

Dr. HIMADRI TANAYA DAS

MSc., MBA, CSIR-SrF., Ph.D., B.Ed.

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Google Scholar: <https://scholar.google.com/citations?hl=en&user=G60KXfkAAAAJ>

Total citations: 1200

h-index: 28



Research Interests:

It is my growing passion to work with Energy Storage and Conversion Systems and this urges me to pursue research in Hybrid Energy Storage Devices. My research experience has granted me expertise in energy storage and conversion devices for hybrid electronics, which brings me closure to my goal of working towards self-powered energy storage and conversion devices. I aspire to become an accelerator in the field of Renewable Energy resources research with a focus on sustainable environment, so that I may make a meaningful contribution to the **“SDG 7: Affordable and Clean Energy”**.

With a growing need to boost the features of energy storage devices, researches are tending towards high energy density and power density of hybrid energy storage devices which will surpass the existing batteries used in commercial electronics. My emphasis is on experimentally developing electrodes for the batteries and supercapacitors with high energy and power density. In the current ongoing work, our team has seen interesting results that have been published in reputed international journals and also patent.

Apart from my thesis work, I have also worked in recycling different environmental waste materials such as spent batteries and plant wastes. These wastes have been collected and processed to potential electrode materials. Thus, wastes were successfully converted to pertinent energy storage devices and their performances were demonstrated by consumer electronics.

Expertise: Electrochemical Energy storage (Batteries and Supercapacitors)

Focus (Work continuing in other related field): Electrochemical Sensors, Water Splitting, Photocatalytic, Photodiode, Gas sensors, Re-cycling.

Little knowledge on Electrochromic devices, Metal air Battery, Fuel cell, Solar cells, SERS based research work.

Education:

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| 2015-19 | Ph.D. in Physics (specialisation: Green Energy Technology)
Thesis Title: “Nickel Oxide-based Hybrid Energy Storage Devices: Tuning the Energy Density and Power Density” . |
| 2013-15 | M.Sc. in Physics, Specialization in Condensed Matter Physics
CGPA - 8.2/10, 1st Division with Distinction
Pondicherry University, Puducherry, India |
| 2010-13 | B.Sc. [Subjects: Physics (Hons.), Chemistry, Mathematics and Biology]
85 %, 1st Division
Bhadrak Autonomous College, Bhadrak, India |
| 2006-08 | +2 Science [Subjects: Physics, Chemistry, Biology and Mathematics]
72 %, 1st Division
Bhadrak Junior College, Council of Higher Secondary Education, Odisha, India |
| 2008-06 | 10th Class [Subjects: Odia, English, Math, Science, History & Civics and Geography & Economics]
91 %, 1st Division |

Additional qualification:

MBA: General, 2020, Pondicherry University

BE.d: 2022-24, Yogi vemana University

Technical Skills:

Computer Languages: FORTRAN, C

Technical Software Tools: MS Office Tools, MATLAB, OriginPro, Chemdraw

Operating Systems: DOS, Windows, Linux

Teaching/ Guiding Skills:

➤ Guide_GET-M-tech students mentor for M-tech research work and thesis.

➤ Guiding Mphil, MSc. and PhD. students under my Co-ordinator (CAMA, UU, Odisha).

✚ **Teaching Experience: MSc. Physics, Department of physics, Utkal university (2021-present)**

Experiment Technical Skills:

Powder XRD, TG/DTA, FTIR spectroscopy, Raman Spectral analysis, SEM, TEM,

BET analysis, XPS, AFM, UV spectroscopy, VSM, Electrochemical workstation.

Research Projects:

May 2014 - July 2014:

Summer Research Project, S. N. Bose Institute, Kolkata, India

Advisor: Prof. Samir Kumar Pal

Project Title: “**Designing and Fabricating the Solar jacket**”

November 2013- May 2015:

M.Sc. Physics Research Project, Department of Physics, Pondicherry University, Puducherry, India

Project Title: “**Study of magnetic properties of Cobalt oxides with the variation of temperature**”

December 2019- May 2020:

Research Project, Department of Chemical Engineering, Electro-optical Materials Laboratory, NTU University, Taiwan

Project Title: “**Fabricating on energy storage devices: MOST project**”

June 2020- October 2020:

Research Project, Electro-optical Materials Laboratory, Department of Materials and Mineral Resources Engineering, National Taipei University of Technology, Taiwan

Project Title: “**Development of various nanomaterials-based Supercapacitors: MOST project**”

July 2020-present:

Research and development and technical advisor, Graphene based products

Project Title: “**Development of Graphene-based Supercapacitors and scaling up to market level in a cost effective approach: HEXORP project**”.

October 2020- December 2020:

PDF under MOST programme, NTUST, Under Prof. B.J Hwang.

Project Title: “**Developing Li-S solid state Anode free batteries**”

Organising Event:

1. **RAMC-2021**, 2 days National seminar, Center of Excellence for Advanced materials and applications (RUSA) and Department of Chemistry, Utkal University, 2021
2. **AICTE-ATAL-FDP-IARE-2021**, on Energy storage, 2 session's speaker for faculty development programme.

3. **MEPCO-FDP-2021**, on Multifunctional nanomaterials and its applications, invited speaker
4. **AICTE-ATAL-FDP-MVIT-2021**, on Nanoscience and Nanotechnology, 2 session's speaker
5. **AICTE-ATAL-FDP-IARE-2022**, on Energy storage, 2 session's speaker for faculty development programme.
6. **RTIP-2023**, on Materials Science, Physics, invited speaker, Bhadrak college, Bhadrak
***many more invited speaker....*

List of Publications:

1. **Himadri Tanaya Das***, Sreejith P. Babu, Aniruddha Mondal, Nibagani Naresh, Elango Balaji T., Nigamananda Das, 2D-layered graphitic carbon nitride nanosheets for electrochemical energy storage applications, *J. Power Sources*, 2024, 603, 234374, <https://doi.org/10.1016/j.jpowsour.2024.234374>
2. A. Mondal, M. Velpandian, **Himadri Tanaya Das**, A. Sinhamahapatra, Suddhasatwa Basu Fabrication of defective mesoporous cerium oxide nanostructure for promoting an efficient and stable electrocatalytic oxygen evolution reaction, *Next Materials*, 2024, 3, 100169, <https://doi.org/10.1016/j.nxmater.2024.100169>
3. Subhashree Mohapatra, **Himadri Tanaya Das**, Bankim Chandra Tripathy, and Nigamananda Das*, Exploring the Bifunctionality of $\text{Co}_3\text{S}_4/\text{NiS}_2/\text{Cu}_2\text{S}$ Heterojunction Nanocomposites for Hybrid Supercapacitors and Double Z-Scheme-Driven Dye Degradation, *ACS Appl. Nano Mater.* 2024, 7, 3, 3249–3259, <https://doi.org/10.1021/acsanm.3c05600>, I.F.: 7.2
4. S. S. Shah, F. Niaz, **Himadri Tanaya Das**, M. Younas, H. Ur Rahman, S.M. Nayem, Md. Abdul Aziz, Advanced strategies in electrode engineering and nanomaterial modifications for supercapacitor performance enhancement: A comprehensive review, *J. Energy Storage*, 2024, 110152, <https://doi.org/10.1016/j.est.2023.110152>, I.F.:9.5
5. A. Mondal*, **Himadri Tanaya Das***, E. Balaji T, N. Das, M. Afzal, A. K. Giri, A. Sinhamahapatra, K. K. Mandari, Facile Synthesis of Crystalline Molybdenum Carbide (Mo_2C) Nanoparticles Coupled with a N-Doped Porous Carbon Sheet: A Synergistic Effect on the Electrocatalytic Hydrogen Evolution Reaction, *Energy Fuels* 2023, 37, 24, 19801–19811, 2023, <https://doi.org/10.1021/acs.energyfuels.3c03345>, I.F.: 5.5
6. **Himadri Tanaya Das***, Elango Balaji T, Subhashree Mohapatra, Swapnamoy Dutta, Nigamananda Das, M. A. Assiri, Advance Technologies in Biodegradable Flexible Solid-State Supercapacitors: A Mini Review on Clean and Sustainable Energy, *Chem. Rec.*, 2023, <https://doi.org/10.1002/tcr.202300226>, I.F.:6.5
7. **Himadri Tanaya Das***, Swapnamoy Dutta, Kumar Gaurav, Arnab Kanti Giri, Dr. Aniruddha Mondal, Rajesh Kumar Jena, Nigamananda Das, CZTS ($\text{Cu}_2\text{ZnSnS}_4$)-based Nanomaterials in Photocatalytic and Hydrogen Production Applications: A Recent Progress towards Sustainable Environment, *Chem. Asian J.*, 2023 <https://doi.org/10.1002/asia.202300813>, I.F.: 5.1
8. **Himadri Tanaya Das***, S. Mohapatra, B. C. Tripathy, N. Das, Recent Developments in Electrodeposition of Transition Metal Chalcogenides-based Electrode Materials for Advance Supercapacitor Applications: A Review, *Chem. Rec.* 2023, <https://doi.org/10.1002/tcr.202300220> I.F: 6.4
9. **Himadri Tanaya Das**, S. Mohapatra, B.C. Tripathy, N. Das, Heterojunction assembled $\text{CoO}/\text{Ni}(\text{OH})_2/\text{Cu}(\text{OH})_2$ for effective photocatalytic degradation and supercapattery applications. *Environ Sci Pollut Res.* (2023). <https://doi.org/10.1007/s11356-023-29697-x> I.F: 5.8
10. **Himadri Tanaya Das***, Elango Balaji T, Subhashree Mohapatra, Swapnamoy Dutta, Nigamananda Das, Mohammed A. Assiri, Advance Technologies in Biodegradable Flexible

- Solid-State Supercapacitors: A Mini Review on Clean and Sustainable Energy, *Chem. Rec.*, 2023 <https://doi.org/10.1002/tcr.202300226>, I.F: 6.4
11. M Reddy Pallavolu, S. Thomas, B. Ali Al-Asbahi, **Himadri Tanaya Das**, S. Adem, S. W. Joo Scalable synthesis of binder-free hierarchical MnCo₂O₄ nanospikes/Ni(OH)₂ nanosheets composite electrodes for high-capacity supercapatteries, *J. Energy Storage*, 73, Part B, (2023), 108999. <https://doi.org/10.1016/j.est.2023.108999>. I.F: 9.3
 12. S. K. Babu, M. Jayachandran, **Himadri Tanaya Das**, T. Vijayakumar, B. Gunasekaran "MOF-derived porous NiCo₂O₄ nanofile arrays as an efficient anode material for rechargeable Li-ion batteries." *J. Alloys Compd.* 966, 171555, (2023). <https://doi.org/10.1016/j.jallcom.2023.171555> I.F: 6.37
 13. **Himadri Tanaya Das***, and N. Das. "A coactive performance of Ag₂WO₄ nanorods wreathed on the N-doped carbon nanofibers as electrode for electrochemical supercapacitors." *J. Alloys Compd.* (2023): 169243. <https://doi.org/10.1016/j.jallcom.2023.169243>. I.F: 6.37
 14. M. Wael, **Himadri Tanaya Das**, S. S. Shah, M. Sanhoob, A. Anjum, A-R. Al-Betar, M. A. Aziz. "Designing High-performing Symmetric Supercapacitor by Engineering Polyaniline on Steel Mesh Surface via Electrodeposition." *Chemistry–An Asian Journal* (2022). <https://doi.org/10.1002/asia.202201223>. I.F: 4.839
 15. **Himadri Tanaya Das**, L. Yeryeong, Y. Yu, J. Theerthagiri, S. J. Lee, A. Min, G-A. Kim, M. Y. Choi. "Pulsed laser-driven green synthesis of trimetallic AuPtCu nanoalloys for formic acid electro-oxidation in acidic environment." *Fuel* 332 (2023): 126164. <https://doi.org/10.1016/j.fuel.2022.126164>. I.F: 8.035
 16. B. T. Elango, **Himadri Tanaya Das***, T. Maiyalagan, N. Das. "Developing potential aqueous Na-ion capacitors of Al₂O₃ with carbon composites as electrode material: Recycling medical waste to sustainable energy." *J. Alloys Compd.* 931 (2023): 167501. <https://doi.org/10.1016/j.jallcom.2022.167501>. I.F: 6.37
 17. C. Sathishkumar, **Himadri Tanaya Das**, S-M. Chen, M. Govindasamy, R. A. Alshgari, C-H Fan, C-H. Huang. "CoAl₂O₄ nanoparticles modified carbon nanofibers as high-efficiency bifunctional electrocatalyst: An efficient electrochemical aqueous asymmetric supercapacitors and non-enzymatic electrochemical sensors." *J. Alloys Compds.* 931 (2023): 167553. <https://doi.org/10.1016/j.jallcom.2022.167553>. I.F: 6.37
 18. S. Chinnapaiyan, **Himadri Tanaya Das**, M. Govindasamy, A. A. Alothman, M. Ouladsmame, C. H. Huang, Heterogeneous bimetallic (La–Fe) metal-organic-frameworks as an efficient bifunctional Catalyst for High-Performance Supercapacitors and Electrochemical Sensors, *J. Electrochem. Soc.*, 2022 169 106521, DOI 10.1149/1945-7111/ac9b9a I.F: 4.38
 19. A. Qasim, A. Mateen, A. J. Khan, G. E. Eldesoky, A. Idrees, A. Ahmad, **Himadri Tanaya Das**, M Sajjad, M. S. Javed. "Binder-Free Zinc–Iron Oxide as a High-Performance Negative Electrode Material for Pseudocapacitors." *Nanomaterials*, 12, no. 18 (2022): 3154. <https://doi.org/10.3390/nano12183154>. I.F:5.71
 20. MR. Pallavolu, **Himadri Tanaya Das**, YA. Kumar, M. Naushad, S. Sambasivam, JH. Jung, SW. Joo. "Marigold flower-like Sn₃O₄ nanostructures as efficient battery-type electrode material for high-performing asymmetric supercapacitors". *J. Electroanal. Chem.*, 2022 Jul 20:116641. <https://doi.org/10.1016/j.jelechem.2022.116641>. I.F:4.6
 21. J. Theerthagiri, J. Park, **Himadri Tanaya Das**, N. Rahamathulla, ES. Cardoso, AP. Murthy, G. Maia, DV. Vo, MY. Choi. Electrocatalytic conversion of nitrate waste into ammonia: a review. *Environ. Chem. Lett.*, 2022 Jul 9:1-21. <https://doi.org/10.1007/s10311-022-01469-y>. I.F:13.62

22. YA. Kumar, **Himadri Tanaya Das**, PR. Guddeti, RR. Nallapureddy, MR. Pallavolu, S. Alzahmi, IM. Obaidat. Self-Supported $\text{Co}_3\text{O}_4@ \text{Mo-Co}_3\text{O}_4$ Needle-like Nanosheet Heterostructured Architectures of Battery-Type Electrodes for High-Performance Asymmetric Supercapacitors. *Nanomaterials*, 2022 Jul 7;12(14):2330. <https://doi.org/10.3390/nano12142330>. I.F: 5.71
23. **Himadri Tanaya Das***, S. Dutta, Balaji TE, Das N, Das P, Dheer N, Kanojia R, Ahuja P, Ujjain SK. Recent Trends in Carbon Nanotube Electrodes for Flexible Supercapacitors: A Review of Smart Energy Storage Device Assembly and Performance. *Chemosensors*, 2022 Jun;10(6):223. <https://doi.org/10.3390/chemosensors10060223>. I.F:4.23
24. **Himadri Tanaya Das***, S. Dutta, R. Beura, N. Das. Role of polyaniline in accomplishing a sustainable environment: recent trends in polyaniline for eradicating hazardous pollutants. *Environ. Sci. Pollut. Res.* 2022 May 21:1-34. <https://doi.org/10.1007/s11356-022-20916-5>. I.F:5.03
25. RK. Jena, **Himadri Tanaya Das**, BN. Patra, N. Das. MXene-based nanomaterials as adsorbents for wastewater treatment: a review on recent trends. *Front. Mater. Sci.* 2022 Mar;16(1):1-6. <https://doi.org/10.1007/s11706-022-0592-x>. I.F:2.62
26. **Himadri Tanaya Das***, TE. Balaji, S. Dutta, N. Das, T. Maiyalagan. Recent advances in MXene as electrocatalysts for sustainable energy generation: A review on surface engineering and compositing of MXene. *Int. J. Energy Res.* 2022 Jun 10. <https://doi.org/10.1002/er.7847>. I.F:5.2
27. KK. Jaiswal, S. Dutta, CB. Pohrmen, **Himadri Tanaya Das**, N. Jha, M. Verma, W. Ahmad. Bio-fabrication of selenium nanoparticles/micro-rods using cabbage leaves extract for photocatalytic dye degradation under natural sunlight irradiation. *Int. J. Environ. Analy. Chem.*, 2021 Aug 7:1-8. <https://doi.org/10.1080/03067319.2021.1958799>. I.F:2.7
28. **Himadri Tanaya Das***, P. Barai, S. Dutta, N. Das, P. Das, M. Alauddin, HR. Barai. Polymer Composites with Quantum Dots as Potential Electrode Materials for Supercapacitors Application: A Review. *Polymers* 2022 Mar 7;14(5):1053. <https://doi.org/10.3390/polym14051053>. I.F:4.94
29. M. Boomashri, P. Perumal, **Himadri Tanaya Das**, V. Ganesh, IS. Yahia. Effect of Ag on ammonia sensing of nanostructured SnO_2 films at ambient room conditions. *J. Mater. Sci.*, 2022 Apr;57(16):7941-53. <https://doi.org/10.1007/s10853-022-07166-z>. I.F:4.68
30. **Himadri Tanaya Das***, S. Dutta, N. Das, P. Das, A. Mondal, M. Imran. Recent trend of CeO_2 -based nanocomposites electrode in supercapacitor: A review on energy storage applications. *J. Energy Storage*. 2022, 104643. <https://doi.org/10.1016/j.est.2022.104643>. I.F:8.91
31. KK. Jaiswal, S. Dutta, I. Banerjee, CB. Pohrmen, RK. Singh, **Himadri Tanaya Das**, S. Dubey, V. Kumar. Impact of aquatic microplastics and nanoplastics pollution on ecological systems and sustainable remediation strategies of biodegradation and photodegradation. *Sci. Total Environ.* 2022 Feb 1;806:151358. <https://doi.org/10.1016/j.scitotenv.2021.151358>. IF:10.81
32. T. Gnanasekar, **Himadri Tanaya Das**, S. Valanarasu, N. Chidhambaram, RR. Isaac, AM. Al-Enizi, VRM. Reddy. 2022. Enhanced Opto-Electronic Properties Of X-Doped (X= Al, Ga, And In) CuO Thin Films For Photodetector Applications. *J. Mater. Sci.: Mater. Electron.* volume 33, pages18786–18797 (2022), <https://doi.org/10.1007/s10854-022-08728-2>. I.F:2.5
33. S. Vinoth, KH. Prasad, **Himadri Tanaya Das**, K. Ganapathy, S. Nallani, T. Maiyalagan. "Novel Dispersion of 1D Nanofiber Fillers for Fast Ion-Conducting Nanocomposite Polymer Blend Quasi-Solid Electrolytes for Dye-Sensitized Solar Cells." *ACS Omega* (2022), 7, 2, 1658–1670, <https://doi.org/10.1021/acsomega.1c03644>. I.F:4.13
34. SS. Shaheen, **Himadri Tanaya Das**, HR. Barai, Md. Aziz. "Boosting the Electrochemical Performance of Polyaniline by One-Step Electrochemical Deposition on Nickel Foam for High-

- Performance Asymmetric Supercapacitor." *Polymers* 14, no. 2 (2022): 270. <https://doi.org/10.3390/polym14020270>. I.F:4.7
35. T. E. Balaji, **Himadri Tanaya Das**, M. Thandavarayan, "Recent trends in Bimetallic Oxides and their composites as electrodes materials for supercapacitors applications", *ChemElectroChem*, 2021, 1723-1746, vol 8,issue 10. [doi:10.1002/celec.202100098](https://doi.org/10.1002/celec.202100098). I.F:4.8
36. S. Vinoth, **Himadri Tanaya Das**, M. Govindasamy, S-F Wang, Facile Solid-state Synthesis of Layered MoB-based Electrode for Efficient Electrochemical Aqueous Asymmetric Supercapacitor, *J. Alloys Compd.*, 2021, 877,160192. <https://doi.org/10.1016/j.jallcom>. I.F:6.37
37. **Himadri Tanaya Das**, S. Vinoth, T. Alshahrani, S. AlFaify, Tuning the optical, electrical and optoelectronic properties of CuO thin films fabricated by facile SILAR dip-coating technique for photosensing applications, *J. Inorg. Organomet Polym Mater*, 2021, doi.org/10.1007/s10904-021-01928-z.I.F: 4.1
38. K.K. Jaiswal, S. Dutta, I. Banerjee, **Himadri Tanaya Das**, J. Bhaskar, V. Monu, W. Ahmad, Bio-fabrication of selenium nanoparticles/micro-rods using cabbage leaves extract for photocatalytic dye degradation under natural sunlight irradiation, *Int. J. Environ Anal Chem.*, 2021, 31, 2606–2614, doi.org/10.1080/03067319.2021.1958799. I.F:3.2
39. **Himadri Tanaya Das**, S. Saravanya, P. Elumalai, Disposed dry cell as sustainable source for generation of few layers of graphene and manganese oxide for solid-state symmetric and asymmetric supercapacitor applications, *Chemistry Select*, 2018, 3(46), 13275-13283, doi.org/10.1002/slct.201803034. I.F: 2.31
40. E. Duraisamy, **Himadri Tanaya Das**, A. Selvasharma, P. Elumalai, Supercapacitor and photocatalytic performances of hydrothermally-derived Co₃O₄/CoO@ carbon nanocomposite, *New J. Chem.*, 2018, 42, 6114-6124, [doi:10.1039/c7nj04638c](https://doi.org/10.1039/c7nj04638c). I.F:4.12
41. **Himadri Tanaya Das**, K. Mahendraprabhu, T. Maiyalagan, P. Elumalai, Performance of solid-state hybrid energy-storage device using reduced graphene-oxide anchored sol-gel derived Ni/NiO nanocomposite, *Sci. Rep.*, 2017, 7, 15342-15354, [doi: 10.1038/s41598-017-15444-z](https://doi.org/10.1038/s41598-017-15444-z). I.F:4.99
42. Md. S. Uddin, **Himadri Tanaya Das**, T. Maiyalagan, P. Elumalai, Influence of designed electrode surfaces on double layer capacitance in aqueous electrolyte: insights from standard models, *Appl. Surf. Sci.*, 2017, 449, 445-453, [doi:10.1016/j.apsusc.2017.12.088](https://doi.org/10.1016/j.apsusc.2017.12.088). I.F:7.39
43. E. Duraisamy, P. Gurunathan, **Himadri Tanaya Das**, K. Ramesha, P. Elumalai, [Co(salen)] derived Co/Co₃O₄ nanoparticle@carbon matrix as high-performance electrode for energy storage applications, *J. Power Sources*, 2017, 344, 103-110, [doi: 10.1016/j.jpowsour.2017.01.100](https://doi.org/10.1016/j.jpowsour.2017.01.100). I.F:9.72
44. S. K. Kiran, M. Padmini, **Himadri Tanaya Das**, P. Elumalai, Performance of asymmetric supercapacitor using CoCr-layered double hydroxide and reduced graphene-oxide, *J. Solid State Electrochem.*, 2017, 21, 927-938. [doi: 10.1007/s10008-016-3436-8](https://doi.org/10.1007/s10008-016-3436-8). I.F:2.75

Publications in Conference Proceedings:

- (a) **Himadri Tanaya Das** and P. Elumalai, 61st DAE Solid State physics symposium, "Supercapacitor Studies on Ni/NiO Nanocomposites Synthesized by Humble Sol-gel route with Variation of Ni²⁺: CA ratio". *AIP conference proceedings*.
- (b) **Himadri Tanaya Das** and P. Elumalai, "Fabrication of Flexible Energy Storage Device Using MnO₂@ Graphene Composite Synthesised By Electrochemical Exfoliation Method", 2019, Electrochemical Society (ECS).

- (c) **Himadri Tanaya Das**, Cost-Effective and Eco-Friendly Carbon-Based Nanomaterials in Wearable Energy Storage Devices, 2020, ECS Meeting Abstracts, Issue 7, Pages 1137, Publisher, IOP Publishing.
- (d) **Himadri Tanaya Das**, Fabrication of High Performance Asymmetric Energy Storage Device with WO₃@ Graphene By Electrochemical Exfoliation Method, 2019, ECS Meeting Abstracts, Issue 5, Pages 281, Publisher-IOP Publishing.
- (e) **Himadri Tanaya Das**, Cost-Effective and Eco-Friendly Carbon-Based Nanomaterials in Wearable Energy Storage Devices, Electrochemical Society Meeting Abstracts prime 2020, 7, 1137-1137, 2020, Publisher-The Electrochemical Society, Inc. DOI 10.1149/MA2020-0271137mtgabs

Book Chapters

1. Book Title: Low-carbon Supercapacitors: Towards Sustainability in Energy Storage Devices, **Himadri Tanaya Das***; S. Dutta ; T. E. Balaji ; N. Das, Chapter 3: Synthesis Techniques for Green Supercapacitors: A Review, RSC. 2023, DOI: <https://doi.org/10.1039/BK9781837672479-00063>
2. Book Title: Nanomaterials: The Building Blocks of Modern Technology. Smart Nanomaterials Technology, **Himadri Tanaya Das***, S. Dutta, T. Elango Balaji, P. Das, N. Das, Advances in Hybrid Energy and Power Density-based Supercapatteries. In: Khan, T., Jawaid, M., Ahmad, K.A., Singh, B. (eds). Springer, Singapore. (2023). https://doi.org/10.1007/978-981-99-4149-0_9
3. Book Title: Handbook of Porous Carbon Materials. Chapter Title: Carbon Composites with Polymer Materials for Gas Sensing Application. K. Mahendraprabhu, T. Elango Balaji, P. Das, **Himadri Tanaya Das***. pp. 405-421, Springer Nature Singapore, 2023, ISBN: 978-981-19-7187-7, DOI: https://doi.org/10.1007/978-981-19-7188-4_15
4. Book title: Emerging Applications of Nanomaterials, M. Aniruddha, **Himadri Tanaya Das**, S. Mondal, N. Vaishali, RG. Chaudhary. "Emerging Nanomaterials in Energy Storage." 141 (2023): 294-326.
5. Book Title: Defect induced magnetism in Oxide Semiconductors, **Himadri Tanaya Das**, A. Pal, S.P. Babu, D. Joshi, Chapter title: Chemical synthesis for metal oxides. 2023, Elsevier.
6. Book: Biomass-Based Supercapacitors: Design, Fabrication and Sustainability, Chapter: M. Ammar, **Himadri Tanaya Das**, S. Ullah, A. Khan, A. Saeed Hakeem, N. Iqbal, M. Usman, Biomass-derived Carbon and Metal Oxides Composites for Supercapacitors, John Wiley & Sons, vol. 2, issue 3, 2023.
7. Book: Biomass-Based Supercapacitors: Design, Fabrication and Sustainability, Chapter: Biomass-Derived Hard Carbon for Supercapacitors, **Himadri Tanaya Das***, S. Dutta, M. Usman, T. Elango, John Wiley & Sons, 2023.
8. Book: Polymer-Carbonaceous Filler Based Composites for Wastewater Treatment, Chapter: Polymer–MXene Composites for Wastewater Treatment, **Himadri Tanaya Das***, S. Dutta, B T. Elango, N. Das, 2023, 10.1201/9781003328094-11, eBook ISBN9781003328094, CRC Press.
9. Book Title: Handbook of Energy Materials, D. Majumdar, **Himadri Tanaya Das**, Liquid Electrolytes for Supercapacitors. Singapore. https://doi.org/10.1007/978-981-16-4480-1_22-1,2022.
10. Book title: Ceramic Science and Engineering, Basics to Recent Advancements, Elsevier Series on Advanced Ceramic Materials, A. Mandal, **Himadri Tanaya Das**, Chapter: Energy storage batteries: basic feature and applications, 2022, <https://doi.org/10.1016/B978-0-323-89956-7.00008-5>
11. Book Title: Quantum Dots and Polymer Nanocomposites **Himadri Tanaya Das***, S. Dutta, P. Das, N. Das. Chapter: Quantum Dots and Their Polymer Composites for Supercapacitor Applications. pp. 395-411. CRC Press, ISBN: 9781003266518, 2022.
12. Book Title: Handbook of Biodegradable Materials; Chapter: Biodegradable Electrode Materials for Sustainable Supercapacitors as Future Energy Storage Devices, Springer International

Publishing, 2022, **Himadri Tanaya Das***, S. Dutta, TE. Balaji, P. Das, N. Das, GAM. Ali, (2022). https://doi.org/10.1007/978-3-030-83783-9_41-1. (2022).

13. Book Title: 2-D Advanced Functionalized Nanomaterials (Wiley); **Himadri Tanaya Das***, T. E. Balaji, H. P. Kamatam, Chapter: Graphene and its Analogous 2D-Layered Materials for Flexible Persistent Energy Storage Devices in Consumer Electronic, ISBN: 978-3-527-34677-6, 2021.
14. Book Title: Waste-Recycling Technologies for Nanomaterials Manufacturing (*Springer*); **Himadri Tanaya Das***, T. E. Balaji, K.Mahendraprabhu, S.Vinoth, Chapter: Cost-Effective Nanomaterials Fabricated by Recycling the Spent Batteries, page no.-147-174, ISBN: 978-3-030-68031-2, 10.1007/978-3-030-68031-2_6, 2021.
15. Book Title: Flexible devices, **Himadri Tanaya Das***, B. Saravanakumar, A. Shajkumar, L. S. Mende, A. Ramadoss, Chapter: A Trend towards Flexible Supercapacitors: Understanding the Electrodes and Electrolytes. (Submitted 2022)
16. Book Title: Electrochemical Applications of 2D Materials, **Himadri Tanaya Das***, S. P. Baba, N. Naresh, K.H.Prasad, Chapter: Graphitic-Carbon-Nitride for Energy Storage Applications. (Submitted 2022)

Patents

1. **Himadri Tanaya Das**, E. Duraiswamy, P. Elumalai, “Sustainably derived electrodes for Hybrid Energy Storage Device and Lithium-ion Battery, and Fabrication Thereof”, *Indian patents*, 2019, Application No. 201941031761.
2. Indian Patent, K. Hari Prasad, **Himadri Tanaya Das**, S. Valanarasu, N. Satyanarayana, “Electrospun mesoporous PbO nanofibers as a lithium-ion battery anode material”, (provisional application filed 20th August, 2020).
3. Indian Patent, **Himadri Tanaya Das**, K. Hari Prasad, “Graphitic carbon from waste paper by liquid exfoliation for Na-ion capacitor: Waste to Energy”, (Provisional application of March, 2021).

Conferences and Schools/Workshops attended

1. International conference on recent trends in nanomaterials for clean energy, February 16-17, 2019, SVNIT, Gujarat. Oral presentation- *Performances of Ni/NiO decorated on exfoliated MoS₂ nanosheets for Hybrid energy storage devices*, –Best Oral Presentation Award.
2. *Research conclave, Orissa, Utkal University*, - Best presentation Award.
3. Himadri Tanaya Das, Centre of Excellence (CoE), Advanced Materials and Applications (CAMA), ICIFAM-2022, Oral presentation, 16th-17th June 2022, Dambi Dollo University, Ethiopia. *Best oral award in -2022*

*(**Many more have been attended and participated)*

Awards received:

1. Merit Scholarships awarded for academic excellence in MSc. Physics on basis of merit, 2013, Govt. of Orissa, India.
2. i2-CAM school recipient of Research Wavier Award, 2017, IISC, India.
3. Best poster award, 2018 in national symposium, Sathyabama University, India
4. CSIR- senior research fellow (CSIR-Srf) award for Ph.D, 2018-19, Govt. of India
5. Best oral presentation award, 2019 in international conference, SVNIT, India
6. ECS_Student Membership award recipient, 2019-2023, ECS
7. Taiwan short-term program, Research Associate, 2020, MOST, NTU and NTUT, Taiwan
8. RUSA, Pdf. scholarship award, MHRD, Utkal University, 2022, Odisha, India

9. 1st presentation award, Research Conclave, 2022, Odisha, India
10. AMN10, student award, NewZealand, 2022
11. Young scientist award, ICLED International conference, 2023, Singapore.
12. Young scientist award, Odisha Physical Society (OPS), 2024, India
13. Advanced materials award, IAAM fellow summit, 2024

Memberships of Professional Bodies/Societies:

1. Life member, **Electrochemical Society**, India since 2016
2. Life member, **Energy Science Society of India (ESSI)**, India since 2015 (No.:1203201622 L)
3. Life member, **Electron microscopy Society of India**, (EMSI) India since 2018
4. Student member, **Electrochemical Society (ECS)**, Battery Division, USA, 2019 (ECSID-422712)
5. Life member, **Mining Minerals Metals and Materials Society of India (4MSI)**, India, 2021
6. Patron member, **Orissa Chemical Society (OCS)**, India, 2021
7. Life member, **Asian polymer association, APA**, India, 2022
8. **INSc**. Life Member, India, 2023
9. Patron member, **Orissa Physical Society (OPS)**, India, 2023

Other Research Activities:

1. Associate Editorial Board Member of the journal Current Physics, "Chemical Physics" and Frontiers Nanotechnology.
2. Book editor: Nanoheterostructures and its applications, CRC press (under process)
3. Guest editor: Frontiers of Electronic Materials, Frontiers
4. Start-up: Applied for energy storage device prototype to Utkal University Incubation centre.
5. Reviewer of different journals
6. Collaboration: NISER, IIT, CSIR CECRI and IMMT etc.

References:

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