

Anil N. Kulkarni
M.Sc. Ph. D. (Physics)

Assistant Professor,
Department of Physics,
G T Patil, College, Nandurbar
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Research Interest: Nano-materials; 2-D coatings; Nano Hetero-structures; Photovoltaics; Photocatalytic degradation; Bio-Nanotechnology

Professional Snapshots:

- 9 years of experience including academics and research
- Published 14 number of research article in peer reviewed international journals (List attached)
- Instrumental in establishment of research laboratory
- A result oriented professional with a hands-on experience on instruments such as Spin coating, dip coating, SILAR, UV-visible spectrophotometer, solar simulator, EIS etc.
- Adept in curriculum content development

Education:

- **PhD (Physics): K. B. C. North Maharashtra University; Jalgaon; (2016).**
Title: “Synthesis of bismuth and antimony chalcogenides for solar cell applications”
Supervisor: Prof. Rajendra S. Patil, Principal, PSGVPM ASC College, Shahada.
Collaborator: Prof. Habib M Pathan, Advanced Physics Laboratory, Department of Physics, SPPU, Pune.
- **M.Sc. (Physics):** First class, R.Y. K. Science College, Nashik, SPPU, Pune (2010).
- **B.Sc.(Physics):** First Class with distinction, K.B.C. North Maharashtra University; Jalgaon; (2007)

Work Experience:

- **Assistant Professor in Physics, Department of Physics, NTVS’s G. T. Patil College, Nandurbar** (Since August, 2019).
- **Assistant Professor in Physics, Department of Physics, School of Science, Sandip University, Nashik** (Dec., 2016 to July, 2019).
- **Lecturer in Physics, Trinity Polytechnic, Pune** (July, 2014 – Dec., 2016).
- **Assistant Professor in Physics, Maharshi Karve Stree Shikshan Sanstha's Cummins College of Engineering for Women, Pune** (July, 2013 – Mar., 2014).

Research Project (Awarded/Submitted):

| Sr. No | Title of the Project | Agency | Duration | Amount/Status |
|--------|---|---|----------|--------------------------------------|
| 1. | Chemical Solution Synthesis of Silver Nanoparticles to Develop Functional Bioactive Textile | Rajiv Gandhi Science and Technology Centre, Mumbai, Maharashtra | 02 Years | 2,25,000/- (Ongoing) |
| 2. | Development of Nano-heterostructures for Bio-functional Health Wares | SERB, DST | 03 Years | 28,80,440/- (Submitted) |
| 3. | Development of High Surface Area Electrode of Metal Oxide/Graphene Oxide Composite for Super Capacitor Applications | VCRMS, KBCNMU, Jalgaon | 02 Years | 3,00,000/- (Under Evaluation) |

Research Advising and Supervising:

Currently Supervising 02 PhD; 04 M.Sc. and 04 B.Sc. students

| Sr. No | Name of the student | Title of the Project | Date of Registration | Status |
|--------|---------------------|--|--------------------------------|---------------|
| 1 | Nilesh Dilip Jadhav | Development of functional bioactive coatings based on chemically synthesized silver nanoparticles | 02 nd November 2020 | Pursuing |
| 2. | Jayashri Bothra | Development of High Surface Area Electrode based on Metal Oxide/Metal Chalcogenides for Super Capacitor Applications | Nil | Under Process |

Peer-Reviewed Publications:

Google Scholar Profile: (Citations: 113; h-index: 06; i10 index: 04)

<https://scholar.google.co.in/citations?user=qeFMP4EAAA&hl=en>

| Sr. No. | Authors | Title | Name of Journal | Volume | Page | Year |
|---------|--|--|---|--------|--------|------|
| 1 | Vinod S Khairnar, Anil N Kulkarni, Vishal V Lonikar, Anil B Gite, Mirtunjay Kumar, Dipak P Patil, Deepak P Kadam | Electrodeposition of Bi ₂ Te ₃ thin films for thermoelectric applications: effect of electrolyte pH | Journal of Materials Science: Materials in Electronics (Springer Link; I.F- 2.77) | 34 | 875 | 2023 |
| 2 | Rahul A. Wagh, Anil N. Kulkarni, S P Roy, D B Salunkhe, V S Baviskar, M S Shinde, S R Navale, P K Baviskar, R S Patil | Simple chemical route synthesized TiO ₂ /Ag ₂ S heterostructure towards efficient semiconductor sensitized solar cells | Optical Materials (Elsevier; I.F- 3.7) | 125 | 112073 | 2022 |
| 3 | Anil N. Kulkarni, Yogesh V. Marathe, Prafulla S. Patil, Sunil D. Marathe, Subhash D Khairnar, Habib M Pathan; Rajendra S Patil | Chemical Solution Deposition of Sb ₂ Se ₃ Films to Study Their Structural, Morphological and Optical Properties | ES Materials & Manufacturing (Engineered Science; I.F-) | 15 | 96-102 | 2021 |

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|----|--|---|---|------|--------------|--------|
| 4 | Subhash D Khairnar, Anil N. Kulkarni, Sachin G Shinde, Sunil D Marathe, Yogesh V. Marathe, Sanjay D Dhole, Vinod S Shrivastava | Synthesis and characterization of 2-D La-doped Bi ₂ O ₃ for photocatalytic degradation of organic dye and pesticide | Journal of Photochemistry and Photobiology (Elsevier; I.F-2.21) | 6 | 100030 | 2021 |
| 5 | Prafulla S. Patil, Anil N. Kulkarni, Subhash D Khairnar, M.G. Raghuvanshi | Synthesis of Spin Coated Tungsten Oxide for Photocatalytic Degradation of Rhodamine-B Dye | Asian Journal of Chemistry | 7 | 1642-1648 | 2020 |
| 6 | Rahul A. Wagh, Anil N. Kulkarni, Prashant K. Baviskar, Habib M. Pathan, Rajendra S. Patil. | Fabrication of titanium dioxide (TiO ₂) and mercury sulfide (HgS) heterojunction for photoelectrochemical study | Mater. Renew. Sustain. Energy (Springer Link; I.F-4.72) | 7 | 13 | 2018 |
| 7 | Vinod khairnar, Anil Kulkarni, Vishal Lonikar, Anil Gite, R. V. Waghmare | “Nucleation and growth of bismuth telluride dendritic nanostructures via electrodeposition method” | International Journal of Scientific Research and Reviews (I.F-1.53) | 7(4) | 640-651. | (2018) |
| 8 | Sanjay B. Bansode, Ramesh S. Kapadnis, Abu S. Ansari, Vasant G. Wagh, Anil N. Kulkarni, Sampat S. Kale, Habib M. Pathan, | “Indium selenide microrod films: chemical bath deposition from acidic bath” | J Mater Sci: Mater Electron (Springer Link; I.F- 2.77) | 27 | 12351–12356. | 2016 |
| 9 | Anil N. Kulkarni, Sandeep A. Arote, V. A. Tabhane, Habib M. Pathan, Rajendra S. Patil | “Bismuth Sulphide (Bi ₂ S ₃) Sensitized Tin Oxide (SnO ₂) Solar Cells” | Indian Journal Of Physics (Springer Link; I.F- 1.77) | 90 | 887–893. | 2016 |
| 10 | Anil N. Kulkarni, M. B. Rajendra Prasad, Habib M. Pathan and Rajendra S. Patil | “TiO ₂ based solar Cell Sensitized with Nanocrystalline Bi ₂ S ₃ : The Effect of Sensitization Time on Its Photovoltaic Performance” | Applied Nanoscience (Springer Link; I.F- 3.86) | 6 | 567–574. | 2016 |
| 11 | Anil N. Kulkarni, Sandeep A. Arote, V. A. Tabhane, Habib M. Pathan, Rajendra S. Patil | “Photovoltaic Properties of Bi ₂ Se ₃ Sensitized SnO ₂ Photoanode Based Semiconductor Sensitized Solar Cell” | Adv. Sci. Lett (American Scientific; I,F-0.12) | 22 | 876-879. | 2016 |
| 12 | Anil N. Kulkarni, Sandeep A. Arote, Habib M. Pathan, Rajendra S. Patil | “Time dependent synthesis of crystalline Bi ₂ S ₃ and its application for SnO ₂ photoanode based solar cell” | International Journal of Materials Research (De Gruyter; I.F-0.74) | 106 | 314-317. | 2015 |
| 13 | Anil N. Kulkarni, Sandeep A. Arote, | “Room Temperature Synthesis of | Bulletin of Materials | 38 | 493-498. | 2015 |

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|----|--|--|---|----|----------|------|
| | Habib M. Pathan, Rajendra S. Patil | Crystalline Sb ₂ S ₃ and its Application for SnO ₂ based Nanostructured Solar Cell” | Science (Springer Link; I.F- 1.87) | | | |
| 14 | Anil N. Kulkarni, Rajendra M. B. Prasad, Ravi V. Ingle, Habib M. Pathan, Rajendra S. Patil, | “Structural and optical properties of chemically deposited crystalline Sb ₂ S ₃ ” | Optical Materials (Elsevier; I.F- 3.75) | 46 | 536-541. | 2015 |
| 15 | Anil N. Kulkarni, Sandeep A. Arote, Habib M. Pathan, Rajendra S. Patil | “Sb ₂ Se ₃ Sensitized Heterojunction Solar Cells” | Mater. Renew. Sustain. Energy (Springer; I.F- 4.72) | 4 | | 2015 |

Books/Reports/Chapters/General articles:

| Sr. No. | Title of book | Contributory Author | ISBN | Publication | Month/Year |
|---------|-----------------------------------|---------------------------|-------------------|---------------------|---------------|
| 1. | Basic Mechanics | Dr. A. N. Kulkarni | 978-93-5451-796-9 | Nirali Publications | October, 2022 |
| 2. | Dynamics and Properties of Matter | Dr. A. N. Kulkarni | 978-93-5451-795-2 | Nirali Publications | October, 2022 |
| 3. | F.Y.B.Sc. Practical Physics | Dr. A. N. Kulkarni | 978-93-95951-02-9 | Nirali Publications | October, 2022 |

Awards /Educational/Professional Achievements:

- Referee at **State Level Children Science Congress** Sponsored by **DST, Govt. of India** on 3rd December, 2022.
- Invited as a **Young Speaker** to deliver a talk on “**Nano-Materials: Energy Harvesting and Photocatalysis Applications**” at e-International Conference on ES Energy and Environment 27th May to 30th May 2021.
- Invited as a **Resource Person** to deliver a talk in “**State Level Conference INBFEBs-2020**” at Arts, Commerce and Science College, Karanjali, Nashik from 20th to 21st January 2020.
- **Research Supervisor** for M.Phil. and Ph.D. in Physics, **K. B. C. North Maharashtra University; Jalgaon (Since, 2020)**.
- **Adhoc-Member**, Board of Studies in Physics, (2017 to 2019), Sandip University, Nashik.
- **First Prize**, Poster Presentation, **International Conference “ICEMLTS-2018”** held at Sandip University, Nashik.

Outreach Activities:

- Workshop to High-school Students and Teacher Guides on **Micro-Research Project** Work at D. R. High School, Nandurbar by Vatsalya Seva Samiti, Nandurbar; Students from More than **10 Schools (~ 100 students)** attended the workshop.

Administrative Services:

- Member, Research and Incubation Committee
- Co-Ordinator, Criterion VI of NAAC Committee
- Member, Anti-Ragging Committee
- Member, Sports Committee

Conferences/ Workshops: Papers Presented/ Attended:

- Completed “Two week on FDP on Managing Online Classes and Co-creating MOOCs:2.0” organized by Teaching Learning Centre, Ramanujan College, University of Delhi during 18th May to 3rd June 2020.
- Attended “Workshop on Curriculum Development in Physics at T.Y. B.Sc. (CBCS Pattern)” on the behalf of KBCNMU, Jalgaon at PSGVPM’s ASC College, Shahada from 15th to 16th May 2020.
- Attended “NAAC Awareness Programme for Faculty” organized by MMIT Lohgaon, Pune during 8th May to 15th May 2020.
- Attended “International webinar on “Post Covid-19 Lockdown: Opportunities and challenges for education, industry and economy” at Poona College, Pune held on 16th May 2020.
- Attended “Three Day National Workshop on Skill Development for Online Teaching” Organized by IQAC, Bhavan’s College, Andheri (W), Mumbai during 5th May to 7th May 2020.
- Presented Paper (Oral) in an “International Photovoltaic Solar Energy conference: Solar Asia- 2015” held at Savitribai Phule Pune University, Pune from 30th July to 1st August 2015.
- Presented paper (Oral) in an “International conference –Nanocon-14” held at Bharati Vidyapith, Pune from 14th to 15th October 2014.
- Presented paper (poster) in an “International conference-GOLDCT- 2014” held at NMU, Jalgaon from 6th to 8th February 2014.
- Presented paper (poster) in an “International conference-ICSEM-2014” held at Sharda University, Great-Noida, Delhi from 6th to 8th January 2014.
- Presented paper (poster) in an “International conference-NFATM-2013” held at NCL, Pune from 24th to 25th July 2013.

Professional Reference:

1. Dr. Rajendra Shankarrao Patil

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Shahada, Dist: Nandurbar, (Maharashtra), India.

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2. Dr. Habib M Pathan

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