

Curriculum - Vitae

Personal details:

Name: Nishant Sureshbabu Nair

Date of birth: 27 January 1991

Nationality: Indian

Sex : Male

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Academic Qualification

- **Ph.D.** joining 24 June, 2014 - submitted thesis on 10 June, 2020 and viva-voce conducted on 27th November 2020, Research work is carried out at Department of Physics, MK Bhavnagar University and degree awarded by Maharaja Krishnakumarsinhji Bhavnagar University, Bhavnagar, Gujarat, India.
- **M.Sc. (Physics)** with 62.26 % from MK Bhavnagar University, Bhavnagar, Gujarat, India. July 2013 (1st Class).
- **B.Sc. (Physics)** with 64 % from MK Bhavnagar University, Bhavnagar, Gujarat, India. April 2011 (1st Class).

Ph.D. Thesis Title

Ph.D. thesis title: ‘Colloidal Structures and Dynamics in Force Field’

Research Experience:

- Junior Research Fellowship in DST Project “Exploration of Ferrofluids for Magnetorheological finishing in advanced optical systems with strategic applications” from 09.04.2015 to 31.03.2016 at M.K. Bhavnagar University.
- Post-Doctoral Research Fellowship in IOE Project “Self-assembly of soft and biological matter” from 15.06.2021 till date at Indian Institute of Technology Madras.

Teaching Experience:

- Worked as Assistant Professor at The KPES Science College since 15.07.2016 till 14.06.2021

Instrumentation Skills:

- ✓ Magneto Rheometer
- ✓ Contact Angle Meter
- ✓ Planetary Ball mill
- ✓ Zetasizer for Dynamic Light Scattering and Zeta Potential
- ✓ UV-Visible Spectrometer
- ✓ Search Coil
- ✓ X-Ray Diffractometer
- ✓ Optical Microscope
- ✓ K2D Thermal properties analyzer
- ✓ AFM

Software Skills:

- ✓ Python
- ✓ Octave
- ✓ MATLAB
- ✓ ImageJ
- ✓ Magnus Analytics Pro
- ✓ PIVLab

- ✓ Machine Learning (Deep Learning and Neural Network) using Python and MATLAB

Trainings Taken/Workshops Attended (in ascending order):

- “**CSR Lecture Series**” held at UGC-DAR Consortium for Scientific Research, Indore (Madhya Pradesh) during 15-26 September 2014
- “**Workshop on Materials Characterization: Experimental Techniques**” held at Mohanlal Sukhadia University, Udaipur (Rajasthan) during 26-28 March 2015
- IUCAA Workshop on “**Electromagnetic Scattering as a tool in Astronomy and Astrophysics**” held at Maharaja Krishnakumarsinhji Bhavnagar University, Bhavnagar (Gujarat) during 4-5 January 2016
- One day initiation program on “**Setting up ham shack**” held at Maharaja Krishnakumarsinhji Bhavnagar University, Bhavnagar (Gujarat) on 25th March 2017
- **National Workshop on Advanced Instrumentation Nwai-2017** held at CSMCRI Bhavnagar (Gujarat) during 25-26 October 2017
- **International Faculty Development Program Phase 1&2**, held at Maharaja Krishnakumarsinhji Bhavnagar University, Bhavnagar (Gujarat), 2018
- **National Workshop on Discourses on Intellectual Property Rights: Policies & Practices** held at Maharaja Krishnakumarsinhji Bhavnagar University, Bhavnagar (Gujarat) on 20th September 2019

Memberships:

- Life membership of Magnetic Society of India since 2017

List of Publications (2014-2020)

1. N Nair, S P Bhatnagar, *Drying behavior of magnetic nanofluid in ambient conditions*, AIP Advances **10**, 105018. doi: [10.1063/5.0019183](https://doi.org/10.1063/5.0019183) (Selected in Editor’s picks)
2. N Nair, V Dave, S Jani, *Active Manipulation of Droplets on Glass Substrate using Ferrofluid*, Materials Today: Proceedings **29**, 258–266. doi: [10.1016/j.matpr.2020.07.271](https://doi.org/10.1016/j.matpr.2020.07.271)

3. N Nair, S Jani, *Magnetically controlled contact angle of ferrofluid encapsulated water droplet*, Journal of Nanofluids **7** (1), 26-29. doi:[10.1166/jon.2018.1421](https://doi.org/10.1166/jon.2018.1421)
4. M Jadav, N Nair, R Patel, S Jani, *Investigation of drying mechanism in evaporating micellar nanofluid drops*, Journal of Nanofluids **5** (2), 216-219. doi:[10.1166/jon.2016.1216](https://doi.org/10.1166/jon.2016.1216)
5. N Nair, H Virpura, R Patel, *Magnetic field dependent measurement techniques of surface tension of magnetic fluid at an air interface*, AIP Conference Proceedings **1665** (1), 140006. doi: [10.1063/1.4918215](https://doi.org/10.1063/1.4918215)
6. N Nair, S Shyam, P Mondal, S P Bhatnagar, *Probing into the drying pattern dynamics of a ferrofluid droplet under the actuation of magnetic field*, IEEE Transactions on Magnetics (under review).
7. N Nair, S Jani, R Brajpuria, S P Bhatnagar, *Magnetic nanoparticles as controlling agents of chain structures under rotating magnetic field*, Journal of Electronic Materials (under review).
8. N Nair, D Satapathy, B Gurappa, *Self-assembly of anisotropic colloids on an oil coated surface using droplet evaporation*, Langmuir (under review).
9. N Nair, D Satapathy, B Gurappa, *Colloidal crystallization on a suspended thin film*, (manuscript under preparation).

Oral presentations

1. “Controlling Evaporation Pattern of Ferrofluid using Magnetic Field”, **National Research Scholar Meet on Condensed Matter Physics and Materials Science (CMPMS-18)** held at Gujarat University , Ahmedabad (Gujarat) on 8th December 2018
2. “Effect of External Magnetic Field on Desiccation Patterns of Magnetic Nanofluids”, **International Conference on Recent Trends in Nanomaterials for Clean Energy (ICRTNCE-2019)** held at SVNIT, Surat (Gujarat) during 16-18 February 2019

Poster presentations

1. “Magnetic field dependent measurement techniques of surface tension of magnetic fluid at an air interface”, Nishant Nair, Rajesh Patel, Hiral Virpura , **59th DAE Solid State**

Physics Symposium held at VIT University, Vellore (Tamil Nadu) during 16-20 December 2014

2. “Effect of nanoparticles on chain rotation dynamics”, Nishant Nair, Snehal Jani, 4th **International Conference on Frontiers in Nanoscience and Technology** held at CUSAT, Cochin (Kerala) during 20-23 February, 2016
3. “Ferrofluid induced manipulation of water droplets using magnets”, **Gujarat Science Congres-2018** held at Bhavnagar (Gujarat) during 4-5 February 2018
4. “Effect of magnetic field on expancel microspheres suspended in ferrofluid for application in microfluidics and synthetic biology”, **International Conference on Panorama of Life Sciences-2020** held at Maharaja Krishnakumarsinhji Bhavnagar University, Bhavnagar (Gujarat) on 28th January 2020

Conferences organized

1. National Webinar on “**Research Opportunities in Area of Science**” held on 15.06.2020 jointly organized by Maharaja Krishnakumarsinhji Bhavnagar University, CSMCRI and The KPES Science College.
2. Internatinal Webinar on “**COVID-19: Recent Research Trends**” held on 05.07.2020 jointly organized by M. K. Bhavnagar University, COVID-19 Omics Research Consortium, Sir P.P. Institute of Science and The KPES Science College.

References:

1. **Prof. S. P. Bhatnagar**

Thesis supervisor and Head of the Department

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2. **Prof. N. K. Bhatt**

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