

Name of Teaching Staff : Dr. Narayan S. Karmakar.
Designation : Assistant Professor
Department : General Science and Humanities
(Applied Physics)
Date of Joining the Institution : 02.01.2020
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ORCID : <https://orcid.org/0000-0002-4211-567X>

Publons Researcher ID : <https://publons.com/researcher/AAD-2711-2022>

Qualifications with Class / Grade : Ph.D. (Physics) from University of Mumbai, in 2017.
M.Sc. (Physics) from University of Mumbai, in 2008.
B.Sc. (Physics) from University of Mumbai, in 2006.

Total Experience in Years : **Teaching: 5 years 06 months**
Assistant Professor, D.J. Sanghvi College of Engineering from Jan 2020 - till date.

Assistant Professor, Veermata Jijabai Technological Institute (VJTI), Mumbai from Aug 2018 - Dec 2019.

Visiting Faculty, Mukesh Patel School of Technology Management & Engineering, Mumbai, from Jul 19 – Dec 2019.

Lecturer, Don Bosco institute of technology, Kurla, from Jul 15 to Jan16.

Research: 9 years 4 months

National Centre For Nanoscience and Nanotechnology, and Department of Physics, University of Mumbai.

Papers Published in Journal: : **International 11**
1. Enhanced Sensing Performance of an Ammonia Gas Sensor Based on Ag-Decorated ZnO Nanorods/Polyaniline Nanocomposite, N Karmakar, S Jain, R Fernandes, A Shah, U Patil... - ChemistrySelect, 2023
2. Development of Ni doped ZnO/polyaniline nanocomposites as high response room temperature NO₂ sensor, Materials Science and Engineering: B

- 247(2019), Shilpa Jain, Narayan Karmakar, Akshara Shah, Navinchandra G Shimpi
3. Ammonia detection of 1-D ZnO/polypyrrole nanocomposite: effect of CSA doping and their structural, chemical, thermal and gas sensing behavior, *Applied Surface Science* 396 (2017) 1317– 1325, Shilpa Jain, Narayan Karmakar, Akshara Shah, D.C. Kothari, Satyendra Mishra, Navinchandra G Shimpi.
 4. Room temperature NO₂ gas sensing properties of p-toluenesulfonic acid doped silver-polypyrrole nanocomposite, *Sensors and Actuators B* 242 (2017) 118–126, N. Karmakar, R Fernandes, Shilpa Jain, U.V. Patil, Navinchandra G. Shimpi, N.V. Bhat, D.C. Kothari.
 5. Synthesis of ZnO nanopencils using wet chemical method and its investigation as LPG sensor, *Applied Surface Science* 390 (2016) 17–24, Navinchandra G. Shimpi, Shilpa Jain, Narayan Karmakar, Akshara Shah, D.C. Kothari, Satyendra Mishra.
 6. NH₃ sensing properties polyaniline: TiO₂ nanorods heterostructure, *American Institute of Physics Conf. Proc.*, 1731, 050033 (2016)., U. V. Patil, Niranjana S. Ramgir, A. K. Debnath, N. Karmakar, D. K. Aswal, D. C. Kothari, S. K. Gupta.
 7. Effect of Fe modification on H₂S sensing properties of rheotaxially grown and thermally oxidized SnO₂ thin films, *Materials Chemistry and Physics* 156 (2015) 227-237, Niranjana S. Ramgir, N. Datta, Suresh Kumar, S. Kailasaganapathi, U.V. Patil, N. Karmakar, M. Kaur, A.K. Debnath, D.C. Kothari, D.K. Aswal, S.K. Gupta.
 8. Room temperature ammonia sensor based on copper nanoparticle intercalated polyaniline nanocomposite thin films, *Applied Surface Science* 339 (2015) 69–74 U.V. Patil, Niranjana S. Ramgir, N. Karmakar, A. Bhogale, A.K. Debnath, D.K. Aswal, S.K. Gupta, D.C. Kothari.
 9. Synthesis of Nanocomposites of Polyvinyl Alcohol with Silver Nanoparticles and Their Use, *International Journal of Nanoscience* Vol. 12, No. 4 (2013) 1350029. N. V. Bhat, N. S. Karmakar and D. C. Kothari.
 10. Synthesis and Characterization of Polymeric Composites Embedded with Silver Nanoparticles *World Journal of Nano Science and Engineering*, 2012, 2, 19-24 Hemant K. Chitte, Narendra V. Bhat, Narayan S. Karmakar, Dushyant C. Kothari, Ganesh N. Shinde.
 11. 10. Ammonia Sensing Properties of Silver nanocomposites with Polypyrrole *American Institute of Physics Conf. Proc.*, 1512, (2013) 294, N. Karmakar, N.V. Bhat, D.C. Kothari.

Papers Presented in Conferences

International 02

1. OL 27 Effect of Sb³⁺ Doping on the Photoreduction Performance of Cd_{1-x}Hg_xS (X=0.08) based Electrochemical cells, *International conference on Advanced Materials and Nanotechnology for sustainable Development* October 21st -23rd 2011, S.A. Lendave, S.T. Mane, P.C. Pingale, R.V. Suryawanshi, N.S. Karmakar, D.C. Kothari and L.P. Deshmukh.
2. Nanotechnology for the Functional Finishing of Fabrics, *Proceedings of 2nd National conference on Nanomaterials and Nanotechnology* 2009, N.V. Bhat, D.C. Kothari, N. Karmakar.

Area of Specialization	Gas sensors Polymer nanocomposite
PhD Guide ? Give field & University	: <u>Field:</u> — <u>University:</u>
PhDs / Projects Guided	: <u>PhDs :</u> — <u>Projects</u> at <u>Masters level:</u>
Books Published / IPRs / Patents	: Books (Editors — for conference Proceedings on Springer)
Professional Memberships	: —
Grants fetched	: Minor Research — Grant (University of Mumbai)
Other Achievements and Responsibilities:	Awarded “Bruker Nano Surfaces Scholarship award” of One lakh rupees in the year 2013

Scientific experience

As a Scientific Assistant was in charge of installation, maintenance and operation of the sophisticated equipment's at the Nanocenter and giving hands-on experience to students and researchers on these equipment's as mentioned below:-

- Scanning Electron Microscope from FEI Quanta 250 and Inspect F 50.
- Transmission Electron Microscope from FEI Tecnai™ G2 F30.
- Dual Beam Scanning Electron Microscope from FEI Versa 3D.
- Scanning Probe Microscope, from Di Innova, Bruker.
- Surface Profilometer, Dektak 150, from Bruker.
- Atomic Force Microscope, Caliber, from Bruker.
- Nano Hardness Tester, Ultra Nano hardness Tester, from CSM Instruments.
- FT-IR Spectrophotometer with Imaging, from Varian, 620-IR and 660-IR.
- Particle Size Analyser and zeta potential measurement, from Microtrac.
- Fluorescence Spectrophotometer from Varian, Cary Eclipse.
- UV-Vis-NIR Spectrophotometer from Varian, Cary 5000.
- Nano Tribometer from CSM Instruments.
- Raman inVia Microscope from Renishaw.

Administrative experience

- Coordinating the purchase of high end fabrication and characterization equipment worth Rs 60 crores with the University of Mumbai authorities and the vendors. Having profound knowledge of tenders, letter of credits, quotations, customs clearance and newspaper advertisement as per government purchase procedure.
- Coordinated with architects, engineers, vendors and contractors for setting up India first dedicated Carbon dating facility 1.0 MV Tandetron for Accelerator Mass Spectrometers labs in Department of Physics, University of Mumbai.

Interaction with Professional Institutions	<p>: Guest Lectures:</p> <ul style="list-style-type: none"> • Software on Graphing and analysis using Origin Pro software at Jai Hind College, Mumbai, on 08th Jun 221. • Introduction to four generations of solar cells to Xavier Institute of Engineering, Mahim, on 4th April 2021 <p>Research Methodology to Don Bosco Institute of Technology, faculties on Mumbai, 23rd Sep 2017.</p>
Subjects Taught	<p>UG Level: Engineering Physics F.Y. B. Tech</p> <p>PG Level: --</p>
Projects Guided	<p>: UG Level: --</p> <p>PG Level: --</p>
Recommended Students for Higher Education	<p>Name of the University/Industry Student</p> <p>-- --</p>
Institute/Department Responsibility handled:	<p>Member of admission committee for first year of engineering</p>
Pedagogy Development	<p>--</p>