**Sandipan Mallik, PhD**

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**Google Scholar:**

[scholar.google.co.in/citations?user=HneMfQLbGt0C&hl=en](https://scholar.google.co.in/citations?user=HneMfQLbGt0C&hl=en)

**Research Gate:**

[researchgate.net/profile/Sandipan\_Mallik](http://www.researchgate.net/profile/Sandipan_Mallik)

### Communication

**Current address:** Flat 401, Apartment NEST, Basudevnagar 1st Lane (near hanuman mandir), Berhampur, Odisha, India, 760010

**Home Address:** Nutandihi, PO+PS: Jhargram, Dist: Jhargram, West Bengal, India 721507

### Experience

Teaching: 10 Y 2 M

Research: 15 Y

***Associate Professor,***

***Department of Electronics Communication Engineering (NBA Accredited),***

***NIST Institute of Science and Technology (Autonomous),***

***Pallur Hills, Berhampur, Orissa, India, PIN: 760008.***

*The implementation of semiconductor related courses in academic institutions serves as a strategic move towards realizing India's dream of becoming a global electronics hub. The incorporation of these courses enhances students' resumes, equips them with specialized skills for the electronics industry, and aligns them with the nation's vision of technological advancement. By fostering industry-academia collaborations and inspiring high-level research, these courses catalyze India's journey towards self-reliance in semiconductor technologies and position it as a dominant player in the global semiconductor landscape.*

*With a keen understanding of the significance of India's burgeoning semiconductor ecosystem, I firmly believe that every academic institution holds a pivotal role in nurturing skilled manpower and engaging with the student community to pave the way for future innovation. My following extensive expertise in the semiconductor domain positions me as a valuable asset, poised to contribute significantly to the growth and development of the semiconductor industry and inspire the next generation of engineers and researchers.*

* *Expertise in semiconductor devices fabrication and characterization.*
* *Proficient in setting up semiconductor fab labs to offer essential research facilities to undergraduate, postgraduate, and doctoral students.*
* *Lab setup experience with high-end equipment at prestigious institutions, including IIT Kharagpur, IIT Bhubaneswar and NIST Berhampur.*
* *Skilled in providing training programs to students and faculties in semiconductor technology.*
* *Successfully mentored over 30 students, guiding them to achieve masters and doctoral positions in top 500 Indian and foreign universities.*
* *Author of more than 90 publications and holder of 6 patents in semiconductor and material science domains.*
* *Facilitated undergraduate student involvement in over 35 research publications.*
* *Experienced in counseling and motivating students to pursue higher studies in semiconductor research and development.*

Experience

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Designation** | **Department** | **Institute** | **From** | **To** | **Experience** |
| **Associate Professor** | Department of ECE | NIST Berhampur, Orissa, 761008 | April 2019 | Till date | 4 Y 4M |
| **Assistant Professor** | Department of ECE | NIST Berhampur, Orissa, 761008 | July  2014 | March 2019 | 4 Y 9M |
| **Project Scholar** | Department of E & ECE | IIT Kharagpur | August 2008 | June 2014 | 5 Y 11 M |
| **Contractual Lecturer** | Department of Physics | Jhargram Raj College (Govt. of WB) affiliated to VU | June 207 | July 2008 | 1Y 1M |

Research Area

|  |  |
| --- | --- |
| **Specialization** | Semiconductor Device Physics, Thin film physics, Device Fabrication Technology, Nanotechnology & Microelectronics, High-k dielectric |
| **Interest** | Thin Film Physics and Technologies, Memristor devices, PAAO template for nanofabrication, PDMS base fabrication, Inorganic heterojunction solar cells, Protiotronics Devices, Biomedical Devices |

Education

### **Technical Skills**

**Software Skill Set:**

Silvaco, CST Microwave, SCAPS, AMPS-1D, PC-1D, AFORS-HET, Origin Lab, Comsol multiphysics, Matlab, C++

1 year Diploma in **Computer Programming and Application** from All India Society for Electronics and Computer Technology (AISECT)

[July 2000 to June 2001]

**Equipment Skill Set:**

* *High Temperature Furnaces:* Tempress Oxidation and diffusion furnaces, Thermolyne 21100 Tube Furnace.
* *Rapid Thermal Annealing:*

ULVAC-RIKO MILA-3000, MILA-5000.

* *Thin film deposition:*

*RF Sputter:* Techtronics, HHV BC 500.

*DC Sputter:* CRESSINGTON SPUTTER COATER 108auto.

*E-beam Evaporation:* Varian.

*Metallization:* HHV.

* *Film Characterization:*

*AFM & SPM:* Nanosurf Easyscan2, *STM:* Nanosurf Easyscan2/ Namma STM i2N Technology.

* *Semiconductor Test System:*

Agilent E4980A, Agilent 4156C, Agilent B1500A, Kitheley 2604B. Semi- automated probe station

* *Optical:*

*AAA Solar simulator:* Newport

*UV-*Vis: Shimadzu UV-1800

*FTIR*: Agilent Cary 630

**Ph.D (Doctor of Philosophy)** – June 2009 – December, 2014.

Department of Electronics & Telecommunication Engineering, Jadavpur University, Kolkata, India, Supervisor: Prof. C. K. Sarkar; Professor, Dept. of ETCE, Jadavpur University, Kolkata; Co-supervisor: Prof. C. K. Maiti; Ex-Professor, Dept. of E & ECE, Indian Institute of Technology, Kharagpur

Thesis Title: “Deposition and Characterization of Hafnium based High-k Gate Dielectrics on SiGe Heterolayers”

**M. Sc. (Master of Science) –** July 2006 – June 2007

Physic (Electronics Special Paper), Department of Physics, D.P.Vipra PG College, Bilaspur. (Affiliated to G. G. Central University, Bilaspur), Chhattisgarh, India.

Project: “Fermi Energy Determination of Copper and Silver by Studding Resistance Variation at Different Temperature”

**B. Sc. (Bachelor of Science)** – July 2001 – June 2004

Physic (Hons.), Department of Physics, Jhargram Raj College (Affiliated to Vidyasagar University), Jhargram, west Bengal, India.

Project: “Effect of Electric Field on the Growth of Sprout-Length of Pea Seeds.”

**H. S. (Higher Secondary)** – April 1999 – March 2001

Science (West Bengal Council of Higher Secondary Education), Jhargram K. K. Institution, Jhargram, West Bengal, India

**Secondary (Madhyamik)** – April 1999

West Bengal Board of Secondary Education, Jhargram K. K. Institution, Jhargram, West Bengal, India

Research/Consultancy Grant

* Received **Startup Research Grant (SRG)** award as a **Co-Principal Investigator** from **SERB DST** **India**, for the project entitled “*ABPBI-ZrP Nanocomposite Membrane: A potential low cost ion exchange membrane for Vanadium redox flow battery energy storage system*”, File No : SRG/2022/001536, Total Budget : INR **17,19,872.00** [28th September 2022-till date]
* Received **Early Carried Research (ECR)** award as a **Principal Investigator** from **SERB DST** **India**, for the project entitled “*Structural Modification of Flexible Solar Cell by Incorporating Graphene tapered ZnO Anti-reflector in Wearable Electronics Power Solutions*”, File No : ECR/2018/002477, Total Budget : INR **35,00,560.00**. [25th March 2019-24th September 2022]

Teaching Area/Subject(s)

|  |  |  |  |
| --- | --- | --- | --- |
| **Stream** | **Subject** | **Duration** | **Syllabus**  **preparation** |
| **PhD** | Research Publication and Ethics | 2023 | N |
| **M.Tech** | VLSI Fabrication Technology | 2016, 2017 | N |
| Research Methodology & IPR | 2022 | N |
| **M.Sc** | Classical Electrodynamics | 2018, 2019 | N |
| **B.Tech** | Physics of Semiconductor Devices | 2014-2018 | N |
| Semiconductor Devices | 2019-2020 | Y |
| Electromagnetic Engineering | 2018-2019 | N |
| Electromagnetic Theory | 2020-till date | Y |
| Signals & Systems | 2020-till date | Y |
| Solid State Devices | 2019 | N |
| **B.Sc Physics** | Analog Systems and Applications | 2023 | N |
| Electromagnetic Theory | 2021-till date | N |
| Optics | 2008 | N |

### Communication Skill

**English:**

**Reading: **

**Writing: **

**Speaking: **

### **Society Membership**

**•** Member of IEEE Electron Devices Society.

Membership id: 98314724

• Member of Institute of Doctors Engineers and Scientists (IDES). Membership id: 5140.

• Member of Academic Society of Science Engineering & Technology (ASSET).

Membership id: AM1706F01.

• Member of International Association of Engineers (IAENG). Membership id: 191833.

• Life member of Jhargram Raj College Physics Alumni Association (JRCPAA) [registration no: S/2L/64006], Membership id: awaiting

• Life member Indian Energy Congress (IEC). Membership id: Awaiting

### **Personal Info**

DOB: 01.03.1983

Sex: Male

Marital Status: Married

Nationality: Indian

Passport No: L9806371

Aadhaar No: 798998528499

PAN no: AMBPM0125

Emergency Contact Person:

Arindam Mallik (Elder Brother)

(+91-9476111400)

Hobby: Playing Tabla, Guitar, Painting, Photography.

PhD/M.Tech Projects Supervised

**PhD supervisor**

1. **Mr. Partha Pratim Maiti**, registered (Enrollment no: DSS04001 dated 2.9.2020) under Biju Patnaik University of Technology, Rourkela, Odisha, India, in the topic entitled “*Characterization of ZnO and CuO based Nanocrystals for the Study of Interaction with Proteins and Applications in Optoelecronic Devices*” (Registration completed): **Advisor**.
2. **Mrs. Laxmi Vandana**, registered (Enrollment no: DSS01016 dated 9.9.2020) under Biju Patnaik University of Technology, Rourkela, Odisha, India, in the topic entitled “*Study of Memory Impedance in Metal-Insulator-Metal Structure using Rare Earth Dielectrics*” (Registration completed): **Advisor**.
3. **Ms. Raja Rajeswari,** registered (Enrollment no: DSS01016 dated 9.9.2020) under Biju Patnaik University of Technology, Rourkela, Odisha, India, in the topic entitled “*Study of Memory Impedance in Metal-Insulator-Metal Structure using Rare Earth Dielectrics*” (Course work ongoing): **Advisor**.
4. **Ms. Shrabani Guhathakurata**, Junior Research Fellow registered under Jadavpur University, Kolkata, in the topic entitled “Fabrication and Characterization of *Proteotronics Device for various electrical and optoelectronics Applications*”. (Pre-thesis completed): **Co-Advisor**.
5. **Sk. Manowar Ali,** registered under Gandhi Institute of Engineering and Technology (GIET) University, Gunupur, Odisha, India in the topic entitled “*Fabrication and characteristics of high-k MIM capacitors for high frequency rf applications*” (Course work ongoing): **Co-Advisor**.
6. **Mr. Subhasis Mahata** registered (Enrollment no: DSS01016 dated 9.9.2020) under Biju Patnaik University of Technology, Rourkela, Odisha, India, in the topic entitled “*Study of Memory Impedance in Metal-Insulator-Metal Structure using Rare Earth Dielectrics*” (Course work ongoing): **Co-Advisor**.

**M. Tech project supervisor**

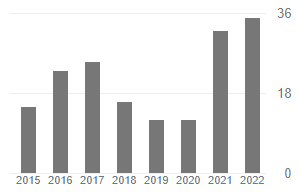
* 1. **Swrniva Bhoi,***“Synthesis of Porous Anodic Alumina Templates for Nano Electronics Applications”* M.Sc Project (2022-2023): Supervisor
  2. **Somyashree Sahu,** *“A Method To Produce Reusable Textured Templates Towards The Fabrication of Flexible Solar Cells”* M.Sc Project (2022-2023): Supervisor
  3. **Bijay Soren***, “A Simple Approach for the Fabrication of CdS NPs/n-Si Heterojunction Photovoltaic Structure”* M.Tech Project (2022-2023): Supervisor
  4. **Swatikanta Mishra***, “A Simple Approach for the Fabrication of CdS NPs/n-Si Heterojunction Photovoltaic Structure”* M.Tech Project (2022-2023): Co-Supervisor
  5. **Hara Prasad Behera,***“Simulation of CH3NH3PbBr3 Perovskite Solar Cell with SCAPS-1D”* M.Sc Project (2021-2022): Supervisor
  6. **Kiran Sahu,***“Modeling and Simulation of TiO2 nanorods ETL based Perovskite/Cu2O Solar Cells”* M.Sc Project (2021-2022): Supervisor
  7. **Anurag Pradhan***, “A Simple Approach for the Fabrication of CdS NPs/n-Si Heterojunction Photovoltaic Structure”* M.Tech Project (2018-2019): Supervisor
  8. **Pratikshya Routh***, “Comparison of Interface Defect Densities in SiO2 and High-k MOS Capacitors”* M.Tech Project (2015-2016): Supervisor

### Summary: Publications

**Google Scholar Citations: 252**

**h-index: 10**

**i10-index: 10**

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**Indian Patent: 6**

No of Granted: 0

No of Published: 6

No of Applied (Final): 0

No of Applied (Provisional): 0

**Journal: 33**

No of communicated: 3

No of SCI/SCIE: 24

No of Scopus: 03

Other: 03

**Quartile journal: 22**

No of Q1: 07

No of Q2: 12

No of Q3: 05

No of Q4: 00

**Book Chapter: 11**

No of Accepted: 06

No of Published: 05

**Conference: 44**

No of Int. Conf.: 34

No of National Conf.: 10

**Undergraduate Student Involvement:**

Indian Patent: 5

Journal: 11

Conference: 9

Book chapter: 6

Book chapter (awaiting): 6

Research Publication: Patent

1. L Vandana A Dash, U Dey, S Mahata, S Guhathakurata, **S Mallik**, G Ahmad, C S Kumar, C Jachob “METHOD FOR PRODUCTION OF TEXTURED FLEXIBLE SOLAR CELLS AND SOLAR CELLS ATTAINED THEREOF”, Application no: 202331013288, The Patent Office Journal No. 13/2023 Dated 31/03/2023.
2. **S. Mallik**, D. Panda, P. Panigrahi, A. Dash, “*NON-INVASIVE GLUCOMETER TO DETERMINE BLOOD GLUCOSE LEVEL FROM MOUTH-BLOWN AIR AND A METHODE THEREOF*” Application no: 202131003286, The Patent Office Journal No. 38/2022 Dated 23/09/2022.
3. P. K. Patra, M. Sahu, A. Dash, and **S. Mallik**, “*A SINGLE MICROSTRIP ANTENNA AS RADIATOR NAD REFLECTOR*”, Application no: 202131002987, The Patent Office Journal No. 08/2021 Dated 19/02/2021.
4. P. Das, A. Singh, S. S. Mahato, **Sandipan Mallik** and M. K. Mandal, "A SYSTEM FOR CUSTOMIZED UNIVERSAL DC CIRCUIT EMULATION AND A METHOD THEREOF"; Application No. 201831035787, The Patent Office Journal No. 13/2020 Dated 27/03/2020.
5. **S. Mallik**, R. Roy, G. Ahmad, A. Raja, S. H. Raheman, A. Dash, P. Panigrahi, P. K. Singh, S. Guhathkurata, N. B. Manik, P. Das and S. S Mahato, "*AN AUTOMATED PROBING SYSTEM FOR MEASURING ELECTRICAL CHARACTERISTICS OF ON-WAFER DEVICES ANDA METHOD THEREOF*"; Application No. 202031041107The Patent Office Journal No. 42/2020 Dated 16/10/2020.
6. **S. Mallik**, A. Dash, A. Choudhury, P. Das, S. S. Mahato, C. Mahata, A. Bag and C. K. Maiti, "*METAL PROTEIN SEMICONDUCTOR STRUCTURE*"; Application No. 201831045064, The Patent Office Journal No. 47/2019 Dated 22/11/2019.

Research Publication: Journal

1. L. Vandana, S. Guhathakurata, G. Ahamed and **S. Mallik**, "Simulation and Modeling of Nanowire CdS Array as a Window-absorber Layer for the Enhancement of Spectral Transmission of CdTe Solar Cells with Three Dimensional Graphene as Back Electrode", Sol Energy, (2021) – Solar Energy, 2022 (*Communicated).*
2. P P Pancham, A Mukherjee, B L Yuan, P Yu, W-H Chiu, G Ahmad, S Mallik, C-Y Lo, "Novel graphene transfer method to silicone and its sensing application on porous PDMS", IEEE Sensors Letters, vol. 7, pp. , April 2023 [SCOPUS, doi: 10.1109/LSENS.2023.3265702]
3. S. Mohanty, D. Panda, A. Dash, S. S. Kumar, R. R. Padhi, S. Guhathakurata and **S. Mallik**, "A Review on Borophene: A Potential Gas Capture Material", *J. Electron. Mater.* vol. 52, pp. 4434–4454, April 2023 [Q2, SCIE, impact factor: 1.9, doi: 10.1007/s11664-023-10367-0]*.*
4. B. S. Reddy, and **S. Mallik**, "Uneven Contact Wear Tribology Test on ZTA Disc with Diamond Tip and ZrO2 Ball", *Adv. Mech*, July 2023 [SCOPUS, doi:advancesinmechanics.com/1621.php, Print ISSN: 1000-0992] *.*
5. Prajukta Mukherjee, Aritra Acharyya & Sandipan Mallik, "Bovine Serum Albumin-Based Thin-Film Capacitors for Flexible Electronic Applications" IETE Journal of Research, July 2022 [Q3, SCIE, impact factor: 1.7, doi: 10.1080/03772063.2022.2098183]
6. D. Deo, S. P. Singh, S. Mohanty, S. Guhathakurata, D. Pal and **S. Mallik**, "Biomimicking of Phyto-based Superhydrophobic Surfaces towards Prospective Applications: A Review", Mat. Res. Letter. vol. 57, pp. 8569–8596 April 2022 [Q1, SCIE, impact factor: 4.2, 10.1007/s10853-022-07172-1. ISBN: 1573-4803]
7. S. Mohanty, A. Arya, D. Jena, S. Guhathakurata, N. B. Manik, G. Ahmad and **S. Mallik**, "Potential Soluble Substrates for Transient Electronics Applications: A Review", AIP Avdavces, vol. 12, May 2022, [Q2, SCIE, impact factor: 1.53,doi:10.1063/5.0066174ISSN: 2158-3226].
8. P. Maiti, Ajit Dash, S. Guhathakurata, S Das, A. Bag, T P Dash, G. Ahmed, C. K. Maiti and **S. Mallik**, “Experimental and Simulation Study of Charge Transport Mechanism in HfTiOx High-k Gate Dielectric on SiGe Heterolayers”, *Bull. Mat. Res* vol. 45, issue. 1, pp. 1-8, March 2022, [Q3, SCIE, impact factor: 1.7,[doi: 10.1007/s12034-021-02622-z](https://doi.org/10.1007/s12034-021-02622-z), ISSN: 0973-7669]
9. A. Dash, A. Sharma, S. K. Jain, B. S. K. Patra, A. Gundimeda, **S. Mallik** and G. Gupta "Influence of current conduction paths and native defects on gas sensing properties of polar and non-polar GaN" Journal of Alloys and Compounds, vol. 898, p. 162808, March 2022 [Q1, SCI, impact factor: 5.36,doi:10.1016/j.jallcom.2021.162808, ISSN: 0925-8388].
10. A. R. Tripathy, A. Choudhury, A. Dash, P. Panigrahi, S. S. Kumar, P. P. Pancham, S. K. Sahu, and **S. Mallik**, Polymer Matrix Composite Engineering for PDMS based Capacitive Sensors to achieve high-performance and broad-range Pressure Sensing, Appl. Surf. Sci. Adv., vol. 3, pp. 100062, March 2021. [doi: <https://doi.org/10.1016/j.apsadv.2021.100062> ISSN: 2666-5239]
11. P. Kumar, A. Choudhury, S. Guhathakurata, A. Sharma, A. R. Tripathy, S S. Kumar, P. P. Pancham, P. Das, S. S. Mahato, S. Mahata, **S. Mallik**, "Flexible BSA MIM Capacitor with Negative Voltage Coefficient for RF Applications", Appl. Phys. Lett. vol. 116, issue. 17, pp. 1719041-1719045, April 2020 [Q1, SCI, impact Factor: 3.52, doi: [https://doi.org/10.1063/ 1.5139494](https://doi.org/10.1063/%201.5139494) Print ISSN: 0003-6951, Online ISSN: 1077-3118]

### Co-authors & Collaborators

**Dr. Chinmay K Maiti**

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Kharagpur, India

**Dr. Chandan K Sarkar**

Jadavpur University,

Kolkata, India

**Dr. Govind Gupta**

CSIR-National Physical Laboratory,

New Delhi, India

**Dr. Subir Kumar Sarkar**

Jadavpur University,

Kolkata, India

**Dr. Nabin Baran Manik**

Jadavpur University,

Kolkata, India

**Dr. Gufran Ahmad**

Dayalbagh Educational Institute

Agra, India

**Dr Prashant Kumar Singh**

University College of Engg and Tech.

Jharkhand, India

**Dr. Sanjay Kumar Jana**

National Institute of Tech.

Sikkim, India

**CHI Dongzhi**

Principal Scientist,

IMRE, Singapore

**Dr. Shikha Varma**

IOP Bhubaneswar

Odisha, India

**Dr. Atanu Bag**

Sungkyunkwan University (SKKU)

Republic of Korea

**Dr. Chandreswar Mahata**

Dongguk University

Republic of Korea

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IACS

Kolkata, India

**Dr. Mainak Palit**

IACS

Kolkata, India

**Dr. Mrinal Kanti Hota**

KAUST

Saudi Arabia

1. P. Das, S. K Jana, N. N. Halder, **S. Mallik**, S. S. Mahato, A. K. Panda, P. P. Chow, D. Biswas, "An alternative X-Ray Diffraction analysis for comprehensive determination of structural properties in compositionally graded strained AlGaN epilayers" Electron Mater Lett, vol. **14**, pp. 784-792, November 2018. [Q2, SCIE, impact factor: **2.882,** doi: [10.1007/s13391-018-0074-6](https://doi.org/10.1007/s13391-018-0074-6), Online ISSN 2093-6788, Print ISSN 1738-8090]
2. S. P. Mallick, D. P. Dash, **S. Mallik**, R. Roshan, S. Mahata, P. Das and S. S. Mahato, “An Empirical Approach towards Photovoltaic Parameter Extraction and Optimization”, Solar Energy, vol. 153, pp. 360-365, June 2017. [Q1, SCI, impact factor: 4.37, doi: [10.1016/j.solener.2017.05.076](https://doi.org/10.1016/j.solener.2017.05.076), ISSN: 0038-092X]
3. D. P. Dash, R. Roshan, S. Mahata, **S. Mallik**, S. S. Mahato and S. K. Sarkar, “A compact J-V model for solar cell to simplify parameter calculation”, J. Renewable Sustainable Energy vol. 7, issue 1, pp. 0131271-0131277, February 2015. [Q3, SCIE, impact factor: 1.33, doi: [10.1063/1.4909540](https://doi.org/10.1063/1.4909540), ISSN: 1941-7012]
4. A. Bag, **S. Mallik** and C. K. Maiti, "Interlayer thickness dependence of photovoltaic properties of polycrystalline p-β-FeSi2(Al)/n-Si(100) heterojunctions," J. Renewable Sustainable Energy, vol. 6, no. 2, pp. 023110-023112 , March 2014. [Q3, SCIE, impact factor: 1.33, doi: [10.1063/1.4871285](https://doi.org/10.1063/1.4871285) ISSN: 1941-7012]
5. M. K. Hota, A. Bag, **S. Mallik**, S. Verma, and C. K. Maiti, “Resistive Switching in ITO/Graphene Oxide/Al Metal-Insulator-Metal Capacitor Structures,” Graphene, vol. 1, no. 1, pp. 45-50, June 2013 [doi: [10.1166/graph.2013.1010](https://doi.org/10.1166/graph.2013.1010), Print ISSN 2167-275X; Online ISSN 2167-2768]
6. A. Bag, M. K. Hota, **S. Mallik**, and C. K. Maiti, “Graphene oxide-based ﬂexible metal–insulator–metal capacitors,” Semiconductor Science and Technology, vol. 28, no. 5, pp. 055002-055002-7, March 2013. [Q2, SCI, impact factor: 2.28, doi: [10.1088/0268-1242/28/5/055002](https://doi.org/10.1088/0268-1242/28/5/055002), Online ISSN: 1361-6641, Print ISSN: 0268-1242]
7. **S. Mallik**, C. Mukherjee, C. Mahata, M. K. Hota, T. Das, G. K. Dalapati, H. Gao, M. K. Kumar, D. Z. Chi, C. K. Sarkar, and C. K. Maiti, “Electrical properties and noise characterization of HfO2 gate dielectrics on strained SiGe layers,” Thin Solid Films, vol. 522, no. 1, pp. 267-273, November 2012. [Q2, SCI, impact factor: 1.93, doi: [10.1016/j.tsf.2012.07.111](https://doi.org/10.1016/j.tsf.2012.07.111), ISSN: 0040-6090]
8. C. Mahata, **S. Mallik**, T. Das, C. K. Maiti, G.K. Dalapati, C.C. Tan, C.K. Chia, H. Gao, M. K. Kumar, S. Y. Chiam, H. R. Tan, H. L. Seng, D. Z. Chi, and E. Miranda, “Atomic layer deposited (TiO2)x(Al2O3)1-x/In0.53Ga0.47As gate stacks for III-V based metal-oxide-semiconductor field-effect transistor applications”, Appl. Phys. Lett., vol. 100, no. 6, pp. 062905-062905-4, February 2012. [Q1, SCI, impact factor: 3.49, doi: [10.1063/1.3684803](https://doi.org/10.1063/1.3684803), Print ISSN: 0003-6951, Online ISSN: 1077-3118]
9. T. Das, C. Mahata, **S. Mallik**, S. Varma, G. Sutradhar, P.K. Bose, and C. K. Maiti, “Interface Properties of Mixed (TiO2)1−x(Y2O3)x and (Ta2O5)1−x(Y2O3)x (0≤ x≤ 1) Gate Dielectrics on Sulfur-Passivated GaAs”, Journal of The Electrochemical Society, vol. 159, no. 3, pp. H323-H328, January 2012. [Q1, SCI, impact factor: 3.66, doi: [10.1149/2.094203jes](https://doi.org/10.1149/2.094203jes) Print ISSN: 0013-4651, Online ISSN: 1945-7111]
10. M. K Hota, **S. Mallik**, C. K. Sarkar, S. Varma, and C. K. Maiti, “Structural and Electrical Properties of Radio Frequency Sputtered HfTaOx Films for High-k Gate Insulator”, Japanese Journal of Applied Physics, vol. 50, no. 10, pp. 101101-101101-5, October 2011. [Q2, SCI, impact factor: 1.45, doi: [10.1143/JJAP.50.101101](https://doi.org/10.1143/JJAP.50.101101), Online ISSN: 1347-4065, Print ISSN: 0021-4922]
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8. K. Mukherjee, S. Upreti, A. Bag, **S. Mallik**, M. Palit, S. Chattopadhyay, and C. K. Maiti, “Resistive Switching in MIM Capacitors Using Porous Anodic Alumina,” Physics of Semiconductor Devices, Part of the Environmental Science and Engineering (ESE) book series, Springer, pp 29-32, 2013 [ISBN: 978-3-319-03002-9].

Professional Activities

* Co-convener of National Conference Energy, Sustainability and Society (NCESS 2022), organized by NIST Berhampur (Autonomous) Odisha and Indian Energy Congress (IEC) on 10th December 2022 at NIST Berhampur (Autonomous) Odisha.
* Convener of the National webinar entitled "PREPAREDNESS FOR ELECTRIC VEHICLES BY DISCOM" organized by Indian Energy Congress (IEC), in collaboration with NIST Berhampur, on 6th February 2022. Speakers: Er. Madhu Sudan Padhi, Additional Chief Secretary, Odia Language, Literature & Culture Department, Govt. of Odisha, Prof. R P Mohanty, Former Vice Chancellor, SoA University, Er. A. K. Mohanty, Director (Operation), OHPC Ltd, Dr. P. Patnaik, Secretary, OERC, Dr. C. R Atla, DGM-Power System Solutions, PRDC-Bengaluru, Mr. S. Manthiram, CEO, TPCODL.
* Convener of the webinar entitled " Environmental Sustainability through Green Technologies: Present & Future", organized by Jhargram Raj College Physics Alumni Association (JRCPAA), in collaboration with: Department of Physics, Jhargram Raj College, Govt. of WB, on 17th October 2020. Speakers: Dr. Goutam Kumar Dalapati, Associate Professor, SRM University-AP, India, and Visiting faculty at NUS-Singapore; and Dr. Shantanu Bhowmik, Professor, Aerospace Engineering, School of Engineering, Amrita Vishwa Vidyapeetham, Coimbatore, India, and Adjunct Professor: Center for Future Materials, University of Southern Queensland, Australia.
* Convener of the webinar entitled "Educationist, Reformer, Feminist: Remembering Ishwar Chandra Vidyasagar on 200th Birth Anniversary", organized by Jhargram Raj College Physics Alumni Association (JRCPAA), in collaboration with: Department of Physics, Jhargram Raj College, Govt. of WB, on 3rd October 2020. Speakers: Prof. Ashokendu Sengupta, Retired Professor, Dept. of Physics, Jhargram Raj College, W.B. and Former Chairperson, WBCPCR, Advisor, Pratichi Trust; Sabyasachi Chakrabotrty, Former HOD & Retired Professor, Dept. of Physics, Jhargram Raj College, W.B; and Nandagopal Patra, Former HOD & Retired Professor, Dept. of Physics, Jhargram Raj College, W.B.
* Convener of the webinar entitled "Career Prospects with a Physics Degree", organized by Jhargram Raj College Physics Alumni Association (JRCPAA), in collaboration with: Department of Physics, Jhargram Raj College, Govt. of WB, on 20th September 2020. Speakers: Prof. Anjan Chaki, Former HOD & Retired Professor, Dept. of Physics, Jhargram Raj College, W.B., and Dr. Shantanu Dhar, Former HOD, Dept. of Physics, Jhargram Raj College, W.B., and Officer-In-Charge, Government General Degree College Salboni, W.B.
* Convener of the webinar entitled "An Overview of Experimental Physics and its Applications", organized by Jhargram Raj College Physics Alumni Association (JRCPAA), in collaboration with: Department of Physics, Jhargram Raj College, Govt. of WB, on 12th September 2020. Speakers: Dr. Chandrakanta Kumar, Senior research Scientist of ISRO, and Dr. Sailajananda Bhattacharya, Former Head, Physics Dept, Variable Energy Cyclotron Centre, Kolkata.
* Convener of the webinar entitled "Innovative Teaching-Learning Strategies for Modern Pedagogy", organized by Jhargram Raj College Physics Alumni Association (JRCPAA), in collaboration with: Department of Physics, Jhargram Raj College, Govt. of WB, on 29th August 2020. Speakers: Dr. Anirban Mukherjee, Principal Project Officer National Digital Library of India IIT Kharagpur; and Dr. Plaban K Bhowmick, Assistant Professor, Centre for Educational Technology IIT Kharagpur
* Convener of the webinar entitled "Career Guidance", organized by Jhargram Raj College Physics Alumni Association (JRCPAA), in collaboration with: Department of Physics, Jhargram Raj College, Govt. of WB, on 1st August 2020. Speakers: Israel Jebasingh (IAS); Debraj Ghosh, WBPS, and Dr. Sajal Dhara, Asst. Prof. Dept. of Physics, IIT Kharagpur.
* Convener of National Level Drawing Competition organized by Jhargram Raj College Physics Alumni Association, Jhargram West Bengal, on the occasion of World Environment Day on 5th June 2020.
* Organizing Committee Member; 10th IEEE EDS Mini Colloquium, National Institute of Science and Technology, Palur Hills, Berhampur, Orissa, 20th February 2020.
* Organizing Committee Member; 6th IEEE EDS Mini Colloquium, National Institute of Science and Technology, Palur Hills, Berhampur, Orissa, 20th February 2016.
* Session Chair; 4th National Conference on Devices and Circuits, National Institute of Science and Technology, Palur Hills, Berhampur, Orissa, 24th February 2018.
* Session Chair; 2nd National Conference on Devices and Circuits, National Institute of Science and Technology, Palur Hills, Berhampur, Orissa, 19th February 2016.
* Summer training (200 hours) course coordinator cum instructor of "Nano Electronics: Design and Fabrication (NEDF)", National Institute of Science and Technology, Palur Hills, Berhampur, Orissa, 18th May-15th June 2018.
* Summer training (200 hours) course coordinator cum instructor of "Nano Electronics: Design and Fabrication (NEDF)", National Institute of Science and Technology, Palur Hills, Berhampur, Orissa, 24th May-20th June 2017.
* Summer training (200 hours) course coordinator cum instructor of "Nano Electronics: Design and Fabrication (NEDF)", National Institute of Science and Technology, Palur Hills, Berhampur, Orissa, 12th May-10th June 2015.

Guest Lecture/Talk

* Guest talk on “Intellectual property rights: Importance & Scope” at Virtual short term Course entitled “Research Trends in Electronics and Communication Engineering-2021” organized by University College of Engineering and Technology, Vinoba Bhabe University, Hazaribag, Jharkhand under TEQUIP III, on 9th February 2021.
* Guest talk on “Modelling and Simulation of Heterojunction Solar Cells” at Virtual short term Course entitled “Research Trends in Electronics and Communication Engineering-2021” organized by University College of Engineering and Technology, Vinoba Bhabe University, Hazaribag, Jharkhand under TEQUIP III, on 8th February 2021.
* Guest talk on "Templated Synthesis of Nanorod Arrays" at International Seminar on Recent Advances in Physics [RAP], organized by Dept. of Physics, Jhargram Raj College & Jhargram Raj College Physics Alumni Association on 21st December 2019.
* Guest talk on " e-Breadboard: A General Purpose DC Emulator", A one day International Seminar on Impact of Physical Science in Society (IPSS), Department of Physics, Jhargram Raj College (Under Vidyasagar University) Jhargram, West Bengal, July 20, 2018.
* Guest talk on "Patents: What You Should Know", 2nd-Physics Alumni Meet, Department of Physics, Jhargram Raj College (Under Vidyasagar University) Jhargram, West Bengal, December 22, 2017.
* Guest talk on "Metal Oxide Semiconductor with High-K Gate Dielectrics", Electronics & Communication Engineering Gandhi Institute for Education & Technology Baniatangi, Bhubaneswar, Khurda – 752060, September 10, 2016.

Faculty Development Program (6 days or more)

### Administrative

**R&D Coordinator:**

National Institute of Science and Technology (Autonomous) Orissa, January 2021-till date.

**Coordinator, Higher-studies:**

National Institute of Science and Technology (Autonomous) Orissa, January 2021-till date.

**Member of Board of Studies (BOS):** Dept. of ECE, National Institute of Science and Technology (Autonomous)

October 2018-till date.

**NBA body for the Department:**

Core member of Dept. of ECE (UG Program under Tier II), National Institute of Science and Technology (Autonomous), during the academic years 2017-2019.

**B.Tech Project Coordinator:**

National Institute of Science and Technology, Palur Hills, Berhampur, Orissa, July 2016-June 2021.

**NIST Student Counselling Service:**

Facult Advisor, National Institute of Science and Technology, Palur Hills, Berhampur, Orissa, July 2014-till date.

### Awards, Achievements

Selected for the **Faculty Excellence Award** by NIST Berhampur, October 2021.

Selected for **INSA Visiting Scientist Program** to conduct research work (2 months) at Dept. of ECE IIT Kharagpur, June 2021.

Selected as a **Non-CSIR Mentor** of CSIR-SUMMER RESEARCH TRAINING PROGRAMME-June-August 2020.

**Chief Minister of Odisha Award** for Startup India Odisha Yatra of the project entitled “Low Cost Flexible Capacitive Pressor Sensor”, Free incubation offer from BIMTECH Noida, April 2018.

* Participated in One Week ISTE approved Online Faculty Development Program on “Intellectual Property Rights” organized by Cummins College of Engg For Women, Hingna, Nagpur, March 07-12, 2022.
* Participated in Two weeks Training Program for Faculty Members on AICTE Students Learning Assessment (PARAKH) in collaboration with CIDC, under the auspices of AICTE, GOI, January 10-23, 2022.
* Participated in One week National e-workshop on Innovation & Intellectual Property Rights, conducted by CSIR-IMMT Bhubaneswar, June 14-19, 2021.
* Completed Eight weeks NPTEL Online Certification course entitled "Roadmap of Patent Creation" with score of 87%, from Jan-Mar 2021.
* Participated in One week Faculty Development Programme on “VLSI Chip Design Hands-on using Open Source EDA” jointly organized by Electronics and ICT Academies through National Knowledge Network under the “Scheme of financial assistance for setting up pf Electronics and ICT Academies” of the Ministry of Electronics and Information Technology (MeitY), Gove of India from 08th to 12th July, 2019.
* Participated in One week Faculty Development Programme on “Robotics & AI” jointly organized by Electronics and ICT Academies through National Knowledge Network under the “Scheme of financial assistance for setting up pf Electronics and ICT Academies” of the Ministry of Electronics and Information Technology (MeitY), Gove of India from 24th to 28th June, 2019.
* Participated in One week Faculty Development Programme on “DSP & Sensors” jointly organized by Electronics and ICT Academics through National Knowledge Network under the “Scheme of financial assistance for setting up pf Electronics and ICT Academies” of the Ministry of Electronics and Information Technology (MeitY), Gove of India from 10th to 14th December, 2018.
* Participated in Two weeks ISST STTP at National Institute of Science and Technology, Palur Hills, Berhampur, Orissa, 761008 on “CMOS, Mixed Signal and Radio Frequency VLSI Design”, Conducted by Indian Institute of Technology Kharagpur, from 26th December to 4th February, 2017.

Conference, Seminar, Workshop (Attended)

* Completed 4 hrs. Distance learning course on “Introduction to the Patent Cooperation Treaty" on 26 July 2020, organized by WIPO ACADEMY.
* Completed 8 hrs. distance learning course on "e-Tutorial on using Patent Information" on 25 July 2020, organized by WIPO ACADEMY.
* Webinar session on Concepts, Innovations and Methods when Chemistry meets Biology, organized by Department of Chemistry, Kharagpur College, Kharagpur, W.B., on 17-07-2020.
* Webinar session on Emerging Trends in Genetic Engineering, organized by Department of Biochemistry/Biotech/Microbiology, Chaitanya Deemed to be University on 30-06-2020.
* Webinar session on Better Understanding of Pandemic COVID-19, organized by IQAC Cell, Kharagpur College, Kharagpur, W.B., on 23-06-2020
* Webinar session on Evolution of Texture in Materials delivered by Dr. Ajit Panigrahi, organized by Department of Mechanical Engineering, NIST Berhampur on 18-06-2020.
* Webinar session on Connecting Engineering to MEP Industry, organized by Dhanush Engg Services Ltd., approved by NSDC, on , on 18-06-2020.
* Webinar session on Materials Characterization using Time of Flight Secondary Ion Mass Spectroscopy (TOF-SIMS) delivered by Dr. Manas Kumar Dalai, organized by Department of Mechanical Engineering, NIST Berhampur on 17-06-2020.
* Participated in 2 days “National Workshop on LATEX” organizes by School of Computer Science & Engineering, National Institute of Science and Technology, Palur Hills, Berhampur, Orissa, held on 24th to 25th November 2017.
* Participated in 2 days workshop on “Innovative Research in Pedagogy for Mini-MOOCs Blended with Instruction Strategies to Enhance Quality of Higher Education” under Newton Bhaba research project by Royal Academy of Engineering, UK at National Institute of Science and Technology, Palur Hills, Berhampur, Orissa, held on 19th & 20th August 2017.
* Participated in 5th IEEE EDS Mini Colloquium, National Institute of Science and Technology, Palur Hills, Berhampur, Orissa, 20th February 2016.
* Participated in 5th IEEE EDS Mini Colloquium, National Institute of Science and Technology, Palur Hills, Berhampur, Orissa, 19th December 2015.
* Participated in “Engineering Faculty Workshop” conducted by National Institute of Science and Technology, Palur Hills, Berhampur, Orissa, 761008 of WIPRO Mission 10X program, 2nd-4th December 2014.

Mentorship in Higher Studies/Research

*The following students were directly mentored to pursue their higher education in Indian and foreign universities during their undergraduate studies at NIST Berhampur. Majority of the students achieved their MS/PhD position in the mentioned universities with partial/full scholarship.*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **SN** | **Name of**  **student** | **Position** | **Branch &**  **Year** | **University with**  **QS Ranking** | **Email of student** | **Current position** |
| 1 | Rohit Raj Padhy | MS | ECE/2023 | NTHU Taiwan-#QS 168 |  |  |
| 2 | S Sovan Kumar | MS | ECE/2023 | NTHU Taiwan-#QS 168 |  |  |
| 3 | Harshit Sourav | MS-PhD | ECE/2023 | IISc Bengaluru-#QS 255 |  |  |
| 4 | Soumya R Dash | MS | ECE/2022 | UPen, USA-#QS 13 |  |  |
| 5 | Debasish Panda | MS | ECE/2022 | IIT Jodhpur | [pdebasish624@gmail.com](mailto:pdebasish624@gmail.com) |  |
| 6 | Abinash Patnaik | MS | ECE/2021 | NCTU Taiwan-#QS 240 | [avinashpattnaik1998@gmail.com](mailto:avinashpattnaik1998@gmail.com) |  |
| 7 | S Mohanty | MS | ECE/2021 | NTU Taiwan-#QS 66 | [msheetikanta@gmail.com](mailto:msheetikanta@gmail.com) |  |
| 8 | Bimalendu Swain | MS-PhD | EEE/2021 | IISc Bengaluru-#QS 255 | [swainbimalendu064@gmail.com](mailto:swainbimalendu064@gmail.com) |  |
| 9 | Darsana Deo | MS | ECE/2021 | NTU Taiwan-#QS 66 | [darsanadeo@gmail.com](mailto:darsanadeo@gmail.com) |  |
| 10 | Shivendra P Singh | MS | ECE/2021 | NTHU Taiwan-#QS 168 | [singhshivendra177@gmail.com](mailto:singhshivendra177@gmail.com) |  |
| 11 | Bishal Kr Nahak | MS | ECE/2021 | NTHU Taiwan-#QS 168 | [nahakbishal@gmail.com](mailto:nahakbishal@gmail.com) |  |
| 12 | Lucky Kr Pradhan | MS | ECE/2021 | NTUST Taiwan-#QS 267 | [kumarlucky8000@gmail.com](mailto:kumarlucky8000@gmail.com) |  |
| 13 | Swosti Choudhury | MS | EEE/2021 | CSU Northfidge | [choudhuryswosti1999@gmail.com](mailto:choudhuryswosti1999@gmail.com) |  |
| 14 | Ajit Dash | PhD | ECE/2020 | UNSW Australia-#QS 44 | [ajitdash58@gmail.com](mailto:ajitdash58@gmail.com) |  |
| 15 | Abhijeet Choudhury | MS | ECE/2019 | NTHU Taiwan-#QS 168 | [abhijeetchoudhury101@gmail.com](mailto:abhijeetchoudhury101@gmail.com) |  |
| 16 | Aditya Sharma | MS | ECE/2019 | NTHU Taiwan-#QS 168 | [saditya56399@gmail.com](mailto:saditya56399@gmail.com) |  |
| 17 | Parkarsh Kumar | MS | ECE/2019 | NTHU Taiwan-#QS 168 | [parkarsh@gapp.nthu.edu.tw](mailto:parkarsh@gapp.nthu.edu.tw) |  |
| 18 | C Binesh Kumar | MS | ECE/2019 | MUAS Germany-#QS1696 | [chinnari@hm.edu](mailto:chinnari@hm.edu) |  |
| 19 | Arbind K Mahto | MS | EEE/2018 | NCTU Taiwan-#QS 240 | [arbind23.08kumar@gmail.com](mailto:arbind23.08kumar@gmail.com) |  |
| 20 | Anupam R Tripathy | MS | EEE/2018 | NTHU Taiwan-#QS 168 | [anupam@gapp.nthu.edu.tw](mailto:anupam@gapp.nthu.edu.tw) |  |
| 21 | Kabita Mahato | MS | EEE/2018 | NCTU Taiwan-#QS 240 |  |  |
| 22 | S Sachin Kumar | MS | ECE/2017 | NTHU Taiwan-#QS 168 | [ssachink1995@gapp.nthu.edu.tw](mailto:ssachink1995@gapp.nthu.edu.tw) |  |
| 23 | Saswati Panda | MS | ECE/2017 | CSU Northfidge | [saswati.panda.582@my.csun.edu](mailto:saswati.panda.582@my.csun.edu) |  |
| 24 | P P Pancham | MS | ECE/2017 | NCTU Taiwan-#QS 240 | [pancham.eic06g@nctu.edu.tw](mailto:pancham.eic06g@nctu.edu.tw) |  |
| 25 | Subha P Mallick | MS | ECE/2017 | NCTU Taiwan-#QS 240 | [subhaprakash118mallick@gmail.com](mailto:subhaprakash118mallick@gmail.com) |  |

Mentorship in National/International Event

* **Smart India Hackathon 2020** winner in Hardware Edition for the project entitled “Glutor: A non-invasive Glucometer” with prize money of **Rs. 100000.00**, Students: P. Panigrahi, D. Panda, S. Patnaik, S. Choudhury, A. Pujari, K D Reddy, February 2021 (Faculty Mentor).
* **SRM Hackathon 5.0** winner in healthcare and forensicfor the project entitled “A non-invasive Glucometer”with prize money **Rs. 20000.00**;Students: K. D. Patro, P. Panigrahi, D. Panda, M Singh, April 2021 (Mentor)
* **Odisha Young Innovation Fund** of **Rs. 100000.00** for the project entitled “CAPRESS: A low cost capacitive pressure sensor”; Students: A Choudhury, Ajit Dash, B.S. Patra, June 2020 (Faculty Mentor).
* Grand Finalist of **Hacksoverflow** **2021**, from Major League Hacking (MLH), USA for the project, “NON-INVASIVE GLUCOMETER” (Faculty Mentor).
* Winner of **Neighborhood hacks 2021** as best hardware project by Digikey, from Major League Hacking (MLH), USA for the project, “NON-INVASIVE PULMOCARBTOR” (Faculty Mentor).
* Winner of IIT Kharagpur **Startup pitching event 2021** amongst 70+ startup pitches in different sectors (Faculty Mentor).

### Referees

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Declaration

*I hereby declare that all the information specified by me is correct to the best of my knowledge.*



Sandipan Mallik

Place: Berhampur