Dr. Virendrakumar G. Deonikar

Postdoctoral Researcher

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EDUCATION

2017-2020 **Ph.D. in Energy Science and Technology, major in Materials Science**

Myongji University, Natural Science Campus, 116 Myongji-ro; Cheoin-gu, Yongin-si, Gyeonggi-do, South Korea

August 2020, GPA: 4.38/4.50

- **Research Assistant** in Department of Energy Science and Technology; under the supervision of Professor Hern Kim

- **Doctoral dissertation:**
  Synthesis of Morphology-controlled Silver-based Nanocatalysts and their Applications for Energy Conversion and Wastewater Treatment

2014-2015 **Bachelor of Education (B.Ed.), major in Science and Mathematics**

Swami Ramanand Teerth Marathwada University, Vishnupuri, Nanded, Maharashtra 431606, India

July 2015 (graduate), First class with distinction

2012-2014 **Master of Science (M.Sc.) in Physics, major in Materials Science**

Savitribai Phule Pune University (Formerly University of Pune), Ganeshkhind Road, Pune, Maharashtra 411007, India

July 2014 (graduate), First class

- **Thesis:** Synthesis, magnetic and optical properties of aluminium incorporated NiCo nanoferrites by auto-combustion technique

2009-2012 **Bachelor of Science (B.Sc.), major in Physics**

Swami Ramanand Teerth Marathwada University, Vishnupuri, Nanded, Maharashtra 431606, India

July 2012 (graduate), First class with distinction

WORKING EXPERIENCE

2020-Present **Postdoctoral Researcher**, Environmental Waste Recycle Institute (EWRI), Department of Energy Science and Technology (DEST), Myongji University, Yongin, South Korea

2017-2020 **Research Assistant**, Myongji University Natural Science Campus Department of Energy Science and Technology, Yongin, South Korea

- Laboratory for Advanced Materials Processing (LAMP)
- Smart Living Innovation Technology Centre
- **Research Focus:** Advanced materials processing of nano materials for electrochromic, hydrogen production, Toxic pollutant decontamination, oil-water separation, catalytic reduction, magnetic, piezoelectric applications.

2015-2017 **Research Assistant**, Centre for Materials for Electronics Technology (C-MET), Research Institute, Ministry of Electronics and Information Technology (MeitY), Govt. of India, Pune, India

- Development of smart nanomaterials and research on their applications
- Experiments and research according to protocols laid out by supervisor
- Maintenance of laboratory equipment and inventory
- Handling of characterization equipments
- Collection of experimental data and presentation slides and posters
- Literature search and research paper drafting
- Participation in conferences for paper and poster presentations
- Guidance to academic B.Sc., B.E., M.Sc. project students

PUBLICATIONS

- **V.G. Deonikar**, J.M. C. Puguan, Hern Kim, Ag nanoparticles embedded defective tungsten oxide hydrate thin films for the enhanced electrochromic performance: Insights on the Physico-chemical properties and localized surface plasmon resonance mechanism, *Acta Materilia*, 207, 116693, (2021 April). SCI IF=8.203. **First-author**

- **V.G. Deonikar**, R.B. Mujmule, D.R. Patil, H. Kim, Efficient decontamination of toxic phenol pollutant using $LaCO_3OH$ nanowires decorated Ag_3PO_4 hierarchical composites mediated by metallic Ag, *Science of The Total Environment,* 675, 325-336 (2019 July). SCI IF=7.963. **First-author**

- **V.G. Deonikar**, P.V. Rathod, A.M. Pornea, J. M. C. Puguan, K. Park, Hern Kim, Hydrogen generation from catalytic hydrolysis of sodium borohydride by a Cu and Mo promoted Co catalyst, *Journal of Industrial and Engineering Chemistry,* 86,167-177, (2020 June). SCIE IF=6.064. **First-author**

- **V.G. Deonikar**, P.V. Rathod, A.M. Pornea, Hern Kim, Superior decontamination of toxic organic pollutants under solar light by reduced graphene oxide incorporated tetrapods-like $Ag_3PO_4/MnFe_2O_4$ hierarchical composites, *Journal of Environmental Management,* 256, 109930 (2020 February). SCI IF=6.789. **First-author**

- **V.G. Deonikar**, V.D. Kulkarni, S.M. Rathod, Hern Kim, Fabrication and characterizations of structurally engineered lanthanum substituted nickel-cobalt

ferrites for the analysis of electric and dielectric properties, *Inorganic chemistry communications,* 119, 108074 (2020 September) SCI IF= 2.495 **First author**

- A.M. Pornea, JM.C. Puguan, **V.G. Deonikar**, Hern Kim, Robust Janus nanocomposite membrane with opposing surface wettability for selective oil-water, *Separation and Purification Technology* 236, 116297 (2020 April). SCIE IF=7.312. **Co-author**

- P.V. Rathod, **V.G. Deonikar**, JM.C. Puguan, Hern Kim, Synthesis of biomass-based amines: metal-free catalytic reductive amination of xylose and biomass-derived carbonyl compounds using pyridine-based ionic liquid/triethoxysilane, *Fuel* (2020 March) SCI IF=6.609. **Co-author**

- A. M. Pornea, JM. C. Puguan, **V.G. Deonikar**, Hern Kim, Fabrication of multifunctional wax infused porous PVDF film with switchable temperature response surface and anti corrosion property, *Journal of Industrial and Engineering Chemistry, 82,*211-219 (2020 February 25), SCIE IF=6.064, **Co-author**

- **V. G. Deonikar**, K. K. Reddy, Wook-Jin Chung, Hern Kim, Facile synthesis of Ag_3PO_4/g-C_3N_4 composites in various solvent systems with tuned morphologies and their efficient photocatalytic activity for multi-dye degradation, *Journal of Photochemistry and Photobiology A: Chemistry 368*, 168-181 (2019 January 1). SCI IF = 4.291 **First-author**

- R. B. Mujmule, P. V. Rathod, **V. G. Deonikar**, Hern Kim, Synergistic effect of a binary ionic liquid/base catalytic system for efficient conversion of epoxide and carbon dioxide into cyclic carbonates, *CO_2 utilization*, *33*, 284-291 (2019 October) SCI IF=7.132, **Co-author**

- V. Hiremath, **V. G. Deonikar**, Hern Kim, Jeong Gil Seo, Hierarchically assembled porous TiO_2 nanoparticles with enhanced photocatalytic activity towards Rhodamine-B degradation, *Colloids and Surfaces A: Physicochemical and Engineering Aspects, 586*, 124199 (2020 February) SCI IF= 4.539, **Co-author**

- **V. G. Deonikar**, S.S. Patil, M.S. Tamboli, J.D. Ambekar, M.V. Kulkarni, R. P. Panmand, G. G. Umarji, M. D. Shinde, S. B. Rane, N. R. Munirathnam, D. R. Patil, B. B. Kale, Growth study of hierarchical Ag_3PO_4/$LaCO_3OH$ heterostructures and their efficient photocatalytic activity for RhB degradation, *Physical Chemistry Chemical Physics* 19 (31), 20541-20550 (2017 June) SCI IF= 3.676, **First-author**

- S. R. Gawali, V. L. Patil, **V. G. Deonikar**, S. S. Patil, D. R. Patil,, P. S. Patil,, J. Pant, Ce doped NiO nanoparticles as selective NO_2 gas sensor, *Journal of Physics and Chemistry of Solids* 114, 28-35 (2018 March) SCI IF=3.995, **Co-author**

- S. S. Patil, D. P Dubal, **V.G. Deonikar**, M. S. Tamboli, J. D. Ambekar, P. Gomez Romero, S. S. Kolekar, B. B. Kale, D. R. Patil, Fern-like rGO/$BiVO_4$ hybrid nanostructures for high-energy symmetric supercapacitor, *ACS Applied Materials & Interfaces*, 8, 46, 31602–31610 (2016 November) SCI IF=9.229, **Co-author**

- M.S. Tamboli, D. P. Dubal, S. S. Patil, A. F. Shaikh, **V. G. Deonikar**, M. V. Kulkarni, N. N. Maldar, P. Gomez Romero; B. B. Kale, D. R. Patil, Mimics of Microstructures of Ni substituted $Mn_{1-x}Ni_xCo_2O_4$ for high energy density asymmetric capacitors, *Chemical Engineering Journal*, 307, 300-310 (2017 January) SCI IF=13.273, **Co-author**

- S. S. Patil, M. S. Tamboli, **V. G. Deonikar**, G. G. Umarji, J. D. Ambekar, M. V. Kulkarni, B. B. Kale, S. S. Kolekar, D. R. Patil, Magnetically separable Ag_3PO_4/$NiFe_2O_4$ composites with enhanced photocatalytic activity, *Dalton Transactions* 44 (47), 20426-20434 (2015 October) SCI IF=4.390, **Co-author**

- S.R. Gawali, D.P. Dubal, **V.G. Deonikar**, S.S. Patil, S.D. Patil, P. Gomez-Romero, D. R. Patil, J. Pant, Asymmetric supercapacitor based on nanostructured Ce-doped NiO (Ce: NiO) as positive and reduced graphene oxide (rGO) as negative electrode, *Chemistry Select* 1 (13), 3471-3478 (2016 august) SCI IF=2.109, **Co-author**

- S. S. Patil, M. G. Mali, A. Roy, M. S. Tamboli, **V. G. Deonikar**, D. R. Patil, M. V. Kulkarni, S. S. Al-Deyab, S. S. Yoon, S. S. Kolekar, B. B. Kale, Graphene-wrapped Ag_3PO_4/$LaCO_3OH$ heterostructures for water purification under visible light, *Journal of energy chemistry* 25 (5), 845-853, (2016 September), SCIE IF=9.676, **Co-author**

- S.D. Patil, S.S. Patil, **V.G. Deonikar**, K. Y. Rajpure, A.M. Shaikh, Enhanced magnetoelectric effect in Metglas/K $NaNbO_3$/metglas lead-free ME laminates, *Functional Materials Letters* 10 (02), 1650076 (2017 April), SCIE IF= 2.170, **Co-author**

- S.M. Rathod, **V.G. Deonikar**, P.P. Mirage, Synthesis of nano sized cerium doped copper ferrite, their magnetic and optical studies, *Advanced Science Letters* 22 (4), 964-966, (2016 April), IF=0.274, **Co-author**

- S.M. Rathod, **V.G. Deonikar**, R.R. Shah, P.P. Mirage, Synthesis, magnetic and optical properties of $Ni_{0.5}Co_{0.5}Al$ nanoferrite by autocombution technique, *International Journal of Engineering Research & Technology* 3 (5), 1486-1489, IF=7.870, **Co-author**

SUBMITTED RESEARCH ARTICLES

- **V.G. Deonikar**, Hern Kim, A synergistic and unique corrosive/non-corrosive integrated impacts of waste recycled and activated multi-Al composites for enhanced hydrogen generation: Insights on structural, physical properties and hydrolysis mechanism, *Applied Surface Science*, (Rebootal revision) SCI IF=6.707, **First author**

RESEARCH ARTICLES IN PREPARATION

- **V.G. Deonikar**, Hern Kim, The structural modification through generated microstrain in $WO_3.0.33H_2O$ thin films with the support of Cu/Zn/Al/Sm metals for enhanced photochromic and thermochromic performance, **First author**

CONFERENCE PRESENTATIONS

- **V.G. Deonikar**, Hern Kim, Fabrication and properties of in -situ polymerized polyurea microcapsules for robust reversible photochromic and energy storage performances, *The Polymer Society of Korea 2021 Fall Meeting*, Gyeongju, Republic of Korea, Oct 20-22, 2021 **(Poster presentation)**

- **V.G. Deonikar**, Hern Kim, The structural modification through generated microstrain in $WO_3.0.33H_2O$ thin films with the support of Cu/Zn/Al/Sm metals for enhanced photochromic and thermochromic performance, *Korean Society of Industrial and Engineering Chemistry Spring 2021 (KSIEC 2021)*, Busan, Republic of Korea, May 12-14, 2021 **(Poster presentation)**

- **V.G. Deonikar**, Hern Kim, Highly efficient hydrolysis of recycled waste aluminium (Al) cans and their activated composites with robust galvanic corrosion, *European Materials Research Society (E-MRS-2021)* Virtual Conference, May 31-June 03, 2021, France **(Poster presentation)**

- **V.G. Deonikar,** J. M. C. Puguan, Hern Kim, Tailored nanoscale properties of Ag nanoparticles incorporated $WO_3 \cdot 0.33H_2O$ nanohybrids and their efficient electrochromic device applications, *The Korean Institute of Chemical Engineers, (KICHE 2020 e-conference),* October 14-16, 2020 **(Poster presentation)**

- **V.G. Deonikar,** Hern Kim, Investigation of electric and dielectric properties of La^{3+} doped and structurally engineered Ni-Co nanoferrites, *The Korean Institute of Chemical Engineers, (KICHE 2020 e-conference),* October 14-16, 2020 **(Poster presentation)**

- **V. G. Deonikar**, Hern Kim, Synergistic effect of marigold-like $CoCuMoO_4$ microspheres for efficient hydrogen generation via hydrolysis of $NaBH_4$, *The Korean Society of Industrial and Engineering Chemistry 2019 (KSIEC 2019),* Jeju, South Korea, October 30-November-1, 2019 **(Poster presentation)**

- **V. G. Deonikar**, J. M. C. Puguan, Hern Kim, Optimized properties and electrochromic performance of WO_3 based nanohybrids, *The Korean Society of Industrial and Engineering Chemistry 2019 (KSIEC 2019),* Jeju, South Korea, October 30-November-1, 2019 **(Poster presentation)**

- **V. G. Deonikar**, Hern Kim, Mimics of Cu Substituted $Co_{1-x}Cu_xMoO_4$ nanohybrids as efficient catalyst for hydrolysis of $NaBH_4$, *The Korean Society of Industrial and Engineering Chemistry 2019 (KSIEC 2019)*, Busan, South Korea, May 1-3, 2019 **(Poster presentation)**

- **V. G. Deonikar**, Hern Kim, A new approach for fabricating magnetically separable rGO/Ag_3PO_4/ $MnFe_2O_4$ heterostructure photocatalysts with enhanced photocatalytic activity, *The Korean Society of Industrial and Engineering Chemistry 2018 (KSIEC 2018)*, Jeju, South Korea, October 31-November 02, 2018 **(Poster presentation)**

- **V. G. Deonikar**, Hern Kim, Enhanced photo-stability and photocatalytic activity of Ag_3PO_4/g-C_3N_4 composite photocatalysts via modification with the solvent system: Study of their growth mechanism, *International Conference on Functional Materials 2018 (ICFM-18),* Shanghai, China, September 15-17, 2018 **(Oral presentation)**

- **V. G. Deonikar**, S. S. Patil, M. S. Tamboli, J. D. Ambekar, M. V. Kulkarni, Hern Kim, D. R. Patil, B. B. Kale, Effect of solvent system on structural growth of Ag_3PO_4/$LaCO_3OH$ heterostructures and their efficient photocatalytic activity for RhB degradation, *International Environmental Engineering Conference & Annual Meeting of the Korean Society of Environmental Engineers (IEEC-17),* Jeju, South Korea Nov ember 15-17,2017. **(Oral presentation)**

- **V. G. Deonikar**, S. S. Patil, M. V. Kulkarni, D. R. Patil, B. B. Kale, Hydrothermally synthesized dendrite rGO/$BiVO_4$ hybrid nanostructures for high-energy symmetric supercapacitor, International Conference on Advanced Rechargeable Batteries & allied Materials (ICARBM-2017), Pune, India, March 8-10, 2017 **(Poster presentation)**

- M. R. Mulay, **V. G. Deonikar**, D. Dubal, D. R. Patil, M. V. Kulkarni, B. B. Kale, Novel

green synthesis of ternary metal oxides for energy storage application, International Conference on Advanced Rechargeable Batteries & allied Materials (ICARBM-2017), Pune, India, March 8-10, 2017 **(Poster presentation)**

- **V. G. Deonikar**, J. D. Ambekar, S. D. Patil, P. M. Jadhav, S. S. Sadavar, M. V. Kulkarni, B. B. Kale, D. R. Patil, Synthesis and characterizations of hydrothermally prepared lead free piezoelectric KNN ($K_{0.5}Na_{0.5}NbO_3$) material, *Raman Memorial Conference* (RMC-2017), Pune, India, March 3-4, 2017 **(Poster presentation)**

- **V. G. Deonikar**, S. S. Sadavar, P. M. Jadhav, D. R. Patil, S. M. Rathod, Synthesis of nickel copper aluminium ferrite ($NiCu_xAl_{x-1}Fe_2O_4$) by sol-gel auto combustion method & study of their change in magnetic properties, National Conference on Technical Re volution (NCTR 2017), Pune, India, February 16-17, 2017 **(Oral presentation)**

- **V. G. Deonikar**, S. S. Patil, J. D. Ambekar, M. V. Kulkarni, B. B. Kale, D. R. Patil, A novel $Ag_3PO_4/LaCO_3OH$ heterojunction photocatalyst for phenol degradation under visible light irradiation, International Conference on Functional Eco-friendly Smart Emerging Materials (FESEM-2016), Pune, India, March 10-12, 2016 **(Poster presentation)**

- S. S. Patil, **V. G. Deonikar**, M. S. Tamboli, D.R. Patil, J. D. Ambekar, M. V. Kulkarni, S. S. Kolekar, B. B. Kale, Hierarchical nanostructured Ag-ZnO: In-situ hydrothermal synthesis using neem extract (reducing agent) and their photocatalytic applications International Conference on Functional Eco-friendly Smart Emerging Materials (FESEM-2016), Pune, India, March 10-12, 2016 **(Poster presentation)**

- **V. G. Deonikar,** S. D Patil, S. S. Patil, D.R. Patil, CNT-PVDF polycomposites for enhanced magnetoelectric applications, National Conference on Materials for Energy Conversion and Storage (NCMECS-2016), Pimpri, Pune, India, Feb 12-13, 2016 **(Poster presentation)**

- **V. G. Deonikar,** S. M. Rathod, S.A. Kitture, Synthesis, magnetic and optical properties of cobalt ferrite ($CoFe_2O_4$) With coconut water by using sol-gel method National Conference on Technical Revolution (NCTR 2017), Pune, India, January 9-10, 2015 **(Oral presentation)**

- S. M. Rathod, **V. G. Deonikar**, P. P. Mirage Synthesis of nano sized cerium doped copper ferrite, their magnetic and optical Studies, International Conference on Nanote chnology (Nanocon-14), Pune, India, October 14-15, 2014 **(Poster presentation)**

AWARDS

- **Best poster award**, *The Korean Society of Industrial and Engineering Chemistry* 2019 (KSIEC 2019), Jeju, South Korea, October 30-November-1, 2019

- **Best poster award**, *International Conference on Advanced Rechargeable Batteries & allied Materials* (ICARBM-2017), Pune, India, March 8-10, 2017

RESEARCH AND TECHNICAL SKILLS

Research Skills	• Advanced synthesis of metal oxides, nanomaterials, composites via hydrothermal treatment, metal seeding method, annealing process, wet chemical process, sol-gel method, electrospinning; for hydrogen generation, toxic pollutant decontamination, adsorption, oil-water separation, catalytic reduction, electrochromic and photochromic applicati ons. • Excellent material's characterization analysis skills using tests FTIR, UV-Vis, XRD, FE-SEM, HR-TEM, EDX, BET, XPS, H_2-TPR, PL, TGA, Raman spectroscopy, HPLC. • Exceptional knowledge in photocatalysis, hydrolysis, electrochromic properties and measurements. • Proficient in software programs such as PANalytical's X'Pert High Score Plus, OriginPro 2016, XPS peak 41, ImageJ, Zman.
Technical Skills	• Excellent chemical, physical, materials laboratory skills and experiences • Proficient in Microsoft Office 97-2016 such as Microsoft Word, Excel, Visio, PowerPoint, and Publisher. • Remarkable researcher with good presentation skills; resourceful, innovative, initiative and confident • Has good training in laboratory management, financial work.
Personal Strengths	• Excellent team player and team leader with pleasing personality • Strong and independent worker • Fast learner and work effectively under pressure • Responsible • Has excellent communication skills in English Hindi, Marathi and language. (Korean- learning) • Time and goal-oriented individual

REVIEWER

- Reviewed 3 research articles of ASTESJ journal.
- Reviwer of RSC journal.

CHARACTER REFERENCE

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I hereby certify that the above information is accurate and correct to the best of my knowledge.

Dr. Virendrakumar G. Deonikar