpur-208016
- Giri, Jitender (b 1980), PhD, Scientist IV, Lab No. 110, National Institute of Plant Genome Research, Aruna Asaf Ali Road, New Delhi - 110067
- Gupta, Meetu (b 1970), PhD, Associate Professor, Department of Biotechnology, Jamia Millia Islamia, Maulana Mohammad Ali Jauhar Marg, Jamia Nagar, New Delhi-110025
- Gupta, Ritu (b 1972), MBBS, MD, Professor & Officer-in-Charge, Oncology Laboratory Unit, All India Institute of Medical Sciences, New Delhi-110029
- Gupta, Virendra Kumar (b 1960), PhD, Head R&D Polymer & Senior Vice President Reliance Research & Development Centre, TC30B, First Floor, Cabin 07, Reliance Industries Limited, Reliance Corporate Park, Ghansoli, Navi Mumbai - 400701
- Joshi, Suhas Sitaram (b 1968), PhD, FNAE, Rahul Bajaj Chair Professor & Dean, Alumni and Corporate Relations, Department of Mechanical Engineering, Indian Institute of Technology Bombay, Powai, Mumbai – 400 076
- Kaur, Gurucharan (b 1958), PhD, Honorary Professor, Department of Biotechnology, Guru Nanak Dev University, Amritsar-143005
- Kumar, Dhiraj (b 1978), PhD, Group Leader, Cellular Immunology Group, International Centre for Genetic Engineering and Biotechnology, Aruna Asaf Ali Marg, New Delhi-110067
- Kumar, Prakash (b 1972), PhD, Senior Principal Scientist, CSIR-National Geophysical Research Institute, Gas Hydrate Building, Uppal Road, Hyderabad, 500007
- Institute, Gas Hydrate Building, Uppal Road, Hyderabad -500007 22. **Kumar, Rakesh** (*b* 1965), PhD, FAMS, Professor & Head, Diagnostic Nuclear Medicine Division,
- Department of Nuclear Medicine, All India Institute of Medical Sciences, New Delhi-110029

 23. **Mahalakshmi, Radhakrishnan** (*b* 1980), PhD, Associate Professor, Indian Institute of Science Education and Research, Bhopal, Bhopal Bypass Road, Bhauri, Bhopal 462066
- Maulik, Ujjwal (b 1965), PhD, FNAE, Professor, Department of Computer Science and Engineering, Jadavpur University, 188, Raja S.C. Mallick Road, Kolkata – 700032
- Mishra, Manoranjan (b 1975), PhD, Associate Professor, Department of Mathematics, Indian Institute of Technology, Ropar, Ropar-140001, Rupnagar
- Mishra, Vimal (b 1979), PhD, Associate Professor, Earth Sciences, Block 6-330, IIT Gandhinagar, Palai, Gandhinagar, Gujarat, 382355

- 27. Mohanty, Subhendra (b 1960), PhD, Senior Professor, Theory Division, Physical Research Laboratory, Ahmedabad, India:
- 28. Mukerji, Mitali (b 1967), PhD, Professor and Head, Department of Bioscience & Bioengineering Faculty, School of Artificial Intelligence and Data Science (AIDE), Indian Institute of Technology
- Jodhpur, NH 62, Karwar, Raiasthan 342037 29. Mukheriee, Saptarishi (b 1977), PhD, Professor, Department of Chemistry, Indian Institute of Science Education and Research Bhopal, Bhopal Bypass Road, Bhauri, Bhopal 462 066
- 30. Nagegowda, Dinesh Addihalli (b 1974), PhD, Senior Principal Scientist, Molecular Plant Biology and Biotechnology Lab, CSIR-CIMAP Research Centre, Allalasandra, GKVK Post, Bengaluru - 560065
- 31. Nallamala, Manjula Reddy (b 1965), PhD, Chief Scientist, CSIR-Centre for Čellular & Molecular Biology, Uppal Road, Habsiguda, Hyderabad - 500007 32. Purushothaman, Abhilash Chirakkuzhyil (b 1978), PhD, FNAAS, Assistant Professor, Institute of
- Environment & Sustainable Development, Banaras Hindu University, Varanasi 221005 33. Ramakrishna, Subramaniam Anantha (b 1972), PhD, Director, CSIR-Central Scientific Instruments Organization, Sector 30C, Chandigarh 170030
- 34. Rawat, Diwan S. (b 1970), PhD, Professor, Department of Chemistry, University of Delhi, Delhi-110007 35. Saha, Swati (b 1967), PhD, Professor, Department of Microbiology, University of Delhi South Campus,
- Benito Juarez Road, New Delhi-110021 36. Sarkar, Ananda Kumar (b 1973), PhD, Professor, School of Life Sciences, Jawaharlal Nehru University, New Delhi - 110067 37. Saxena, Nitin (b 1981), PhD, FASc, Professor (N Rama Rao Chair), Indian Institute of Technology,
- Kanpur, Kanpur-208016 38. Shukla, Arun Kumar (b 1981), PhD, Joy Gill Chair Professor, Department of Biological Sciences and Bioengineering, Indian Institute of Technology, Kanpur - 208016 39. Singh, Amit (b 1976), PhD, Associate Professor, Department of Microbiology of Cell Biology, Centre
- for Infectious Disease Research, Indian Institute of Science, Malleshwaram, Bengaluru 560012 40. Singh, Arun Deo (b 1961). PhD. Professor, Centre of Advanced Study in Geology. Institute of Science. Banaras Hindu University, Varanasi – 221005
- 41. Singh, Ashok Kumar (b 1962), PhD, FNA, FNAAS, Director, ICAR-Indian Agricultural Research Institute, New Delhi - 110012 42. Singh, Jayant Kumar (b 1975), PhD, Dean of Resources & Alumni, Poonam & Prabhu Goel Chair
- Professor, Department Of Chemical Engineering, IIT, Kanpur- 208016 43. Singh, Mohar (b 1971), PhD, Principal Scientist, ICAR-National Bureau of Plant Genetic Resources,
- Regional Station, Shimla 44. Soma, Venugopal Rao (b 1972), PhD. Professor, ACRHEM, South Campus, University of Hyderabad, Prof. C.R. Rao Road, Hyderabad 500046
- 45. Srivastava, Achal Kumar (b 1966), MBBS, MD, FRCP (London), Professor, Department of Neurology, All India Institute of Medical Sciences, New Delhi-110029
- 46. Sudarsan, Vasanthakumaran (b 1971), PhD, Scientific Officer, Chemistry Division, Bhabha Atomic Research Centre, Trombay, Mumbai-400085
- 47. Sundara, Ramaprabhu (b 1955), PhD, Professor, Indian Institute of Technology Madras, Chennai 48. Sunoj, Raghavan B. (b 1974), PhD, FASc, FRSC(London), Professor, Department of Chemistry,
- Indian Institute of Technology Bombay, Powai, Mumbai 400076 49. Vaidya, Vidita Ashok (b 1970), PhD, Professor, Department of Biological Sciences, Tata Institute of Fundamental Research, Homi Bhabha Road, Navy Nagar, Colaba, Mumbai - 400005 50. Verma, Mahendra Kumar (b 1966), PhD, FNA, FASc, Professor, Department of Physics, IIT Kanpur,
- Kanpur 208016 Science & Society 1. Bhuyan, Mantu (b 1970), PhD, Principal Scientist, Agrotechnoogy & Rural Development Division,

University of Delhi, New Delhi, 110078

CSIR-North East Institute of Science & Technology, Jorhat- 785006 2. Saxena, Manoj (b 1977), PhD, Professor, Department of Electronics, Deen Dayal Upadhyaya College,