

CURRICULUM VITAE

Name: Dipankar Das Sarma

Date of birth: September 15, 1955

Official Address: Solid State and Structural Chemistry Unit
Indian Institute of Science,
Bengaluru 560 012, India.

Present Position: Professor

Educational Qualifications

- 5-year Integrated M.Sc. in Physics from the Indian Institute of Technology, Kanpur (1977)
- Ph.D. from the Indian Institute of Science, Bangalore (1982)

Brief summary of Academic and Mentoring Profile

More than 480 scientific publications with more than 21,000 citations and an H index of 76 (Source: Google Scholar) involving experimental and theoretical studies covering broad areas of Condensed Matter Physics, Solid State Chemistry, Materials Science, Spectroscopy, Nanoscience and Energy Science. 10 patents. Graduated 23 PhDs (~44% of these with Best Thesis awards) and 10 more jointly with other faculty members. Mentored 32 Postdoctoral Fellows.

Adjunct, Honorary, Visiting and other Academic Positions

A. National:

1. Eminent Visiting Fellow in the Centre for Advanced Materials of Indian Association for the Cultivation of Science (April 2018-March 2023).
2. Adjunct Professor, Indian Institute of Engineering Science and Technology, Shibpur 2017-2019.

3. Honorary Professor, S. N. Bose National Centre for Basic Sciences, Kolkata, October 2014-September 2020.
4. Distinguished Scientist, CSIR- Network of Institutes for Solar Energy, Delhi, 2011-2016.
5. Adjunct Professor, Tata Institute of Fundamental Research, Mumbai, Nov. 2011 - Oct. 2014.
6. Distinguished Visiting Professor, Indian Association for the Cultivation of Science, Kolkata, 2009 - 2014.
7. Honorary Professor, Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore, 2003-2020
8. Adjunct Professor, Indian Institute for Science Education and Research, Kolkata, 2007-2009.
9. Adjunct Professor, Indian Association for Cultivation of Science, Kolkata, 2004-2006
10. Adjunct Professor, Tata Institute of Fundamental Research, Mumbai, 2003-2009
11. Senior Associate, S.N. Bose Centre for Basic Sciences, Kolkata, 2003-2006

B. International:

12. Gaspard Monge Visiting Professor at École Polytechnique, France (May-July 2019).
13. Guest "University Professor" of "Computational Material Physics", University of Vienna, May 2017.
14. Guest Professor of Physics, Uppsala University, Uppsala, Sweden, 2011-2016.
15. Visiting Professor at Centre for dynamical processes, Physics Department, Uppsala University, 2009-2010.
16. Visiting Professor, Department of Complexity Science and Engineering, University of Tokyo, 2001- 2002
17. Visiting Professor, Istituto di Struttura della Materia, CNR, Rome and Trieste, 2002.

Elected Fellowship

A. National:

1. Fellow, Indian National Academy of Engineering, 2015.
2. Fellow, Indian National Science Academy, 2001.

3. Fellow, National Academy of Sciences, 2000.
4. Fellow, Indian Academy of Sciences, 1993.

B. International:

5. Fellow, Asia-Pacific Academy of Materials (APAM), 2008
6. Fellow, American Physical Society (APS), 2007
7. Fellow, The World Academy of Sciences (TWAS), 2007

Awards and Recognition

A. National:

1. Prof. Vijaya Agarwala Memorial Lecture, IIT Roorkee, 2019
2. DAE C. V. Raman Lecture, March 2019
3. Bose@125 Distinguished Lecture, S. N. Bose National Centre for Basic Sciences, September 2018
4. Foundation Day Lecture, Institute of Physics, Bhubaneswar, September 2018
5. Foundation Day Lecture, INST Mohali, March 2018
6. Physics Colloquium, Panjab University, March 2018
7. The first holder of J.N. Tata Chair of Indian Institute of Science (2017-2020).
8. CSIR Foundation Day Lecture at CSIR-CSMCRI, 2017.
9. Institute Lecture, Indian Institute of Technology Kanpur, 2017.
10. Solenis Bharat Ratna Prof C N R Rao Medal and Chemcon Distinguished Speaker Award, IICChE, 2017.
11. Institute Colloquium, National Institute of Science Education and Research, Bhubaneswar, 2017
12. Acharya PC Ray memorial lecture, CSIR – National Institute for Interdisciplinary Science and Technology (NIIST), 2016.
13. Prof. C.N.R. Rao Distinguished Lecture on "Nanoscience and Nanotechnology", IIT Bombay, 2016.
14. Institute Colloquium, Indian Institute of Technology Bhubaneswar, 2016
15. Institute Colloquium, Indian Association for the Cultivation of Science, 2016
16. IIA Bicentennial Commemorative Public Lecture (2015), Indian Institute of Astrophysics, 2015

17. Technology Day lecture, CSIR- National Geophysical Research Institute, 2015
18. Honoris Causa Doctorate Degree from Indian Institute of Engineering Science and Technology, Shibpur, India, 2015
19. CNR Rao Prize Lecture in Advanced Materials, MRSI 2015
20. Distinguished Alumnus Award of IIT Kanpur, 2014
21. CSIR Foundation Day Lecture, CSIR - Central Electrochemical Research Institute, 2014
22. 11th Prof. S. Chandrasekhar Memorial Lecture, Centre for Nano and Soft Matter Sciences, Bangalore, 2014
23. H K Firodia Award for Excellence in Science & Technology, 2013
24. CSIR Foundation Day Lecture, CSIR- National Environmental Engineering Research Institute, 2013.
25. Distinguished Public Lecture, CSIR-National Chemical Laboratory, 2011.
26. 8th Atma Ram Memorial Lecture, CSIR- Central Glass and Ceramic Research Institute, Kolkata, 2011
27. National Research Award in Nano Science and Technology, 2009
28. INSA K. R. Rao Memorial Lecture, 2008
29. FICCI Award 2006-07 for Innovative R&D in Life Sciences/Material Sciences/Applied Research/Space Sciences, 2008
30. Dr. Jagdish Shankar Memorial Lecture of INSA, 2006.
31. J.C. Bose National Fellow, 2006-2021
32. UGC National Hari Om Ashram Trust Award: Sir C.V. Raman Award for Physical Sciences, 2004. Awarded in July 2006.
33. 23rd Professor R.P. Mitra Memorial Lecture, Delhi University, 2006
34. A.V. Rama Rao Foundation Prize Lecture, JNCASR, 2006.
35. G.D. Birla Award for Scientific Research, 2005.
36. Alumni Award for Excellence in Research for Science, IISc, 2005.
37. Joy Kissen Memorial Lecture at IACS, 2004.
38. Shanti Swarup Bhatnagar Award in Chemistry, 1994.
39. Homi Bhabha Fellow, 1991-93.
40. Associate, Inter-University Consortium, Indore, 1990-1993.
41. Materials Research Society of India Medal, 1990.
42. Associate Member of the Indian Academy of Sciences, 1987-1990.
43. Young Scientist Medal of the Indian National Science Academy, 1983.
44. Sir J.C. Ghosh Medal, 1981, for the best thesis.

45. National Science Talent Scholar, 1972-1981.

46. National Merit Scholar, 1972.

B. International:

47. The Bernard Coqblin Prize, awarded at Opening and Prize Ceremony of the International Conference on Strongly Correlated Electron Systems, Okayama, Japan, 2019
48. Scientific Evening Talk, Magnus-Haus, Berlin, 2016.
49. 4th Annual Lecture Series of CEFIPRA delivered at College du France, Paris; Ecole Polytechnique, Paris; and Laboratoire CRISMAT, Caen, 2016.
50. Institute colloquium, Max-Born-Institute, Berlin, 2016
51. Lecture under Saint Gobain Chair program at Ecole Polytechnique, Palaiseau, France, 2016
52. Honoris Causa Doctorate Degree from Uppsala University, Sweden, 2015
53. Knight of the Order of the Star of Italy by the Republic of Italy, 2014
54. Asia-Pacific Academy of Materials (APAM) Lecture, 2009
55. The World Academy of Sciences (TWAS) Physics Prize 2006
56. UNESCO biennial Javed Husain Prize, 1989.

Administrative Responsibilities

1. Within Indian Institute of Science

- Between various periods during 1986-92, Warden of the Students' Hostels, In-charge of Married Students' Apartments Committee, and Member, SC-ST Negotiations Committee.
- Chairman of Solid State and Structural Chemistry Unit, August 2011-April 2015.

2. Within Indian Association for the Cultivation of Science (2006-2008)

- Founder Chairman of Centre for Advanced Materials, 2006-2008.
- Executive Vice-Chairman, Mission Programme for Technopreneurship, IACS, 2006-2008.
- Chairman of the Task Force of the Intellectual Property Facilitation Consortium of DST Institutes in Kolkata, 2007-2008.

- Industry-Institute Programmes, including Technology transfer negotiation meetings, leading to successful licensing of technologies, as well as supervision of framing the IPR Policy for IACS.
- Induction of India as a Member Entity and establishing IACS as the Nodal Agency for India in the Asia Pacific Center for Theoretical Physics (APCTP), Korea.
- Induction of IACS as a Partner Institute for the International Centre for Materials Research (ICMR) at the University of California, Santa Barbara.
- Strategic and operational planning (Financial projection and planning including active participation in the preparation of annual plans, eleventh five-year plan, budget etc. and Vision planning for new growth areas of the institute).
- Conceptualising and planning for acquiring land for the second campus of the institute, including the proposed Institute for Nanoscience and Technology that finally led more than a 100% increase in the total land space available to IACS.

Additional Responsibilities

A. National:

1. Member, Steering Committee, The Sophisticated Analytical Instrument Facilities (SAIF) Programme of DST (2020-2024).
2. Member, Scientific Advisory Board, Research Institute of Sustainable Energy (RISE), TCG Centre of Research and Education in Science and Technology (TCG-CREST) (2020-)
3. Co-Chair, Expert Committee of Sophisticated Analytical and Technical Help Institutes (SATHI), DST (2019-2021).
4. Chairperson, Expert Committee for DST's SAIF Expansion Scheme with a total outlay of about Rs. 5,000,000,000 (2019).
5. Member, Review Panel, Physics Group, BARC, Mumbai (2018).
6. Chairperson, Board of Governors, Institute of Nanoscience and Technology, Mohali (2018-).
7. Member, Governing Council, Centre for Nano and Soft Matter Sciences, Bengaluru (2018-).
8. Member, Review Panel, Saha Institute of Nuclear Physics, Kolkata (2017).
9. Chairperson, Review Panel for New Project proposals, TIFR, Mumbai (2017).
10. Member, "Cluster Committee - Chemical Sciences" for Review of Chemical Sciences CSIR Laboratories (2017).

11. Member, Council of Indian Academy of Sciences, 2016-2018.
12. Chairperson, Subject Expert Committee on Chemical Sciences and Member of Advisory Board of Experts for the program "Fund for Improvement of S&T Infrastructure in Universities & other Higher Educational Institutions (FIST)" of Department of Science and Technology, Government of India. (2017-)
13. Chairperson, Research Advisory Board, Centre for Nano and Soft Matter Sciences, Bengaluru (2015-2018).
14. Member of Oversight Committee of Science and Engineering Research Board (SERB), Ministry of Science and Technology, Government of India (2015-2018).
15. Chairperson, Academic Review Committee for the School of Chemistry, Indian Institute of Science Education & Research, Trivandrum, 2015.
16. Member, Natural Sciences Sub commission for Indian National Commission for cooperation with UNESCO (2015-2019).
17. Member of Scientific Council, Indo-German Science and Technology Council (2015).
18. Member of Senate, Academy of Scientific and Innovative Research (AcSIR) (2015-2016)
19. Chairperson, Review Panel for the Mid-Term Review of the XII Plan projects of TIFR, Mumbai (2014).
20. Member, Institutional Review and Scientific Advisory Committee (IRSAC), Indian Institute of Science Education & Research, Pune (2014-2017).
21. Member, External Peer Review Committee, Indian Institute of Technology Kanpur (2014).
22. Chairperson, Research Council, National Chemical Laboratories, Pune (2010-2013 and 2013-2016).
23. Chairperson, National Review Committee for the TAPSUN Project of CSIR involving many CSIR institutions, following active participation in conceptualising, planning and obtaining funds (with a total outlay of ~Rs. 1,800,000,000) for this programme, (2011-2016).
24. Member, Council of Raja Ramanna Centre for Advanced Technology, Indore (2010-2013 and 2013-2016).
25. Member, Working Group of the Department of Scientific and Industrial Research (DSIR) including CSIR under the Steering Committee for the formulation of the 12th Five Year Plan, 2011.
26. Member, Council of Indian National Science Academy, 2009-2011.
27. Coordinator, DST's Coordination Group for India's collaboration with International Synchrotron Facilities, 2004-

28. Member, Steering Committee for the Sophisticated Analytical Instrument Facilities (SAIF) programme of DST, 2009-
29. Chairperson, Scientific Advisory Committee and Members of the Governing Body and Governing Council, UGC-DAE Centre for Scientific Research, 2005-2008
30. Member, Academic Advisory Committee of Jawaharlal Nehru Research Centre for Advanced Scientific Research (2008-)
31. Member, Scientific Advisory Committee, Inter-University Consortium – DAEF, 2002-2005.
32. Member – Council of Centre for Advanced Technology, Indore, 2005-2008
33. Member, Scientific Advisory Committee, Inter-University Accelerator Centre, New Delhi, 2007-2010
34. Member, Academic Program Advisory Committee, S. N. Bose National Centre for Basic Sciences, Kolkata, 2007-2010
35. Member of various advisory committees of DST and CSIR in the past and present

B. International:

36. Member, Board of Trustees, Asia-Pacific Center for Theoretical Physics, Pohang, South Korea (Nov. 26, 2019-Nov. 25, 2022).
37. Member and elected Chair on the Indian side, Vision Group, Indo-French Centre for the Promotion of Advance Research (IFCPAR), (2017).
38. Member, Governing Body, Indo-French Centre for the Promotion of Advance Research (IFCPAR), jointly set up by the Government of India and the French Government (2015-2017).
39. Member, Scientific Advisory Board, CRANN and AMBER, Trinity College Dublin, Ireland (2014-2017)
40. Coordinator, Scientific Committee for Aquitaine-Karnataka Twinning (Region-to-Region framework under Indo-French Centre for the Promotion of Advanced Research) (2014-2015).
41. Member, Scientific Advisory Board, CRANN, Trinity College Dublin, Ireland (2012 & 2013)
42. India-German Steering Committee for utilization of PETRA-III beamlines at DESY, Hamburg, Germany (2011-2015).
43. Indo-US Science and Technology Forum - Standing Expert Panel (SEP) for Review of Proposals (2011-) for Workshops, Training Programmes and Joint Networked Centres.

44. Member, Scientific Council, Indo-French Centre for the Promotion of Advanced Research (IFCPAR), 2009-2012.
45. Member, General Council, Asia Pacific Centre for Theoretical Physics (APCTP), Pohang, Korea, 2008-2010.
46. Chairperson, International Proposal Review Committee, Elettra Synchrotron Centre, Trieste, Italy, 2003-2010.

Past Positions

1. Research Associate (1982-1983), Indian Institute of Science, Bangalore
2. Guest Scientist (1984-1986), Kernforschungsanlage, Jülich, Germany
3. Lecturer (1986-1989), Indian Institute of Science
4. Assistant Professor (1989-93), Indian Institute of Science
5. Associate Professor (1993-99), Indian Institute of Science.
6. Professor (1999-2009), Indian Institute of Science.
7. J.N. Tata Chair Professor (2017-2020), Indian Institute of Science.
8. MLS Chair Professor of Physics and Founder-Chairman, Centre for Advanced Materials, Indian Association for the Cultivation of Science, Kolkata (2006-2008). (On lien from Indian Institute of Science, Bangalore)

Editorial Responsibilities

1. Series Editor: Advances in Condensed Matter Science, Taylor and Francis, London
2. Member of the Editorial Board, J. Electron Spectroscopy and Related Phenomena (2008-).
3. Member of the Editorial Board, Solid State Communication (2006-2017).
4. Member of the Advisory Board, Journal of Physical Chemistry (2007-2009).
5. Member of the Advisory Board, Surface and Interface Analysis, (2006-2019)
6. Member of the Editorial Board, The Open Condensed Matter Physics Journal, (2007-2012).
7. Member of the Editorial Board Advances in Physical Chemistry, (2008-2017)
8. Member of the Editorial Board, Pramana – Journal of Physics, (2008-2012)
9. Member of the Editorial Board, Indian Journal of Physics, (2008-)
10. Member of the Editorial Board, Research Letters in Physical Chemistry, (2009).
11. Regional Editor for South Asia, J. Experimental Nanoscience, (2009-2016).

12. Associated Editor, European Physical Journal - Applied Physics (2010-2014).
13. Member of the Editorial Advisory Board, ACS Energy Letters (2016-2018).
14. Senior Editor, ACS Energy Letters (2018-).

Significant Funded Projects (as Principal Investigator)

A. National:

1. Utilization of Indo-Italian beamlines at Elettra Sincrotrone, Trieste, Italy - funded by DST (Rs. 20,77,00,000.00, 2017-2022) to provide access to the two beamlines at Elettra for the use by national users.
2. Access to the beamlines of the Elettra Synchrotron Light Laboratory by all Indian institutions - Funded by DST under the Indo-Italian POC. (Rs. 12,200,000 during 2010-2015).
3. Construction of two Indo-Italian beamlines at Elettra Synchrotron Radiation Source Trieste, Italy - Funded By DST (Rs. 235,350,000 during 2010-2015).
4. Coordinated Research Project on Spintronics between 5 institutions - Funded by BRNS (IACS share of the funds ~Rs. 30,000,000 during 2006-2008).

B. Institutional:

1. Centre for Nanotechnology at IACS - Funded by Nanomission, DST (~Rs. 80,000,000 during 2006-2008).
2. Thematic Unit of Excellence on "Computational Material Science" at IISc - Funded by Nanomission (~Rs. 131,500,000 during 2012-2017).
3. Centre for Low temperature, spatio-temporal spectroscopy of nanocrystals and multifunctional nanoassemblies at IISc (~Rs. 122,680,000 during 2014-2019).

Patents

1. International Publication No. WO/2010/023684, priority date 28 August 2008. Title: Non-toxic transition metal ions doped semiconductor nanocrystals and process of preparation thereof. Inventors: N Jana, N Pradhan, D D Sarma
2. International Publication No. WO/2010/055529 priority date 14 November, 2008.

Title: Non-toxic, water-soluble, and functionalized transition metal ion-doped semiconductor nanocrystals and a process for the preparation thereof
Inventors: N Jana, N Pradhan, D D Sarma

3. Indian Patent application no.1050/KOL/2010, priority date 21st september, 2010
Title: Asymmetric heterostructure for synergistic tunability of visible emissions
Inventors: S Acharya, I Dasgupta, N Ganguli, D D Sarma, and S Sengupta.

4. Indian Patent No. 268037; Granted on Aug 12, 2015 (Application number 594/CHE/2009 filed on 17/03/2009)
Title: A dielectric composition comprising lanthanide/yttrium, copper and titanium oxide (LN₂CUTIO₆-D], and applications thereof.
Inventors: D. D. Sarma and Debraj Choudhury

5. Indian Patent: Application number 4317/CHE/2013 filed on 24/09/2013; Publication date Mar 27, 2015.
Title: A Tunable Quantum dot emitter.
Inventors: Abhijit Hazarika D. D. Sarma, and Anshu Pandey.

6. Indian patent: Provisional Application (Application number: 201641005449) filed on 16th February 2016.
Title: Process for Substrate-Integrated Growth of Nanostructured Electroactive Material on a Substrate.
Inventors: Debasish Sarkar, A. K. Shukla, and D. D. Sarma

7. Indian patent: Complete specification (Application number: Patent application number: 201641005450) filed on 16th February 2016.
Title: Substrate-integrated nano-structured nickel-iron ultra-battery.
Inventors: Debasish Sarkar, A. K. Shukla, and D. D. Sarma

8. Indian patent: Complete specification (Application no:201641017315) filed on 19th May 2016. Granted Patent No is 316516 and grant date is 22/07/2019.
Title: Semiconductor nanocrystals with defects for high efficiency emission.
Inventors: Shyamashis Das, Biswajit Bhattacharyya, Ranjani Viswanatha, Anshu Pandey, and D. D. Sarma

9. Indian patent: Complete specification (Application number: 201641020589) filed on 16th June 2016.
Title: Energy storage device with substrate integrated core-shell nano-structured electrodes and method thereof.
Inventors: Debasish Sarkar, A. K. Shukla, and D. D. Sarma

10. US patent (Granted): Pub. No.: US 2014/0287534 A1, Pub. Date: Sep. 25, 2014. (PCT Filed: Jun. 25, 2012 PCT No.: PCT/IB2012/001259)

Title: Highly sensitive magnetic tunable heterojunction device for resistive switching.

Inventors: Satishchandra Balkrishna Ogale (Pune), Dipankar Das Sarma (Bangalore), Abhimanyu Singh Rana (Pune), Vishal Prbhakar Thakare (Pune), and Anil Kumar Puri (Kolkata)