

# Vijay Sudhakar Raykar

## Personal Summary

## Personal Details

Address: Indapur-Tala Rd., Sainagar, Indapur, Mumbai- Goa Highway, Raigad-402112

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Nationality: Indian

Date of Birth: 16<sup>th</sup> October 1983

## Current Post:

Since 25<sup>th</sup> November 2013, I have been a **Assistant Professor** in the Physics Dept., G. M. Vedak College of Science, Tala. During my time in the college I have had the following responsibilities:

- *Head of the Physics Dept. (November 2013 – present)*
- *NSS Program Officer (June 2014-May 2017)*
- *In-Charge, Sports Dept. (June 2017-May 2018)*
- *Chairman, Examinations (June 2018-November 2020)*
- *Chairman PTA Committee (November 2020-May 2023)*
- *Chairman Library Committee (November 2020-)*
- *IT- Coordinator for Uni. Examimnations (April 2023-present)*
- *Academic Planning (June 2023-present)*

## Assistant Professor at National Defence Academy, Pune (Jan 2012 – Aug 2013)

Immediately after my PhD I spent a short time at National Defence Academy as an assistant professor in the Physics Dept. The post is on contractual basis. Prior to that worked as a Guest lecturer in the same dept. for nearly five months. Devised Syllabus, Power points, Reference materials for newly started Nanotechnology subject.

## PhD in Physics (Nanomaterials) at Defence Institute of Advanced Technology, DIAT, DRDO Pune (2008 – 2012)

- Title of the thesis-Experimental studies on thermal properties and Flow behavior of nanofluids
- Developed the system to measure the thermal conductivity of liquids using hot wire transient method. Rheological properties of suspensions have been studied with the help of Rheologica instruments.
- During my research we got best research lab award from the same institute. I am being the Research Fellow of the institute for the four years (2007-2011).
- I have been familiar with operating skills of Rheometer, Particle analyzing systems, viscometers, Data Acquisition systems (Adam, datataker etc.), Thermal analysis systems (TGA, DTA, DSC etc), FTIR, UV-vis spectrophotometer.

## Education:

- Yashwant Vidyalaya, Pune. (May 1999) SSC General 76%
- Abasaheb Garware College, Pune (May 2001) HSC Science (PCMB) 58%
- Abasaheb Garware College, Pune. (May 2004) B.Sc. Physics 65%
- Abasaheb Garware College, Pune. (May 2006) M.Sc. Physics 68%
- Defence Institute of Advanced Technology, Pune (May 2012) Ph.D. Physics (Nanomaterials)-

## Publication List and Presentations:

### Papers in referred journals and Books

- Raykar V. S., critical review of experimental and theoretical studies of thermal properties of functionalized nanofluids *SCIENTIFIC CULTURE*, Vol. 10, No. 1, (2024), pp 467-482
- Raykar V. S., *Models and Variations in The Thermal Conductivity of Nanofluids*, International e-Conference on Recent Trends in Material Science In Association with International Journal of Scientific Research in Science and Technology Volume 11 | Issue 9, 2024
- Raykar V. S., **Book Chapter**-On the measurement of thermal conductivity of nanosuspensions and deposition of silver nanoparticle thin film, *Thin Film Technology and its Novelties in Material Science*, ISBN-978-93-91768-93-5, 2021-22, pp 74-78
- Raykar V. S., A theoretical and experimental study of temperature dependent thermal conductivity enhancement of functionalized nanofluid, *Journal of The Maharaja Sayajirao University of Baroda*, 0025-0422, October-2021.
- Raykar V. S., Second wave of covid-19 pandemic in maharashtra: need of a comprehensive resumption and implementation of t3 protocols, *Kalyan Bharti*, 0976-0822, August-2021
- Raykar V. S., Thermal Conductivity Enhancement of Nanofluid Containing Silver Nanoparticles, *International Journal of Scientific Research in Science and Technology*, 2395-6011, April 2021.
- Raykar V.S., Data Analysis of COVID-19 and Its Predictive Features Worldwide, *RESEARCH JOURNEY*, 2348-7143, May-2021.
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- Raykar V. S., **Book Chapter**-Finding the geological hotspots in a Raigad Fort Range and its development as heritage tourism-A case study of Columnar Basalt Structures found at Mahad, One Day Online International Multidisciplinary Conference on Research Methodology in Library Science, Social Sciences and Commerce, ISBN- 978-81-951586-8-3, May-2021.
- Raykar V. S., Patil S. B. and Patil P. S., Porous TiN/Red Phosphorus Nanocomposite for Photocatalytic Hydrogen Evolution, *Macromolecular Symposia*, 2000003, 393, 2020.
- Raykar V. S. Nanofluids: A review on environment friendly coolants for heat transfer application” *Environment: Problems, Impacts, Mitigation Practices and Education*, pp147-158 LAP Lambert Academic Publishing, Mauritius, ISBN 978-3-659-81218-7, 2019
- Raykar V. S., Sustainable Energy Resources: Helium-3 from the moon, *EDU WORLD*, ISSN 2319-7129, XII,3, April 2018.
- Raykar V. S., Finding the geological hotspots in a western Ghats, *EDU WORLD*, ISSN 2319-7129, XII,3, April 2018.
- Singh A. K. and Raykar V. S., Experimental investigation of thermal conductivity and effusivity of ferrite based nanofluids under magnetic field, *ISRN Nanotechnology*, 2013.
- Singh A. K. and Raykar V. S., Effective thermal conductivity of silver nanofluids: effect of surface plasmon, *Mat. Res. Innova.* 2012.
- Raykar V. S. and Singh A. K., Photoacoustic method for measurement of thermal effusivity of Fe<sub>3</sub>O<sub>4</sub> nanofluid, *J. of thermodynamics*, 464368, 2011.
- Raykar V. S. and Singh A. K., Dispersibility dependence of thermal conductivity of carbon nanotube based nanofluids, *Phy. Lett. A*, 374, 2010.
- Raykar V. S. and Singh A. K., Giant electrorheological effect in Fe<sub>2</sub>O<sub>3</sub> nanofluids under low DC electric fields, *J. Appl. Phy.*, 108, 2010.
- Raykar V. S. and Singh A. K., Thermal and rheological behavior of acetylacetone stabilized ZnO nanofluids, *Thermochim. Acta*, 502, 2010.
- Raykar V. S. and Singh A. K., Surface Plasmon absorption study of silver NP thin film containing 2,2' bipyridine, *Mat. Sci. Eng. B*, 168, 2009.
- Singh A. K. and Raykar V. S., Microwave synthesis of silver nanofluids with polyvinylpyrrolidone (PVP) and their transport properties, *Colloid polym. Sci.*, 286, 2008.

## Conference and Workshop contributions

- V.S. Raykar, A. K. Singh, Surface plasmon absorption study of silver NP thin film containing 2,2' bipyridine, 2nd International Symposium on Advanced Materials And Polymers For Aerospace And Defense Applications (SAMPADA), Pune , Oral Presentation, (2008).
- V.S. Raykar, A. K. Singh, Temperature dependent transport properties of functionalized CNT based nanofluids, National Seminar on Nanomaterials for Devices: Characterization and Applications, DIAT, Pune , Poster Presentation, (2010).
- V.S. Raykar, S. K. Sahoo, A. K. Singh, Photoacoustic measurement of thermal effusivity of Fe<sub>3</sub>O<sub>4</sub> Nanofluids, National Seminar on Nanomaterials for Devices: Characterization and Applications, DIAT, Pune , Poster Presentation, (2010).
- V.S. Raykar, A. K. Singh, Nanofluids: Advanced coolants for heat transfer application, Seminar on Synthesis and Applications of Functional materials, National Defence Academy, Pune, Poster Presentation, (2011).
- V. S. Raykar, Silver Nanofluid as a Coolant for Heat Transfer Application, National Level Seminar on Explore Physics, CKT college, Panvel, December 23, 2013, Oral Presentation.
- V. S. Raykar, A. K. Singh, Preparation and Characterization of Br and Sr titanyl oxalate based electro-rheological fluids, International Conference on Nanotechnology in the Service of Health, Environment & Society, Punjab, February 13-15, 2014, Oral Presentation.
- Participated in Workshop on Revised Syllabi in F.Y.B.Sc., Nagothane, September 1, 2015
- Participated in Workshop on Revised Syllabus of Physics Practical Course for S.Y.B.Sc., Mumbai
- Organised a Workshop on Revised Syllabus of Physics Theory Course for F.Y.B.Sc., Tala, June 29, 2016
- Acted as a Co-convenor for a National conference on Modern research tools in science, Tala, August 19 2017
- Attended a National Seminar on Revised Assessment and accreditation methodology, Tala, February 24 2018
- V. S. Raykar, heat transport properties of nanofluids-a review, Third international conference on Advances in Material Science ICAMS-2018, Jath, 27-29 December 2018, Poster Presentation.
- V. S. Raykar, Nanofluids:A review on heat transfer fluids. International conference on "Environment development and sustainability" ICEDS-2018, Devrukh, 15 December 2018.
- Participated in One day workshop on "on screen marking" CKTACS new Panvel, 7th March 2019.
- Attended , International Conference on Multifunctional Electronic Materials and Processing (MEMF-8-10 March 2021) ,CMET, Pune
- Oral Presentation-Columnar Joints in Basalt Rocks a case study in Raigad district/ International Conference on Emerging Trends in Materials Science – 2021 (ETMS – 22-23 March 2021)/ Maharashtra College, Mumbai
- Oral Presentation-Dataset analysis of COVID-19 and its predictive features worldwide, One Day Online International Multidisciplinary Conference On "Research Methodology in Library Science, Social Science and Commerce 27 May 2021" Anandibai Raorane Arts, Commerce and Science College, Vaibhavwadi, Dist. Sindhudurg – 416810
- Oral Presentation-Thermal Conductivity Enhancement of Nanofluid Containing Silver Nanoparticles, International e-Conference on "Recent Trends in Nano-Materials and Its Applications (RTNA) 9-10 April 2021, Dept. of Physics, Vidyan Mahavidyalaya, Sangola
- Participated in-one day online international multidisciplinary conference on online resources in library science, social science and life science organized by department of library & IQAC-2021.
- Presented -a paper "A theoretical and experimental study of temperature dependent thermal conductivity enhancement of functionalized nanofluid" in Multidisciplinary National Conference "Advanced Materials, Technology, Applications and Education, 16th Oct. 2021
- Presented –a paper "On the economical ways to produce the carbon nanotubes in the lab" in two days international E-conference on "Advances in chemical and physical sciences for sustainable development" ICACPSSD-2022, 28<sup>th</sup> 29<sup>th</sup> April 2022.

- Presented-a poster on “Quantum confinement and its effect on the effective thermal conductivity of nanofluids” in Int. Conf. on Nanotech. Addressing the Convergence of Mater. Sci., Biotech and Medical Sci (IC-NACMBM-2024), CIR, D. Y. Patil Education Society, Kolhapur
- Presented –a paper on “Physics of Brownian motion induced nanoconvection mode in Nanofluids, One day International Multi-disciplinary Conference on *“Global Paradigm Shift: Initiatives of India in Science, Education, Technology, Business and Climate”*”: 10th January 2024

### **Participation in Refresher/Orientation/Other courses:**

- Refresher Course in Physics, Manipur University, July 1-22, 2014
- Orientation Course, Goa University, January 5 - February 1, 2017
- Participated in winter school on astronomy-2019, BM birla center Hyderabad, 19-23 February 2019
- Refresher course in astronomy and astrophysics (IUCAA, pune), 13 May-2019 to 14 June 2019
- Participated in Exposure camp for astronomy under Olympiad Programme at TIFR, Mumbai, 31 October-03 November, 2017.
- On line Refresher Course in Nanoscience HRDC Uni. Of Madras, 09.10.2020 to 22.10.2020
- Online two - week refresher course in physics, *27 October – 10 November, 2021, Teaching Learning Centre, Ramanujan College University of Delhi*
- Online two - week refresher course in physics, *09 Juner – 23 Juner, 2023 Teaching Learning Centre, Ramanujan College University of Delhi*