

Curriculum Vitae

Santanu Das, Ph.D.

Associate Professor,
Department of Ceramic Engineering,
Indian Institute of Technology (BHU), Varanasi
Varanasi Uttar Pradesh 221005 India

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SCI Profile: <https://sciprofiles.com/profile/1066685>

Loop: <https://loop.frontiersin.org/people/1662653/overview>

Researchgate: <https://www.researchgate.net/profile/Santanu-Das-15>

Google scholar: <https://scholar.google.com/citations?user=0AnAFxgAAAAJ>

Scopus: <https://www.scopus.com/authid/detail.uri?authorId=56452060700>

Web of Science: <https://www.webofscience.com/wos/author/record/N-3070-2014>

LinkedIn: <https://www.linkedin.com/in/dr-santanu-das-25157b18/>

Executive Summary:

Accomplished researcher in nanomaterials and electrochemical energy systems with over 15 years of experience spanning advanced catalyst development, thin-film fabrication, and single-molecule sensing. Proven track record in translational research, with multiple patents, technology transfers, and national/international collaborations. Extensive contributions to green hydrogen generation, optoelectronics, and biomedical devices. Actively engaged in science outreach and mentoring, with a commitment to societal impact and sustainable innovation. Recognized with prestigious fellowships, awards, and invited lectures at leading global institutions.

Education

2008-2012	Ph.D., Materials Science and Engineering Florida International University, Miami, FL, USA.
2003-2005	Master's Degree (M. Tech), Ceramic Engineering Indian Institute of Technology (BHU) [Formerly IT (BHU)], Varanasi, India.
1999-2003	Bachelor's degree (B. Tech), Ceramic Technology University of Calcutta, Kolkata, India.

Experiences

July 2024- (Currently Working)	<u>Associate Professor, Department of Ceramic Engineering,</u> Indian Institute of Technology (BHU) Varanasi, India Current Responsibility: Teaching, Research, and Administration
March 2016 – July 2024	<u>Assistant Professor, Department of Ceramic Engineering,</u> Indian Institute of Technology (BHU) Varanasi, India Responsibility: Teaching, Research, and Administration
May, 2014- Feb 2016	<u>Research Scientist, Department of Materials Science and Engineering,</u> (University of North Texas, Denton, Texas, USA) Worked on the following projects:

- Functional nanocomposite thin films for deeply scaled interconnects for electronic devices
- Development of Pulsed laser deposited (PLD) functional thin-films for solar cell applications using
- Nano-crystallization induced magnetic transitions in soft-ferromagnetic metallic glass
- Catalytic degradation of toxic chemicals using amorphous metal particles
- Synthesis of nanoparticles for direct methanol fuel-cells

Sept, 2012–April, 2014

Post-Doctoral Research Associate, Department of Materials Science and Engineering, (University of North Texas, Denton, Texas, USA)

Worked on the following projects:

- 2D MoS₂/Graphene Schottky Junction based photodetectors
- Large scale synthesis of 2D MoS₂ using chemical vapor deposition
- Graphene adhesion energy with different substrates

Summer 2011

Research Assistant Professor (Hanyang University, Seoul, South Korea)

Summer 2009

Research Assistant Professor (Hanyang University, Seoul, South Korea)

Jan 2008 to Aug 2012

Graduate Research Assistant/Graduate Teaching Assistant
(Florida International University, Miami, FL, USA)

Aug 2006-Aug 2007

Scientist

(National Metallurgical Laboratory, Govt. of India)

Sept 2005-Aug 2006

Senior Research Fellow

(Central Glass and Ceramic Research Institute, Govt. of India)

Administrative Positions

- **Coordinator, IIT(BHU)-IRMA Center of Excellence** for Refractories, IIT(BHU), From August 2020 to present.
- **Convener, Department Undergraduate Committee (DUGC)**, Ceramic Engineering, IIT(BHU); from August 2019- August 2020.
- **Warden, Vishwakarma Hostel**, IIT(BHU), from August 2018 to 2023.
- **Chairman, Department PG admission committee** 2020-2021 and 2025-26
- **Department post-graduate committee member** 2023-2025
- **Institute CORE research committee Members**, 2024-2025
- **Institute Ph.D. Quality Improvement committee member** 2024-2025

Sponsored Projects:

Ongoing:

3. Design and Development of Functional Nanostructures as Catalysts for Anionic Exchange Membrane (AEM) Electrolyzers in Efficient Green Hydrogen Production. **IIT(BHU) VARANASI Challenge Grant, (2025-2027) (~ 36.00 Lakhs INR)**
2. Development of mesoporous hybrid carbonaceous support catalysts for high- performance electrocatalytic electrodes for PEM electrolyzers, **Defense Research and Development Organizations (DRDO), Govt. of India, (2024- 2027), (~ 45.37 Lakhs INR)**
1. Wafer-scale integration and interfacial engineering of 2D van der Waals superlattice for next-generation nanoscale devices, **Core Research Grant, SERB, Govt. of India (2023-2026), (~ 39.0 Lakhs INR)**

Completed Project:

13. Demonstration and Reproduction with Scientific Validation of some Ceramic Materials Knowledge System of Ancient-India, **Indian Knowledge System, Govt of India, (2022-2024), (~ 15 Lakhs INR)**
12. Metal nanostructure assisted plasmonic hot electron induced phase transformation in 2D-transition metal di-chalcogenides for hydrogen evolution reaction, **MoE-STARS Project, Ministry of Education, Govt. of India (2020- 2024), (~ 97.9 Lakhs INR)**
11. Consortium project on “Complex of online and onsite lectures on materials for hydrogen generation by solar water splitting”, **Norwegian Council of Education and Research, Norway (2021-2024) (~ 4500 kNOK)**
10. Development of Ceramic Nitride thin-films for soft x-ray applications, **UGC- DAE consortium for Scientific Research, (2021-2024) (~ 45,000 INR/year)**
9. Ageing studies and estimation of thermal properties of liner materials, **Defense Research Development Organizations (DRDO), (2019-2022), (~185 lakhs INR)**
8. Seasonal Effect on Solar-Driven Photocatalytic Performance in India Environment, **Project sponsored by: Swansea University, UK (2021- 2022) (~ 3,08,000 INR)**
7. Seamless Synthesis of large-area 2D transition metal di-

chalcogenide semiconductors and their applications in next-generation high- performance optoelectronic devices, **Early Career Award, SERB, Govt. of India** (2016- 2019), (50 lakh INR).

6. “Development of High Alumina (Al₂O₃) and doped High Alumina materials for Ceramic Cartridge Applications”, **YANTRANSH AUTO PVT. LTD., Rajkot, Gujarat, India**, (2019-2020) (70 k INR).

5. “Amplifying charge-transfer mechanism at the hybrid graphene interfaces for developing ultra-high energy density supercapacitor devices”; **Center for Energy Research and Developments /FAST scheme MHRD** (January 2017- July 2018) (11.5 lakh INR).

4. “Fabrication of an all-transparent flexible 2D-graphene based phototransistor device”, **Design and Incubation Center, Banaras Hindu University (2017-2019)** (4 lakhs INR).

3. Development of functionalized graphene electrode for high-energy density supercapacitor applications, **Interim GRANT, IIT(BHU)**, (2017- 2019) (15 lakhs INR)

2. Development of Large-Scale Graphene and Its Heterostructures: Fundamental Properties to Electronic Applications, **Seed grant, IIT (BHU)**, (2016-2018) (10 Lakhs INR)

1. “Development of a high throughput processing for CIGS PV absorber films by spray pyrolysis of pre-synthesized nanoparticle ink”, **SERB**, (2016- 19) (50 Lakh INR).

Awards & Achievements

- Honored to be recognized as “**Outstanding Achievement in being Granted Patent(s) 2023-2024**”, IIT(BHU) 2024.
- Honored as “**Fellow**” **Indian Institute of Ceramics**, May, 2024.
- **Winner** for 11th **National Petrochemicals Awards: BEST INNOVATION 2022**; from the **Department of Chemicals and Petrochemicals, Ministry of Chemicals & Fertilizers, Government of India**, 27th September 2022.
- Honored with ‘**Best Teacher Awards**’ 2022, **Indian Institute of Technology (BHU) Varanasi**, 05th September 2022.
- Honored as “**Fellow**” **Indian Chemical Society**, April, 2022.
- Top 2% Scientists in the list published by the Stanford University since 2022-2024
- [Member, Education and Professional Development Council \(EPDC\), American Ceramic Society](#), USA, October 2021- September 2026.
- Became member of “**Outstanding Educator Award Committee**”,

American Ceramic Society, USA, October 2021- September 2026.

- The article "*Graphene oxide-ferrite hybrid framework as enhanced broadband* absorption in gigahertz frequencies" became Featured Articles of Nature- Research Collection as the paper has received 17,000 page views by over 11,500 users from over 75 countries.
- One of our published paper on "Graphene oxide-ferrite hybrid framework as enhanced broadband absorption in gigahertz frequencies" was selected as one of the **Best papers in Nature's collection**, "Top 100 in Materials Science" (2020).
- Honored as one of the top 1 per cent of peer reviewers in the field of Materials Science, Publons, September 2017, UK London.
- Honored with IEEE Senior Members Fellow as top 5% achiever among the all-IEEE society members, January 2018.
- Honored as one of the top 1 per cent of peer reviewers in the field of Physics, Publons, September 2017, UK London.
- Honored as one of the top 1 per cent of peer reviewers in the field of Materials Science, Publons, September 2017, UK London.
- Received Prestigious "Early Career Award" from "Science and Engineering Research board, Government of India, December 2016.
- Invited as a Keynote speaker in the UK-INDIA Workshop on Integrated Renewables for Autonomous Power Supply at The University of Exeter, Cornwall, Exeter, UK, August 2016.
- Achieved recognition as "Country's Most Accomplished Professional" and enlisted my biography in Who's Who in America 2016, 70th Platinum Edition of The American achievement of highest merit.
- My Ph.D. Thesis was one of ProQuest's Most Accessed (Top ten) Dissertations and Theses out of 2 million online documents (Overall Rank 9), 2015-2016.
- Wiley-VCH has spotlighted my recent research article on amorphous metal particles for environmental protection in NEWS of July 2015.
- One of my recent research projects on "Degradation of Toxic Water Pollutants by Catalytic Amorphous Metals" was highlighted in fall 2015 Advanced Materials Industrial Consortium, University of Wisconsin-Madison newsletters and in the NEWS of "Technological Watch", European Union's Seventh Framework Programme for Research, technological development and demonstration.
- My recent research work on "Saving the Environment from Toxic Chemicals using Amorphous Metals" was awarded for consecutive First prize, Second prize, and Third Prize at the 6th North Texas Inter-

University Materials and Engineering Symposium 2015, Federation of North Texas Area Universities- Graduate Student Research Symposium 2015, and Engineering Category- University of North Texas, Graduate Exhibition 2015, respectively.

- Winner of MRS Outstanding Poster Award 2013, MRS, USA at the fall meeting 2013, Boston, USA.
- Finalist and nominated for the Outstanding Poster Award, MRS, USA at the fall meeting 2012, Boston, USA.
- Outstanding Doctoral Research Award 2012, Florida International University.
- Prestigious Dissertation Year Fellowship (DYF), Florida International University for the academic year of 2011-2012.
- Prestigious Dissertation Evidence Acquisition (DEA) Fellowship, Florida International University for the academic year of 2010-2011.
- Honorary Membership offer for Sigma Xi, The Scientific Research Society, USA, 2012.
- Winner of Second Prize in Student poster competition in FIU Graduate Scholarly Forum 2012.
- Winner of Third Prize in Materials Challenges in Alternative and Renewable Energy 2012, American Ceramic Society student poster contest.
- Recipient of Gold Medal for standing first in Masters Course at Institute of Technology-(BHU), [currently Indian Institute of Technology-(BHU)] INDIA.
- Honorary student member of "Golden Key International Honors Society", USA.
- Honorary student member of "Tau Beta Pi" Engineering Honors Society, USA.
- Honorary student member of "Delta Epsilon Iota" USA.
- Winner of Prestigious GATE Fellowship from Government of INDIA 2003-2005.
- Invited as Education Committee Member: ASM International (American Society for Metals), 2013.
- Invited as Committee Member: Judges Panel, Sigma Xi, The Scientific Research Society 2013, 2014, 2015.

Editorial Jobs:

Editor:

Honorary Associate Editor, [Transactions of the Indian Ceramic Society](#) Editorial Board, 2024-2025.

Guest Editor:

- **Measurement: Energy, Elsevier publications**
- **Materials, MDPI Basel, Switzerland**

Editorial Board Member:

- **Micro-Nano Letters, Springer-Nature**
- **Discover Applied Science, Springer Nature**
- **Frontiers in Energy Research, Switzerland**
- **Material Science Research India, India.**
- **Journal of Materials Science Research, the Canadian Center of Science and Education, Canada.**

Reviewer of the following international SCI-Indexed journals:

46. **Nature Review Chemistry, Nature Journal.**
45. **Advanced Functional Materials, Wiley VCH**
44. **ACS NANO, American Chemical Society, USA**
43. **Advanced Optical Materials, Wiley VCH**
42. **Inorganic Chemistry, American Chemical Society, USA.**
41. **Journal of Physical Chemistry C, American Chemical Society**
40. **ACS Applied Energy Materials, American Chemical Society, USA.**
39. **Energy & Environmental Materials, Wiley VCH.**
38. **Chemistry of Materials, American Chemical Society, USA**
37. **Int. J. Hydrogen Energy, Elsevier Publications**
36. **Nanoscale, Royal Society of Chemistry, UK**
35. **Journal of Electronic Materials, SpringerNature.**
34. **Applied Physics Letters, American Institute of Physics Publications USA.**
33. **Materials Today Energy, Elsevier Publications**
32. **Journal of Materials Chemistry A, Royal Society of Chemistry, UK.**
31. **Transactions on Electromagnetic Compatibility, IEEE, USA**
30. **Journal of Materials Research, Materials Research Society, USA.**
29. **Applied Surface Science, Elsevier Publications.**
28. **CARBON, Elsevier Publications, Elsevier Publications.**
27. **Journal of Alloys and Compounds, Elsevier Publications**
26. **Materials and Design, Elsevier Publications**
25. **Materials Chemistry and Physics, Elsevier Publications**
24. **Royal Society Open Science, Royal Society of Chemistry**

23. **Materials Letters**, Elsevier Publications
22. **Materials Science and Engineering B**, Elsevier Publications
21. **Materials Science & Engineering A**, Elsevier Publications
20. **Materials Science and Engineering C**, Elsevier Publications
19. **Solar Energy Materials and Solar Cells**, Elsevier Publications.
18. **Journal of Non-Crystalline Solids**, Elsevier Publications
17. **Journal of Physics and Chemistry of Solids**, Elsevier Publications
16. **Solid State Communications**, Elsevier Publications
15. **Thin Solid Films**, Elsevier Publications
14. **Nanotechnology**, Institute of Physics, UK.
13. **Journal of Applied Physics D**, Institute of Physics.
12. **Surface and Coating Technology**, Elsevier Publications.
11. **Materials Letters**, Elsevier Publications.
10. **Current Applied Physics**, Elsevier Publications.
9. **Journal of Solid-State Chemistry**, Elsevier Publications
8. **Applied Physics A**, Springer.
7. **Journal of Nanoparticle Research**, Springer.
6. **Journal of Applied Polymer Science**, Wiley
5. **Metallurgical and Materials Transactions A**, Springer.
4. **Journal of Materials Engineering and Performance**, Springer.
3. **Journal of Materials Science**, springer-nature publications.
2. **Fuel**, Elsevier Publications.
1. **Chemical Engineering Journal**, Elsevier Publications.

Student Mentoring and Thesis Supervision

Ph.D. Thesis Supervised:

Completed: **04**

Ongoing: **06**

Master's Thesis Supervised:

Completed: **23**

Ongoing: **02**

Undergraduate Project supervised:

Completed: **60**

Ongoing: **10**

Teaching Experience

ODD Semesters at

- Techniques for materials Characterizations

IIT(BHU) 2016-2022

- Advanced Materials for Energy Devices
- Advanced Technique for Materials Characterizations
- Instrumental Analysis Laboratory
- Materials Characterizations Laboratory
- Particle Mechanics and Fluid Flow Laboratory

Even Semesters at IIT(BHU) 2016-2022

- Nanoelectronics
- Electrical and Electronic Ceramics
- Nanotechnology
- Nanoceramics
- Structure and Properties of Ceramic Materials
- Introduction to Ceramics
- Basic Ceramic Practices
- Nanotechnology Laboratory
- Ceramic Coatings
- Pollution control in Ceramic Industries
- Electrical and Electronic Ceramics
- Microchip Manufacturing (Graduate course)

Summer 2016

Spring 2015
University of North Texas, USA

Fall 2013 University of North Texas, USA

Spring 2013
University of North Texas, USA

Fall 2012 University of North Texas, USA

- MTSE 5600 - Materials Characterizations (*Undergraduate course*)
- Electrical, Optical and Magnetic Properties of Materials (*Graduate course*)
- MTSE5600- Materials Characterizations (*Undergraduate course*)

Conference/Course/
webinars

Coordinator: *"One-day Workshop and hands-on training on "Instrumentations and Characterizations of 2D Materials (IC-2D)". Sponsored by Science and Engineering Research Board, (SERB) Govt. of India.*

Convener: Three Day international workshop/ summer school & Course preparation on *"Solar Water splitting and artificial Photosynthesis" (SWAP) 2023, 05-07 June 2023*, in Madurai Kamraj University, Madurai, Tamilnadu, India

Convener: *COOLLONGBOAT 3rd - Winter School 2022, 1-3 December 2021, Norway, France, and India.*

Convener: *DESIGN FABRICATION AND APPLICATIONS OF SOLAR ENERGY CONVERSION DEVICES, COOLLONGBOAT 2nd- Winter School 2021, 1-3 December 2021, Norway, France, India.*

Convener: *"Industrial Practice of Refractories and High-Temperature Ceramics: Testing and Characterizations"* March 22nd-23rd, 2021

Convener: FAC2020: Advanced Course 2: *Material Synthesis and Experimental Technique – Bulk to Nano."* 21st September 2020 to 03rd October 2020.

Convener: FAC2020: Foundation Course 1: *"Materials Synthesis and characterizations, FAC2020"*, 07th Sep 2020-19th Sep 2020.

Memberships/ Scholarly Societies

- Life Member, Indian Institute of Metals, Kolkata, India
- Fellow, Indian Institute of Ceramics, Kolkata, India.
- Life member, Electron Microscope Society of India (EMSI), India
- Life Member, Indian Ceramic Society, Kolkata, India.
- Life Member, THE INDIAN SCIENCE CONGRESS ASSOCIATION, Kolkata INDIA
- Life Member, Indian Institute of Chemical Engineers, Kolkata India
- Life Fellow, Indian Chemical Society.
- The Education and Professional Development Council, American Ceramic Society, USA
- Member, International Academy of Electrochemical Energy Science, Canada.
- Member, American Ceramic Society, USA
- Member, American Chemical Society, USA.
- Senior Member of Institute of Electrical and Electronics Engineers (IEEE), USA
- Senior Member Fellow of IEEE Photonic Society, USA.
- Life Member of Indian Society for ElectroAnalytical Chemistry (ISEAC), India
- Life member of Materials Research Society of India, India.
- Life member of Indian Carbon Society, India.
- Member, Sigma Xi, the Scientific Research Society, USA
- Life Member of Golden Key International Honors Society, "Tau Beta Pi" Engineering Honors Society, and "Delta Epsilon Iota" honor society
- Life Member of "Indian Institute of Ceramics", India

Involvement in Scholarly societies

- **“Outstanding Educator Award Committee”,** American Ceramic Society, USA.
 - **Faculty Advisor of IEEE photonic society student branch chapter IIT(BHU), Varanasi**
 - Active participant of education committee activities for ASM International.
 - **Session Chair** at the Fall Meeting of **Materials Research Society, USA, 2012** in session W14: Carbon Nanomaterials for Energy Application.
 - Served as Judge for “Student Research Showcase” Presentation Competition in Sigma Xi, The Scientific Research Society of USA, in the year of 2013, 2014, and 2015.
 - Served as Judge for “Super Poster Presentation”, College of Engineering, University of North Texas, USA, 2014.
 - Active participant of University of North Texas MRS chapter for TAMS, K-12 activities.
 - **Secretary** of the Materials Advantage-FIU for 2009-2010.
 - **Symposium Assistant** for Materials Research Society, Fall 2010 Annual meeting, Boston.
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List of Publications & Patents

Santanu Das, Ph.D.,

Associate Professor, Department of Ceramic
Engineering, Indian Institute of Technology (BHU),
Varanasi-221005, India

Phone: +91-542-716-5151 (O), Fax: +91-542-2368428 (O), Cell: +91-
9918910417 (M)

Web: <http://drsantanudas.com/>; <https://iitbhu.ac.in/dept/cer/people/faculty>

Email: santanudas.cer@iitbhu.ac.in

Patents:

15. **Das, S.**; Singh, S.; Direct growth of large-area, vertically aligned, forest-like Two-dimensional Rhenium disulfide (2D-ReS₂) on various substrates using chemical vapor deposition process, **(2025) Patent Application # 202511103025 (25/10/2025).**
14. **Das, S.**; Qamar, U.; PLASMONIC MULTIFACETED-SILVER NANOCRYSTALS AND 2D-HETEROINTERFACE FOR SURFACE-ENHANCED RAMAN SCATTERING SUBSTRATE, AND SYNTHESIS METHODS THEREOF **(2025) Patent App # 202511093577 (30/09/2025).**
13. **Das, S.**, Singh, V. K., METHOD OF SYNTHESIZING 2D IN-SITU FUNCTIONALIZED SO₃H/SO₃-MOS₂ NANOSHEETS FOR PHOTOCATALYTIC DYE DEGRADATION **(2025) Patent # 568879, PATENT GRANTED ON July 21, 2025.**
12. **Das, S.**, Singh, V. K., Mukherjee, B., IN-SITU -SO₃H FUNCTIONALIZED TWO-DIMENSIONAL MoS₂ NANOSHEETS AND METHOD OF PREPARATION THEREOF **(2022) Patent # 504599, PATENT GRANTED ON January 23, 2024.**
11. **Das, S.**, Singh, V. K., Mukherjee, B., A METHOD FOR DEVELOPMENT OF SYNERGISTIC NANO HYBRID STRUCTURE ON NANORODS, Govt. of India, **patent No # 536784 (2024) PATENT GRANTED ON May 03, 2024.**
10. **Das, S.**, Jit, S., Kumar, C., Kumar, R., A TWO DIMENSIONALPHOTOSENSITIVE METAL OXIDE SEMICONDUCTOR (MOS) CAPACITOR, Govt. of India, **Patent # 521723, PATENT GRANTED ON March 07, 2024.**
9. **Das, S.**; and Mukherjee, S.; [Aluminum based metallic glass powder for efficient degradation of AZO dye and other toxic organic chemicals](#) (2020) (US patent # US10363548B2) **United States PATENT GRANTED on February 20, 2020.**
8. Mukherjee, S.; and **Das, S.**; [Binary Cu-Ag metallic glass thin film for electronic applications](#) (2018) (US patent # US10822692B2) **United States PATENT GRANTED on November 03, 2020.**

7. Tiwari, S.; **Das, S.**; and Maiti, P.; LOW-COST ADHESIVE FOR THE METAL-CERAMIC JOINTS, (2019) Patent # 528134 PATENT GRANTED ON: MARCH 15, 2024. **Technology transferred to an Indian start-up company.**
6. **Das, S.**; Magnesium zinc ferrite-polyurethane nanocomposite, (Patent filed on: 2019) (Indian Patent NO: 419113) PATENT GRANTED on January 24, 2023.
5. **Das, S.**; A METHOD FOR PREPARATION OF GRAPHENE-OXIDE NANOCOMPOSITES BASED SPRAYABLE PAINT COATING (2022) (Indian Patent NO: 413062), PATENT GRANTED on December 01, 2022.
4. **Das, S.**; AN ALKALINE EARTH METAL DOPED ZINC OXIDE NANOSHEETS AND METHOD OF PREPARATION THEREOF, Govt. of India, NOVEMBER 28, 2018 (Indian Patent No: 409820) PATENT GRANTED on October 2022.
3. **Das, S.**; HIGH SURFACE AREA, HIGH PURITY AND HIGH CONDUCTANCE MONO- LAYERED REDUCED GRAPHENE OXIDE, (Indian Patent No: 411461) PATENT GRANTED on December 01, 2022.
2. **Das, S.**; A GREEN METHOD FOR REDUCING GRAPHENE OXIDE, 2017, Govt. of India (Indian Patent No: 427348) PATENT GRANTED on March 28, 2023.
1. **Das, S.**; A coating composition for making a sensor useful for the selective detection of sulphur dioxide and process for the preparation thereof, Patent No: IN277556 [India], PATENT GRANTED on February 12, 2016.

Technology Developed & Technology Transfer:

1. Successfully transferred one lab-based Technology of “**Chemical Vapor Deposition (CVD) process for the synthesis of large-scale seamless two-dimensional (2D) transition metal dichalcogenides (TMDs)**” to M/S. Ants Innovations, Vasai, Maharashtra, February 2020 for large-scale Industrial Production.
2. Successfully transferred one lab-based Technology of Developing **LOW-COST ADHESIVE FOR THE METAL-CERAMIC JOINTS** to M/S. Ants Ceramics, Vasai, Maharashtra large-scale Industrial Production. Patent Number: April 2019.

Publications:

Total Citations: ~ 4815, h-index: 37, i-10 index: 91

Summary: **Book: 01; Book chapters: 07; Journal publications ~139; Conference Proceedings ~20; Presentations >150** (including, Plenary lecture, Keynote lecture, Invited talks, etc.)

Books:

1. S. Jit and **S. Das**, [2D NANOSCALE HETEROSTRUCTURED MATERIALS \(1st Edition\)](#), *Elsevier Publication*, ISBN: 9780128176795, Published: May 8, 2020, pp 284.

Book Chapters:

7. P. Periasamy, V. P. Devarajan, **S. Das**, S. Pitchaimuthu, [Building Energy Devices from Quantum Dots](#), Multifunctional Quantum Dots-Biological, Environment, and Energy Applications, Ed. Ramesh Namdeo Pudake; Springer Nature Publications (2025).
6. S. K. Ghosh, **S. Das**, S. Bhattacharyya; [Recent Advancement in Graphene- Based Metasurface Structures, Low-Dimensional Nanoelectronic Devices: Theoretical Analysis and Cutting-Edge Research](#), Ed. Angsuman Sarkar and Arpan Deyasi **October 2022** Apple Academic Press, Inc.
5. C. Kumar, **S. Das**, and S. Jit; [Device Physics and Device Integration of 2D Heterostructures, 2D NANOSCALE HETEROSTRUCTURED MATERIALS: SYNTHESIS, PROPERTIES AND APPLICATIONS](#); Editors: S. Jit and S. Das, Elsevier Publication, ISBN: 9780128176795, Published: May 8, 2020, pp 284.
4. A. K. Bandyopadhyay, B. Sarkar, **S. Das**, M. Laskar, A. Ghosal, [Multisolitons in SRR based Metamaterials in Klein-Gordon Lattice](#), chapter-10 in Computational Chemistry Methodology in Structural Biology and Materials Sciences, Ed. by Chakraborty, T.; Ranjan, P.; Pandey, A.; (2017) *Apple Academic Press*, New Jersey, USA.
3. **S. Das**, P. Sudhagar, Y. S. Kang, and W. Choi, [Synthesis, and Characterizations of Graphene: Carbon Nanomaterials for Advanced Energy Systems](#), *Wiley Interscience*, Published Online on October 3, 2015.
2. A. K. Bandyopadhyay, **S. Das**, and A. Biswas: Chapter 11: [Quantum Breathers and Phonon Bound State in the Ferroelectric System, Computational and Experimental Chemistry Developments and Applications](#), Ed by: T. Chakraborty, M. J. Bucknum, and E. A. Castro, *Apple Academic Press*, NEW JERSEY, 2012.

1. **S. Das** and W. Choi, [Graphene Synthesis, Graphene: Synthesis and Applications; Series: Nanomaterials and their Applications](#), *CRC Press, Taylor & Francis Group*, Published on October 2011.

Guest Editor:

2. P. Verma, **S. Das**, S. Pitchaimuthu, Guest Editor for the Special Issue, Measurements in Advanced Materials-based Energy Generation, Storage and Integrated Devices in **Measurement: Energy**, Elsevier Publication.

1. S. Jit and **S. Das**, Special issue: [Novel Nanostructured Materials for Optoelectronic Applications, Materials](#), MDPI (Basel, Switzerland) 2022-2023.

Selected Peer-Reviewed Journal Publications:

117. Sarkar, A.; Qamar, U.; Halder, A.; Saroj, V. K.; Panda, S.; Jha, S. K.; Sasikala Devi, A. A.; **Das, S.**; [Polyhedral silver-gold-alloy nanocrystal induced enhanced phase transition in monolayer 2H-MoS₂ for electrocatalytic hydrogen evolution](#) *Renewable Energy* (2025) 124715. DOI: [10.1016/j.renene.2025.124715](#)
116. **Das, S.**; Rana, J. S.; Qamar, U.; Jit, S.; [Seamless 2D-MoS₂/3D-Si heterojunctions for white light detection Applications](#) *Nanotechnology* (2025) 36 415202. DOI [10.1088/1361-6528/ae09b5](#)
115. **Das, S.**; Srinivasan, S. G.; Mukherjee, S.; [Ag-Cu amorphous alloy thin-films with unusually high electrical conductivity](#), *Materialia* (2025) 43, 102525. [doi.org/10.1016/j.mtla.2025.102525](#)
114. Parida, T.; Patajoshi, S.; Qamar, U.; Bose, A.; Rao, P.N.; Rai, S.; **Das, S.**; Kanjilal, A.; [Exploring Oxygen Vacancies in Sputtered HfO₂ Films for Multi-Bit RRAM Applications](#) *Advanced Materials Technologies* (2025) e00289. <https://doi.org/10.1002/admt.202500289>
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Conference Proceedings:

18. S. K. Ghosh, **S. Das**, and S. Bhattacharyya, [Graphene-Metal Hybrid Metasurface for Tunable Bandpass Filter in Terahertz Region](#), *2021 IEEE Indian Conference on Antennas and Propagation (InCAP)*, 13-16 December 2021 Malaviya National Institute of Technology, Jaipur. 10.1109/InCAP52216.2021.9726422.
17. S. K. Ghosh, **S. Das**, and S. Bhattacharyya, [A Graphene Based Metasurface for Transmissive-type Linear to Circular Polarization Converter with Tunable Characteristics](#), *URSI GASS 2021*, 28th August to 04th September 2021, Rome, Italy. 10.23919/URSIGASS51995.2021.9560544
16. S. K. Ghosh, S. Bhattacharyya, and **S. Das**, “[Graphene-based metasurface for wideband linear to circular polarization conversion](#)” in *2020 URSI Regional Conference on Radio Science (URSI-RCRS 2020)*, Varanasi, India, 12-14 February, IEEE Xplore 2020, DOI: 10.23919/URSIRCRS49211.2020.9113624.
15. S. K. Ghosh, S. Bhattacharyya, and **S. Das**, “[Broadband Graphene Based Reflective Cross Polarization Converter Metasurface Design with Unity Efficiency in the Lower Terahertz Gap](#)” in *2019 IEEE MTT-S International Microwave and RF Conference (IMaRC 2019)*, Mumbai, India, 13-15 December, 2019, DOI: 10.1109/IMaRC45935.2019.9118725.
14. R. Bhattacharyya, Jyoti, A. Gupta, O. Prakash, S. Roy, T. K. Bhattacharyya, P. Maiti, S. Bhattacharyya, and S. Das, [In-situ synthesis of \(Mg_{0.5}Zn_{0.5}\)Fe₂O₄-graphene oxide nanocomposite for broadband microwave absorption in GHz frequency range](#), *2019 URSI Asia-Pacific Radio Science Conference (AP-RASC)*, 9-15 March 2019, DOI: 10.23919/URSIAP-RASC.2019.8738396.
13. S. K. Ghosh, S. Das, and S. Bhattacharyya, [A Graphene Based Broadband Metasurface Absorber in the Terahertz Region](#), *2019 URSI Asia Pacific Radio Science Conference (AP-RASC 2019)*, New Delhi, India, 9- 15 March, 2019. DOI: [10.23919/URSIAP-RASC.2019.8738642](#)
12. S. K. Ghosh, V. S. Yadav, S. Bhattacharyya, and S. Das, “[A Graphene Based Bandwidth Enhanced Metamaterial Absorber using Circular Ring](#),” in *IEEE International Symposium*

on Antennas and Propagation and USNC/URSI National Radio Science Meeting, 8-13 July, 2018, Boston, USA. DOI: 10.1109/APUSNCURSINRSM.2018.8608226

11. V. S. Yadav, S. K. Ghosh, S. Bhattacharyya, and S. Das [Graphene Based Metasurface with Tunable Dual Band Mid-Infrared Cross Polarization Converter](#), *IEEE ATMS conference*, (2018) IEEE Xplore.
10. R. Bhattacharyya, D. K. Jha, O. Prakash, A. P. Singh, S. Bhattacharyya, and S. Das, [Ultra-thin Ferrite Nanocomposite Coating as Broadband Microwave Absorber](#), 6th biennial *IEEE Applied Electromagnetics Conference (AEMC- 2017)*, 2017, IEEE Xplore. DOI: [10.1109/AEMC.2017.8325681](#)
9. **Das et al.**; Enhancement of Catalytic Effect of Iron Metallic Glass Particles in AZO Dye Degradation. *Texas Journal of Microscopy*, 2015, 46 (1) 10.
8. **Das et al.**; Engineering carbon nanomaterials for future applications: energy and biosensor. Proc. SPIE 8031, Micro- and Nanotechnology Sensors, Systems, and Applications III 2011, 80311K- 80311K.
7. Verma, V.P.; **Das et al.**; Large Area Graphene on Polymer Films for Transparent and Flexible Field Emission Device: MRS Proceedings 2011 1283: mrsf10-1283-b08-03 (7 pages) DOI: 10.1557/opl.2011.801.
6. P.K. Vabbina, **Das et al.**, [Synthesis of Crystalline ZnO Nanoflakes on Graphene and Other Substrates at Ambient Conditions](#), *MRS Symposium Proceeding* 2012 1449: DOI: <https://link.springer.com/article/10.1557/opl.2012.1041>.
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4. Karabiyik, M.; Al-Amin, C.; Das et al.; [Sub-wavelength, multimode, tunable plasmonic terahertz lenses and detectors](#). 2012, 83630L-83630L. *Proceedings Volume 8363, Terahertz Physics, Devices, and Systems VI: Advanced Applications in Industry and Defense; 83630L (2012)*, USA, 83630L (May 1, 2012); doi:[10.1117/12.919372](#).
3. Choi, W.; Lahiri, I.; Das et al., Carbon Nanomaterials - The Route toward Applications in Energy, 18th International Conference on composite materials, Jeju, South Korea (2011).
2. Das et al.; “Thermodynamics and Kinetics of Nano-Scale Grain Growth” Proceedings of International Conference on Recent Trends in Nanoscience & Technology, December 7-9,

2006, Jadavpur University, Kolkata, India.

1. Das, et al.; “The Importance of Population Balance on the Size Distribution Effects of Precipitated Ceramic Powder Precursors” Proceedings of International Conference on Recent Trends in Nanoscience & Technology, December 7-9, 2006, Jadavpur University, Kolkata, India.

Selected Plenary, Keynote, and Invited Talk:

57. Invited Lecture on “Advanced Materials Development for New Energy Technologies: A Future Goal Towards Sustainable Global Energy Transition”, **2025 SJTU Global Summer School “Future Energy” August 05, 2025, An Invited Lecture Delivered at Shanghai Jiao Tong University, Shanghai, China.**
56. Invited Lecture on "Role of Academicians towards Environmental Care" organized by International Environment Congress Association on Environment Day Lecture, **13th June 2025.**
55. Invited talk on "Advances in 2D Materials: From Nanoelectronics to Energy Applications" at "3rd International Conference on Energy, Functional Materials/Molecules and Nanotechnology (ICEFN)" Department of Chemistry, D.S.B Campus, Kumaun University, Nainital, Uttarakhand from **20th to 22th March 2025.**
54. Keynote Lecture on "Nano-scale Engineering of Two-dimensional Functional Nanostructures for Developing Efficient Electronic, Optoelectronic, and Energy Devices" at the "International Congress on Management of Energy, Earth, Environment, and their Resources (ICME3R'25)," Nesamony Memorial Christian College, Marthandam, Kanyakumari, **February 13th to 15th, 2025.**
53. Invited talk on "Atomic-scale hybrid nanostructures: A new archetype of electronics and energy devices" School of Sciences, K.S.R College of Arts and Science for Women (@ Periyar University), KSR Educational Institutions. Science and Technology Developments (STD) - Academic Growth **December 03rd, 2024.**
52. Invited talk "Functional nano-archetypes: A new paradigm of water electrolysis and multianalyte sensing", 88th Annual Session of the Indian Ceramic Society (InCerS), & International Conference on Advanced Ceramics for Sustainability (Cera4S), IIT Madras, India, **28th-30th Nov 2024.**
51. Keynote Lecture on “Functional Nanostructures: Nano-scale Engineering for Efficient

Electronic, Optoelectronic, and Energy Devices”, THIRD INTERNATIONAL CONFERENCE ON NANOMATERIALS FOR ENERGY, ENVIRONMENT, AND HEALTHCARE APPLICATIONS (ANEH 2024) **21-23 August 2024** GTN Group of Institutions, Dindigul Tamil Nadu, INDIA

50. Atomic-scale hybrid nanostructures: A new archetypes of electronics and energy devices, *International Conference on Sustainable Nanomaterials Integration and Organization for Energy and Environment (iSNIOE²)* March 20-23, 2024, Shiv Nadar University, Delhi NCR, India.
48. Two-dimensional functional nanostructures for electronics and energy applications: New archetypes of nano-scale engineering, *International Conference on Functional Materials, Materials Research Center, IIT Kharagpur*, 9-11 January 2024.
47. Emerging 2D nanostructures and nano-heterostructures for electronic, optoelectronic and energy applications, IChE-CHEMCON 2023 December 27- 30, 2023
46. Functional Nano-hybrids for Electronic and Energy Devices, *International Conference on Exploring the Emerging World of Ceramics and Glass (ICEECG), CGCRI, Indian Ceramic society, Kolkata* 19th-21st December, 2023.
45. Large-area Seamless 2D van der Waals superlattice-based Multi- junction Devices for Electronic and Optoelectronic Sensor, *34th Annual General Meeting of Materials Research Society of India 5th Indian Materials Conclave, December 12-15, 2023*.
44. Atomic-scale nano-archetypes: A new paradigm of water electrolysis and quantum devices; SWAP 2023, Madurai Kamaraj University, Madurai 05- 07 June 2023.
43. Two-dimensional hybrid materials for Electrocatalysis: New archetypes of nanoscale Engineering, COOL LONGBOAT 3rd- Winter School 2023, Institute of Energy Technology Norway, February 17th, 2023
42. Emerging Two-Dimensional Nanomaterials for Functional Applications: New Archetypes of Nano-scale Engineering, Continuing Education Programme (CEP) "Nano Science and Technologies for Defence Applications", DMSRDE, Kanpur during 20-24th March 2023
41. 2D-metal di-chalcogenides as electrocatalysts for green hydrogen generation: Issues and challenges; UGC-HRD approved Refresher Course on Contemporary Issues of Nanoscience and Nanotechnology, Jadavpur University, 9-24th January 2023.

40. "Synthesis and Characterizations of Nanomaterials" Bridge Course on "Nanoscience: Convergence of Physics and Chemistry Concepts" Department of Nanoscience and Technology, University of Calicut 1st-5th August 2022.
39. Two-dimensional Functional Materials for Hydrogen Generation, Faculty Development Program, Govt. Collage of Technology Coimbatore, June 27th, 2022.
38. Two-dimensional Functional Materials for Electrochemical Hydrogen Generation, Indo – Norwegian International online conference on Functional materials for energy, environment and biomedical applications” (FARAON - 2022) Feb 2-4, 2022
37. Keynote: Two-dimensional hybrid materials for functional applications: New archetypes of nano-scale engineering, IEEE Conference on IoT for Rural Health Care 2021, (CIRH-2021), December 16-18, 2021, VFSTR Deemed to be University, Guntur, A.P.
36. Phase transformations in 2D MoS₂ for electrocatalytic hydrogen generation, DESIGN FABRICATION AND APPLICATIONS OF SOLAR ENERGY CONVERSION DEVICES, COOL LONGBOAT 2nd- Winter School 2021, 1-3 December 2021, Norway.
35. Green Hydrogen Production: A New Carbon-Free Chemical Pathway to Next Industrial Revolution, 1st International Conference on Hydrogen Energy – Policies, Infrastructure Development and Challenges, 24 - 25 November 2021, Scope Complex, Lodi Road, New Delhi, Central Board of Irrigation and Power, Govt. of India.
34. Electro Catalytic Hydrogen Generation: Challenges and Perspectives in Global Scenario – 1st International Conference on Hydrogen Energy – Policies, Infrastructure Development and Challenges, 24 - 25 November 2021, Scope Complex, Lodi Road, New Delhi, Central Board of Irrigation and Power, Govt. of India.
33. AICTE ATAL FACULTY DEVELOPMENT PROGRAM on “Novel Materials” on Emerging functional materials and nanomaterials for electronic, optoelectronic and energy devices, Rajkiya Engineering College Banda, July 10th 2021.
32. International Online School on "Materials and processes for production of solar hydrogen"; Pt-free electrodes for applications in electrochemical hydrogen generation, Institute for Energy Technology, University of Stavanger, and University of Oslo, Norway, May 5th – May 7th 2021.

31. International Online Conference on Nano Materials (ICN 2021); “Emerging functional nanomaterials for electronic, optoelectronic and electromagnetic devices”, School of Energy Materials (SEM), Mahatma Gandhi University, April 09th -11th 2021.
30. “World Nano Congress on Advanced Science and Technology” (WNCST-2021)”, “Emerging functional nanomaterials for electronic, optoelectronic, and energy devices”, Centre for Nanotechnology Research, Vellore Institute of Technology, Vellore TN, from March 8th - 12th, 2021.
29. AICTE Training And Learning (ATAL) Academy sponsored five days Online Faculty Development Programme; “Two-dimensional heterostructured materials for functional applications: New archetypes of nano-scale engineering" Rajkiya Engineering College Banda, September 22nd 2020.
28. Foundation Course on "Materials Synthesis and characterizations, FAC2020" Synthesis and Processing of Advanced Materials and Nanomaterials: Part II, 08th September 2020.
27. Foundation Course on "Materials Synthesis and characterizations, FAC2020", Synthesis and Processing of Advanced Materials and Nanomaterials: Part-I, 07th September 2020.
26. Workshop on “Recent Advances in Materials Science and Technology”, "Advanced Functional Nanostructures for High-performance Electronics and Energy Devices"; Department of Physics & Nanotechnology, SRM Institute of Science and Technology, Kattankulathur, Chennai, June 8-12,2020.
25. Characterization Techniques for Developing Ceramic Materials, National Workshop on “Present and Future challenges of Advanced Ceramics & Refractories” University college of Engineering and technology, Bikaner, October 17, 2019.
24. Advancement of functional nanomaterials for next-generation electronic and energy devices, National Workshop on “Present and Future challenges of Advanced Ceramics & Refractories” University college of Engineering and technology, Bikaner, October 18, 2019.
23. Functional nanomaterials for optoelectronics and energy harvesting applications, Faculty Development Program on Futuristic electronics devices and applications, University Institute of Engineering & Technology, Kurukshetra University, Kurukshetra, Haryana, August 29th, 2019.
22. Two-dimensional nanomaterials for electronics and optoelectronics applications, Faculty

Development Program on Futuristic electronics devices and applications, University Institute of Engineering & Technology, Kurukshetra University, Kurukshetra, Haryana, August 30th, 2019.

21. Emerging functional nanomaterials for electronic and energy devices, International Workshop on Energy Technologies, September 24-26, 2019 at Manonmaniam Sundaranar University, Tirunelveli, India.
20. "Scanning probe Microscopy-A technique for nanoscale surface characterizations" India-UK Joint Hands-on Training Program for Nanomaterials Characterization and Device Fabrication, Global Nano Research Network, at K.S.R. Center for Nanoscience and Technology, 19th to 21st September 2019 at Tiruchengode, Tamilnadu, India.
19. In-situ synthesis of (Mg_{0.5}Zn_{0.5})Fe₂O₄-graphene oxide nanocomposite for broadband microwave absorption in GHz frequency range; 2019 URSI Asia Pacific Radio Science Conference (AP-RASC 2019), New Delhi, India, 9-15 March, 2019.
18. "Magnetic nanoparticle dispersed thermoplastic polyurethane coatings as radar absorbing material", India-UK Second International Conference on Advanced Nanomaterials for Energy, Environment and Healthcare Applications (ANEH-2019), 04-06, February 2019, Tiruchirappalli, India.
17. "Two Dimensional Functional Materials for Energy and Environmental Applications", India-UK Second International Conference on Advanced Nanomaterials for Energy, Environment and Healthcare Applications (ANEH-2019), 04-06, February 2019, Tiruchirappalli, India.
16. Keynote lecture at UK-INDIA Workshop on Integrated Renewables for Autonomous Power Supply; August 1st - 2nd 2016 at the University of Exeter, Cornwall, Exeter, UK.
15. Keynote lecture on "Characterizations of Two Dimensional Nanomaterials Using Raman Spectroscopy and Scanning Probe Microscopy" in National Seminar on Instrumentation and Characterization Techniques (NSICT-2016) on 22th - 23th December 2016 at Banasthali University, Rajasthan, India.
14. Plenary lecture: "Synergistic Nanostructures for Various Functional Applications in Electronics and Energy" at International Conference on Nanoscience and Materials during February 15-16, 2017 at Nesamony Memorial Christian College, Kanyakumari, Tamilnadu,

India.

13. “TWO DIMENSIONAL FUNCTIONAL NANOMATERIALS FOR ELECTRONICS AND ENERGY DEVICES” at Fourth International Conference on Nanostructured Materials and Nanocomposites (ICNM 2017) 10-12 February 2017 at Mahatma Gandhi University, Kottayam, Kerala, India.
12. “2D-Functional Nanomaterials for Electronic and Energy Applications” at the international conference on “NANOTECHNOLOGY: SCIENCE AND APPLICATION IN ADVANCED MATERIALS AND BEYOND, December 19th- 22nd 2016 at the Department of Chemistry, Banaras Hindu University.
11. “Scanning probe Techniques and its Applications on Nano Structure Characterizations” on 26th October 2016 at the Department of Physics and Astrophysics, University of Delhi.
10. “Two Dimensional Graphene: A wonder material of the decade” on 27th October 2016 at the Department of Physics and Astrophysics, University of Delhi.
9. FUNCTIONAL NANOMATERIALS FOR ELECTRONICS AND ENERGY APPLICATIONS, NSNN 2017 on 17-18 March 2017 at Haldia Institute of Technology.
8. “Development of nanoparticles and characterization”; Materials Tribology: Fundamentals and Recent Advances”, 23-29 March 2017 at Department of Mechanical Engineering, IIT (BHU), Varanasi.
7. “Nanomaterials for Electronics and Energy”, KERAMOS’ 2016, on March 12th, 2016, at the Department of Ceramic Engineering, IIT (BHU).
6. Invited talk: August 21st 2014: Indian Institute of Technology, Bombay, India.
5. Invited talk: August 8th 2014: Indian Institute of Technology, Varanasi, India.
4. Invited talk: June 30th 2012: Institute of Technology- BHU, India.
3. Invited talk: Feb 6th 2011: West Bengal University of Technology, Kolkata, India.
2. Invited talk: 28th July 2011: Center for next-generation dye sensitized solar cells, Energy Engineering Department, Hanyang University, Seoul, South-Korea.
1. Invited talk: July 21st 2009: Department of Chemical Technology, Hanyang University, Seoul, South Korea.

Selected Presentations at National/International Conferences:

52. U. Sharma and S. Das; Plasmon-derived phase transformation in two dimensional MoS₂ for improving electrocatalytic activity, DESIGN FABRICATION AND APPLICATIONS OF SOLAR ENERGY CONVERSION DEVICES, COOL LONGBOAT 2nd- Winter School 2021, 1-3 December 2021.
51. V. K. Singh, S. Das; Synergistic hybrid electrocatalysts for high- performance hydrogen evaluation reaction via water-splitting, DESIGN FABRICATION AND APPLICATIONS OF SOLAR ENERGY CONVERSION DEVICES, COOL LONGBOAT 2nd- Winter School 2021, 1-3 December 2021.
50. U. Sharma, S. Das; Development of Large-scale Two-dimensional MoS₂ for Green Hydrogen Production, – 1st International Conference on Hydrogen Energy – Policies, Infrastructure Development and Challenges, 24 - 25 November 2021, Scope Complex, Lodi Road, New Delhi, Central Board of Irrigation and Power, Govt. of India.
49. V. K. Singh, S. Das; Nano-scale electro catalysts for high-performance hydrogen evaluation reaction via water-splitting, – 1st International Conference on Hydrogen Energy – Policies, Infrastructure Development and Challenges, 24 - 25 November 2021, Scope Complex, Lodi Road, New Delhi, Central Board of Irrigation and Power, Govt. of India.
48. S. K. Ghosh, S. Bhattacharyya, and S. Das, “Graphene-based metasurface for wideband linear to circular polarization conversion,” accepted for presentation in 2020 URSI Regional Conference on Radio Science (URSI-RCRS 2020), Varanasi, India, 12-14 February, 2020.
47. S. K. Ghosh, S. Bhattacharyya, and S. Das, “Broadband Graphene Based Reflective Cross Polarization Converter Metasurface Design with Unity Efficiency in the Lower Terahertz Gap,” in IEEE International Microwave & RF Conference (IMaRC 2019), Mumbai, India, 13-15 December, 2019.
46. Das et al., In-situ synthesis of (Mg_{0.5}Zn_{0.5})Fe₂O₄-graphene oxide nanocomposite for broadband microwave absorption in GHz frequency range, 2019 URSI Asia Pacific Radio Science Conference (AP-RASC 2019), New Delhi, India, 9-15 March, 2019.
45. Das et al., “A Graphene Based Broadband Metasurface Absorber in the Terahertz Region,”

2019 URSI Asia Pacific Radio Science Conference (AP-RASC 2019), New Delhi, India, 9-15 March, 2019.

44. Das et al., Synthesis and Application of Low Cost 1D and mesoporous TiO₂ Photo-anode in Dye-Sensitized Solar Cells; International Conference on Sustainable Energy and Environment – ICSEE'19, Hindustan Institute of Technology and Science, Padur, Tamil Nadu, India, February 21st & 22nd, 2019.
43. Das et al., Two dimensional MoS₂ Quantum dots: Synthesis, Properties, and Applications; India-UK Second International Conference on Advanced Nanomaterials for Energy, Environment and Healthcare Applications (ANEH-2019), 04-06, February 2019, Tiruchirappalli, India.
42. Das et al., Electron Transport and Recombination in Core-Shell Structure Photoanode for Dye-Sensitized Solar Cells; India-UK Second International Conference on Advanced Nanomaterials for Energy, Environment and Healthcare Applications (ANEH-2019), 04-06, February 2019, Tiruchirappalli, India.
41. Das et al., Two Dimensional ZnO Nanosheet: Controlled Synthesis for Bio-sensing; International Conference on Advanced Nanomaterials for Energy, Environment and Healthcare Applications (ANEH-2019), 04-06, February 2019, Tiruchirappalli, India.
40. Das et al., Magnetic nanoparticle dispersed thermoplastic polyurethane coatings as radar absorbing material, International Conference on Advanced Nanomaterials for Energy, Environment and Healthcare Applications (ANEH-2019), 04-06, February 2019, Tiruchirappalli, India.
39. Das et al., Chemical Vapor Deposited Two Dimensional Seamless MoS₂ for Large-Area Optoelectronic Devices; International Conference on Advanced Nanomaterials for Energy, Environment and Healthcare Applications (ANEH-2019), 04-06, February 2019, Tiruchirappalli, India.
38. Das et al., Development of Graphene Nanocomposites based Polymeric Scaffold for Application in Water Purifications; International Conference on Advanced Nanomaterials for Energy, Environment and Healthcare Applications (ANEH-2019), 04-06, February 2019, Tiruchirappalli, India.

37. Das et al., "A Graphene Based Metasurface with Wideband Absorption in the Lower Mid Infrared Region," in IEEE International Microwave & RF Conference (IMaRC 2018), Kolkata, India, 28-30 November, 2018.
36. Das et al.,; Highly Efficient rGO nanocomposite based hybrid electrocatalyst for Hydrogen Evolution Reaction; 3rd NATIONAL CONFERENCE ON MATERIALS FOR ENERGY CONVERSION AND STORAGE (MECS-2018) from 18-20 October 2018 at IIT (BHU), Varanasi.
35. Das et al.,; Room temperature synthesis of 2-dimensional ZnO nanosheets with highly tunable catalytic properties and preparing a coating for photo-catalytic dye degradation; International Conference on Advanced Nanomaterials for Energy, Environment and Healthcare Applications (ANEH-2018), 31st August to 01st September 2018, K. S. R Institutions, Tamilnadu, India.
34. Das et al., "A Graphene Based Bandwidth Enhanced Metamaterial Absorber using Circular Ring," oral presentation, IEEE International Symposium on Antennas and Propagation and USNC/URSI National Radio Science Meeting, 8-13 July, 2018, Boston, USA.
33. Das et al.,; Synthesizing Camellia sinensis Bio-surfactant assisted CdS Quantum Dots for Biomedical Applications, Fourth International Conference on Advanced Complex Inorganic Nanomaterials, 16th-20th July 2018, Namur,Belgium.
32. Das et al., Graphene Based Metasurface with Tunable Dual Band Mid- Infrared Cross Polarization Converter, Oral Presentation, IEEE ATMS conference, (2018) 5th to 7th February, Pune, Maharashtra, India.
31. Das et al., Ultra-thin Ferrite Nanocomposite Coating as Broadband Microwave Absorber, 6th biennial IEEE Applied Electromagnetics Conference (AEMC-2017), 2017, Oral Presentation, December 19-22, 2017 at MIT, Maharashtra, India.
30. Das et al., High performance nanocomposites based on $\text{Ni}_{0.5}\text{Mg}_{0.5}\text{Fe}_2\text{O}_4\text{-Ba}_{0.75}\text{Sr}_{0.25}\text{TiO}_3$ and their electromagnetic properties, accepted in International Conference on "Advances in Biological Systems and Materials Science in NanoWorld" to be held on 19 - 23 February 2017 Department of Physics, IIT (BHU) Varanasi, INDIA.
29. Das et al., Saving the Environment from Toxic Chemicals Using Amorphous Metals, TMS 2016 145th ANNUAL MEETING & EXHIBITION February 14 – 18, 2016 • Nashville,

Tennessee, USA.

28. Das et al., Tailoring the Magnetic Properties and Mechanical Behavior of Cobalt-Iron Metallic Glasses, TMS 2016 145th ANNUAL MEETING & EXHIBITION February 14 – 18, 2016 Nashville, Tennessee, USA.
27. Das et al. Nano-crystallization induced magnetic transitions in soft- ferromagnetic metallic glass, Oral Presentation, MRS Fall Meeting 2015, Nov 29-Dec 4, Boston, USA.
26. Das et al. Nano-mechanical and Electrical Characteristics of Amorphous-Crystalline Interface Dominated Metallic Thin-Films, MRS Fall Meeting 2015, Nov 29-Dec 4, Boston, USA.
25. Das et al. Nano-crystallization induced magnetic transitions in soft- ferromagnetic metallic glass, Oral Presentation, MRS Fall Meeting 2015, Nov 29-Dec 4, Boston, USA.
24. Das et al. Nano-mechanical and Electrical Characteristics of Amorphous-Crystalline Interface Dominated Metallic Thin-Films, poster presentation, MRS Fall Meeting 2015, Nov 29-Dec 4, Boston, USA.
23. Das et al. Enhancement of Catalytic Effect of Iron Metallic Glass Particles in AZO Dye Degradation, Presented in the Texas Society of Microscopy, 50th Anniversary Meeting, 19-21 February, 2015, Austin, Texas, USA.
22. Das et al.; Excellent Mechanical and Magnetic Properties of Cobalt-Iron Metallic Glasses, poster presentation in 2015 TMS Annual Meeting & Exhibition, USA.
21. Das et al.; Measurement of Graphene-substrates adhesion energy using nano-scratch study, oral presentation in Tech Connect World Innovation Conference & Expo, Nanotech 2014, June 15-18, 2014 Washington DC, USA.
20. Das et al.; Measurement of graphene substrates adhesion energy using nano-scratch study, poster presentation in 2013 MRS Fall Meeting, December 01 - 06, Boston, USA.
19. Das et al.; Covalent functionalization of large scale graphene for enhancing tri-iodide reduction in dye-sensitized solar cells, poster presentation in 2013 MRS Fall Meeting, December 01 - 06, Boston, USA.
18. Das et al.; Nanomaterials for high efficiency electronics and energy, poster presentation in SAMPE DFW: 2013 Technical Symposium & Materials Expo April 11, 2013, Dallas, USA.

17. Das et al.; Flexible dye-sensitized solar cells with ZnO nanoparticles grown by Sonochemistry over Graphene/PET substrates", Mater. Res. Soc. Symp. 2013 spring, USA.
16. Das et al.; Large Scale graphene-CoS hybrid electro-catalytic electrodes for dye sensitized solar cells, poster presentation in 2012 Materials Research Society Fall Meeting, November 25 - 30, Boston USA. (Finalist of Outstanding Poster Award, MRS USA 2012).
15. Das et al.; Improving Charge Transfer Characteristic of Graphene for Tri-iodide Reduction in Dye-Sensitized Solar Cells, poster presentation in The Minerals, Metals and Materials (TMS) Society, USA, March 11- 15, 2012 Orlando, Florida, USA.
14. Das et al.; Enhancing Charge Transfer Efficiency of Large Scale Graphene for Tri-iodide Reduction in Dye-Sensitized Solar Cells, poster presentation in Materials Challenges in Alternative and Renewable Energy, The American Ceramic Society Conference, February 26th to March 1st Clearwater, Florida, USA. (Winner of third prize in student competition).
13. Das et al.; Enhancement of Charge Transfer Efficiency of Large Scale Graphene for Tri-iodide Reduction in Dye-Sensitized Solar Cells, poster presentation in 2012 FIU Scholarly Forum on February 27 -28, at Florida International University, Miami, USA. (Winner of second prize in student competition).
12. Das et al.; Amplifying Charge Transfer Characteristic of Graphene in Dye-Sensitized Solar, Oral presentation in 2011 Materials Research Society Fall Meeting, Nov 28-Dec 2 , Boston, USA.
11. Das et al.; Graphene for Large Scale Flexible Transparent Conducting Nanoelectronics and Bio-Devices, Poster presentation in Second Annual Retreat of the Biomedical Nanoscience Initiative of the University of Miami (BioNIUM 2010) - December 9-10, 2010, Miami, Florida, USA.
10. Das et al.; High Efficient Dye-sensitized Solar Cell Based on Morphology Controlled Carbon Nanotube Electrode: Oral presentation in Nanotech 2009 and Clean Technology 2009 May 3- 7 2009 in Houston, Texas, USA.
9. Das et al.; Graphene and Carbon Nanotube hybrid structure and Its Applications in Flexible Electronics Devices, poster presentation in International Conference on IEEE Nano Korea, 26-28 Aug 2011, Seoul, South Korea.
8. Das et al.; Enhancement of Charge Transfer Efficiency of Large Scale Graphene for Tri-iodide

Reduction in Dye-Sensitized Solar Cells, poster presentation in NANO Florida, Sept 30-Oct 1st 2011, Miami, Florida, USA.

7. Das et al.; Carbon Nanostructure Based Electrodes for High Efficiency Dye Sensitize Solar Cell, FIU First Energy Workshop, March 12, 2010, Miami, FL, USA.
6. Das et al.; Large Area Graphene on Polymer Films for Transparent and Flexible Field Emission Device 2010, oral presentation in Materials Research Society Fall Meeting, 29-3rd December 2010, Boston, USA.
5. Das et al.; Large-area Graphene on Polymer Film for Transparent and Flexible Electrodes, oral presentation in Florida Energy System Consortium 2010 (FESC) September 28-29 2010, Orlando, FL, USA.
4. Das et al.; Carbon Nanotubes for Multifunctional Electronics: August 26-28 2009, oral presentation in Nano Korea 2009, Kintex, Seoul, South Korea.
3. Das et al.; Zinc oxide nanostructure devices: effect of surface cleaning by UV radiation: 2009 The Minerals, Metals & Materials Society Annual Meeting & Exhibition Feb 15-19 2009, San Francisco, USA.
2. Das et al.; Large-area Graphene on Polymer Film for Transparent and Flexible Electrodes, Florida Energy System Consortium 2010 (FESC) September 28-29 2010, Orlando, FL, USA.
1. Das et al.; Carbon Nanotubes for Multifunctional Electronics: August 26- 28 2009, Nano Korea 2009, Kintex, Seoul, South Korea.