


Biodata

Name	Dr. Bharat B. Kale 
Designation	Scientist G, Director (A), Director General (Additional Charge)
Educational qualification	M.Sc from University of Pune, Pune. Ph.D from National Chemical Laboratory, Pune.
Research area	Nanostructured advanced Materials, Photonic materials, Solar cells, Thermoelectrics, Lithium ion, Lithium air Battery, Na-ion, Na-air Batteries, Hydrogen production from Semiconductors, Quantum dots in glasses, polymers, Nanocomposites, Chalcogenide materials and glasses, Magnetic materials, Super capacitor materials, Hydrogen storage materials, fuel cell materials and catalysts
Recognised Awards/Honors/ Fellow	<ul style="list-style-type: none"> • Fellow of Royal Society of Chemistry (FRSC), London. • Fellow of Asian Pacific Advanced Material Society (APAM) Academician, Singapore. • Young Scientist Boyscast Fellowship Award (1996) • Life Member of Materials Research Society of India (MRSI). • Vice Chairman, MRSI (Pune Chapter) • Fellow of Maharashtra Academy of Science (FMASc) • Secretary of Maharashtra Academy of Science (MASc) • MRSI Gold Medal Award 2010, Bangalore. • Editorial board member of Metals and Materials International - Springer • Award of the Year 2013 on Photocatalysis by KRICT, Daejeon South Korea: 6th July 2013. • Royal Society of Chemistry International collaboration 2017 proposal award with University of Leeds
Projects	<p>Number of projects completed: 27 till 2015</p> <p>Projects of recent 5 years</p> <p>Ongoing</p> <ol style="list-style-type: none"> 1. Centre of Excellence in Rechargeable Battery Technology (Pre-Cell) (Sponsored by MeitY, Outlay: Rs. 2087.67 lakhs DoS: 13.09.2019; DoC: 12.09.2024) 2. Development of hybrid battery power module with indigenously developed Supercapacitor and Li-ion cell (Sponsored by MeitY, Rs. 69.70, MeitY DoS: 11.02.2019; DoC: 10.02.2021) 3. Development of Nanostructured NMC as a cathode material for Rechargeable Lithium Ion Battery (Sponsored by VSSC, Rs. 25.54, DoS: 08.11.2018; DoC: 07.11.2021) 4. Engineering of a Q-dot Based Solar Radiation Harvester for Enhanced Water Evaporation and Nano Filtration (Sponsored by The Royal Society of Chemistry, UK, Rs. 25.85, DoS: 06.08.2018; DoC: 05.08.2021) 5. Three-Dimensional Nanostructure based Miniaturized and Flexible rechargeable lithium batteries for flexible electronics (Sponsored by MeitY, Rs. 454.10, DoS:

	<p>05.06.2018; DoC: 04.06.2021)</p> <p>6. Novel Nanostructured High-Performance Anode materials for High Energy Na-ion Batteries (Sponsored by DST, Rs. 68.27, DoS: 30.11.2017; DoC: 29.11.2020)</p> <p>7. Flexible solid state super capacitor device. (Project in collaboration with NIT, Nagpur) (Sponsored by DST, Rs. 60.64, DoS: 01.07.2017; DoC: 29.07.2020)</p>
<p>Publications/ Patents (Past 5 years)</p>	<p>1. Number of Patents granted till 2014: 20</p> <p>1. B. B. Kale, M. V. Kulkarni, R. P. Panmand, U. V. Kawade, S. K. Apte, S. D. Naik, J. D. Ambekar, R. S. Sonawane, D. P. Amlanerkar, N. Shroff, S. Chatterjee X-ray shielding material and method of preparation thereof <i>US Patent</i>, 2018, 9881707</p> <p>Publications:</p> <p>1. R. P. Panmand, S. P. Tekale, K. D. Daware, S. W. Gosavi, A. Jha, B. B. Kale* Characterisation of spectroscopic and magneto-optical faraday rotation in Mn²⁺- doped CdS quantum dots in a silicate glass, <i>J. Alloys Comp.</i> 2019, 152696.</p> <p>2. B. B. Kale*, S. Chatterjee* Electrochemical energy storage systems: India perspective, <i>Bull. Mater. Sci.</i> 2020, 43, 1-15.</p> <p>3. S. More, N. Khupse , M. Bhosale, J. Ambekar, M. Kulkarni. B. Kale, Hierarchical Nanostructured Benzoic Naphthalene Tetracarboxylic Di-imide Organic Cathode for Lithium Ion Battery, <i>ChemistrySelect</i>2020, 5, 2157-2163.</p> <p>4. A. A. Ambalkar , R. P. Panmand , U. V. Kawade , Y. A. Sethi , S. D. Naik , M. V. Kulkarni , P. V. Adhyapak , B. B. Kale* Facile synthesis of SnO₂@carbon nanocomposite for lithium ion battery, <i>New J. Chem.</i>, 2020,44, 3366-3374.</p> <p>5. U. V. Kawade, S. R Kadam, M. V. Kulkarni, B. B Kale* Synergic effect of decoration of Nickel Oxide nanoparticles on Silicon for enhanced electrochemical performance in LIBs <i>Nanoscale Adv.</i>, 2020, 2, 823-832.</p> <p>6. A. K. Kulkarni, M. S. Tamboli, D. Y. Nadargi, Y. A. Sethi, S. S. Suryavanshi, A. V. Ghule, B. B. Kale*, Bismuth molybdate (α-Bi₂Mo₃O₁₂) nanoplates via facile hydrothermal and its gas sensing study, <i>J. Solid State Chem.</i> 2020, 281,121043.</p> <p>7. A. R. Gunjal, U. P. Chothe, Y. A. Sethi, R. P. Panmand, J. D. Ambekar, M. V. Kulkarni, M. A. More, B. B. Kale* Micro Flowers of SrS/Bi₂S₃ Nanocomposite and Its Field Emission Properties <i>J. Composites Sci.</i> 2019, 3, 105.</p> <p>8. Y. A. Sethi, A. K. Kulkarni, S. K. Khore, R. P. Panmand, S. C. Kanade, S. W. Gosavi, M. V. Kulkarni*, B. B Kale*, Plasmonic Ag decorated CdMoO₄ as an efficient photocatalyst for solar hydrogen production, <i>RSC Adv.</i>, 2019, 9, 28525–28533.</p> <p>9. S. R. Kadam, S. W. Gosavi, B. B. Kale*, N. Suzuki, C. Terashima, A. Fujishima, Unique CdS@MoS₂ Core Shell Heterostructure for Efficient Hydrogen Generation Under Natural Sunlight <i>Scientific reports</i>, 2019, 9, 1-10.</p> <p>10. K. M. Samb-Joshi, Y. A Sethi, A. A. Ambalkar, H. B. Sonawane, S. P. Rasale, R. P. Panmand, R. Patil, B. B Kale*, M. G. Chaskar Lignin-Mediated Biosynthesis of ZnO and TiO₂ Nanocomposites for Enhanced</p>

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12. S. Thawarkar, T. Nirmale, S. More, J. D. Ambekar, **B. B. Kale***, N. D. Khupse, Ionic Liquid Responsive Phase Transfer of Gold Nanoparticles: Anionic Metathesis, 2019, **35**, 9213-9218.
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18. G. Kale, S. Arbuj, U. Kawade, S. Kadam, L. Nikam, **B. B. Kale*** Paper templated synthesis of nanostructured Cu–ZnO and its enhanced photocatalytic activity under sunlight, *J. Mat Sci: Materials in Electronics*, **2019**, 30, 7031–7042.
19. S. D. Balgude, Y. A. Sethi, **B. B. Kale**, D. P. Amalnerkar, P. V. Adhyapak*, ZnO decorated Sn₃O₄ nanosheet nano-heterostructure: a stable photocatalyst for water splitting and dye degradation under natural sunlight, *RSC Adv.*, **2019**, 9, 10289-10296.
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