


STANDARD TEMPLATE OF FACULTY PROFILE FOR UPLOADING OF UNIVERSITY WEBSITE

Title	Dr.	First Name	Bhanu Prakash	Last Name	Joshi		
Designation		Assistant Professor					
School /Dept. Name		University School of Automation and Robotics (USAR)					
Address:		A 505, University School of Automation and Robotics (USAR), Guru Gobind Singh Indraprastha University, East Delhi Campus, Surajmal Vihar, Delhi - 110092					
Phone No.		Office					
		Residence	T4 B/1, Type-4, Faculty Quarters, GGSIP University, East Delhi Campus, Surajmal Vihar, Delhi - 110092				
		Mobile	(optional)				
Email		1.bhanu.usar@ipu.ac.in		2. bpjphy@gmail.com			
Web Page (if any)		Google Scholar: https://scholar.google.co.in/citations?user=VotVQ_oAAAAJ&hl=en ResearchGate: https://www.researchgate.net/profile/Bhanu-Joshi-2 Scopus: https://www.scopus.com/authid/detail.uri?authorId=49861567000					
Subjects Taught		1) Teaching experience as Teaching Assistant (TA) at IIT Bombay for following courses during Postdoctoral Tenure:					
		Course No	Course Name	Course For	Year/ Semester	Instructor(s)	Role
		EP439	Advance Laboratory Techniques in Nanoscience	B. Tech + M. Tech+ M.Sc Physics	2015-16/ Spring (Jan-Jun)	Prof. M Aslam	Teaching Assistant (TA)
		PH411	Physics Lab-I	M. Tech + M.Sc Physics	2016-17/ Autumn (July-Dec)	Prof. K Das Gupta	Teaching Assistant (TA)
		EP439	Advance Laboratory Techniques in Nanoscience	B. Tech + M. Tech+ M.Sc Physics	2016-17/ Spring (Jan-Jun)	Prof. M Aslam	Teaching Assistant (TA)
		PH411	Physics Lab-I	M. Tech + M.Sc Physics	2017-18/ Autumn (July-Dec)	Prof. M Senthilkumar	Teaching Assistant (TA)
		EP439	Advance Laboratory Techniques in Nanoscience	B. Tech + M. Tech+ M.Sc Physics	2017-18/ Spring (Jan-Jun)	Prof. M Aslam	Teaching Assistant (TA)
		PH411	Physics Lab-I	M. Tech + M.Sc Physics	2018-19/ Autumn (July-Dec)	Prof. T Kundu	Teaching Assistant (TA)

2) Teaching experience as Faculty (regular) at GGSIP University, East Delhi Campus for the following courses				
Course No	Course Name	Programme	Taught in Discipline of	Year/ Semester
BS113	Engineering Physics-I	B. Tech	i) Artificial Intelligence and Data Science (AIDS) ii) Artificial Intelligence and Machine Learning (AIML)	2022-23/ First
BS159	Engineering Physics I-Lab	B. Tech	i) Industrial Internet of Things (IIOT) ii) Automation and Robotics (AR)	2022-23/ First
BS108	Engineering Physics-II	B. Tech	i) Artificial Intelligence and Data Science (AIDS)	2022-23/ Second
BS158	Engineering Physics II-Lab	B. Tech	i) Artificial Intelligence and Data Science (AIDS)	2022-23/ Second
BS113	Engineering Physics-I	B. Tech	i) Artificial Intelligence and Data Science (AIDS)	2023-24/ First
BS159	Engineering Physics I-Lab	B. Tech	i) Artificial Intelligence and Data Science (AIDS) ii) Automation and Robotics (AR)	2023-24/ First
BS108	Engineering Physics-II	B. Tech	i) Artificial Intelligence and Data Science (AIDS)	2023-24/ Second
BS158	Engineering Physics II-Lab	B. Tech	i) Artificial Intelligence and Data Science (AIDS)	2023-24/ Second
ICT114	Human Values and Ethics	B. Tech	i) Artificial Intelligence and Data Science (AIDS)	2023-24/ Second
Areas of Interest/ Specialization	<ul style="list-style-type: none"> Condensed Matter Physics, strongly correlated electron system, Low Temperature Physics, Superconductivity, Topological Matter, Spintronics, Wide band gap semiconductors and Nanostructures. 			
Experience (in years)	Total	~8 Years (Post PhD Experience)		
	Industry			
	Teaching	~2 Years (Post PhD)		
	Research	~6 Years (Post PhD)		
Educational Qualifications	UG	B.Sc. (Physics, Chemistry and Mathematics) from <i>Kumaun University, Nainital.</i>		
	PG	M.Sc. (Physics) from <i>Indian Institute of Technology (IIT) Kharagpur.</i> M.Sc. Thesis title: "Study of The Heart Rate Variability Based on Hodgkin Huxley Model."		

<p>Doctorate</p>	<p>PhD from Tata Institute of Fundamental Research (TIFR), Mumbai. Thesis Title: "Exploring Unconventional Superconductivity in Ordered Noncentrosymmetric Superconductors."</p>
<p>Any other</p>	<ul style="list-style-type: none"> • Post-doctoral Fellow (Department of Physics) at Indian Institute of Technology (IIT) Bombay, Mumbai. • Assistant Professor/PostDoc at <i>International Centre for Interfacing Magnetism and Superconductivity with Topological Matter (MagTop)</i>, Division ON-6 of Institute of Physics, Polish Academy of Sciences (IF PAN), Warsaw, Poland. • Assistant in the <i>Division Of Physics and Technology Of Wide-Band-Gap Semiconductor Nanostructures -Division ON-4 of Institute of Physics, Polish Academy of Sciences (IF PAN), Warsaw, Poland.</i> • Short-Term Visiting Fellow at Tata Institute of Fundamental Research (TIFR), Mumbai.
<p>Research Publications in Journals (last 5 years)</p>	<ol style="list-style-type: none"> 1) A.S. Cameron, L. Lemberger, R. Riyat, A.T. Holmes, Y.S. Yerin, A.D. Hillier, B. Joshi, S. Ramakrishnan, J. Gavilano, J., C.D. Dewhurst, and E.M. Forgan, Unconventional gap structures and the intermediate mixed state: a vortex lattice study of the noncentrosymmetric superconductor BiPd. arXiv preprint arXiv:2311.15733 (2023). 2) Himadri Chakraborti; Bhanu P. Joshi; Chanchal K. Barman; Aditya K. Jain; Buddhadeb Pal; Bikash C. Barik; Tanmay Maiti; Rüdiger Schott; Andreas D. Wieck; M. J. N. V. Prasad; S. Dhar; Hridis K. Pal; Aftab Alam; K. Das Gupta, Formation of tungsten carbide by focused ion beam process: A route to high magnetic field resilient patterned superconducting nanostructures, Applied Physics Letters 120, 132601 (2022). (Impact Factor: 3.971) arXiv:2103.09590 (2021). 3) Arindam Pramanik, Ram Prakash Pandeya, Denis V. Vyalikh, Alexander Generalov, Paolo Moras, Asish K. Kundu, Polina M. Sheverdyeva, Carlo Carbone, Bhanu Joshi, A. Thamizhavel, S. Ramakrishnan, and Kalobaran Maiti, Dirac states in the noncentrosymmetric superconductor BiPd, Physical Review B 103, 155401 (2021). (Impact Factor: 3.908) arXiv:2012.05702 (2020). 4) Arindam Pramanik, Ram Prakash Pandeya, Khadiza Ali, Bhanu Joshi, Indranil Sarkar, Paolo Moras, Polina M Sheverdyeva, Asish K Kundu, Carlo Carbone, A Thamizhavel, S Ramakrishnan, Kalobaran Maiti, Depth-resolved core level spectroscopy of noncentrosymmetric solid BiPd, Physical Review B 101 (3), 035426 (2020). (Impact Factor: 3.908)

	<p><i>arXiv:1909.10009 (2019).</i></p> <p>5) AK Jain, H Chakraborti, B P Joshi, B Pal, M Monish, SM Shivaprasad, S Dhar, K Das Gupta, Effect of invasive probes on measurement of magneto-transport in macroscopic samples: A gallium nitride case study, <i>Journal of Applied Physics</i> 126 (8), 085706 (2019). (Impact Factor: 2.877)</p> <p>6) Buddhadeb Pal, Bhanu P. Joshi, Himadri Chakraborti, Aditya K. Jain, Barun K. Baricka, Kankat Ghosh, Apurba Laha, Subhabrata Dhara, and Kantimay Das Gupta, Experimental evidence of a very thin superconducting layer in epitaxial Indium Nitride, <i>Superconductor Science and Technology</i>, 32 (1), 015009 (2018). (Impact Factor: 3.482)</p> <p>7) S. Ramakrishnan, B. Joshi, A. Thamizhavel, α-BiPd: A clean noncentrosymmetric superconductor, <i>Philosophical Magazine (TPHM)</i>, 97(36), pp. 3460-3476 (2017). (Impact Factor: 1.948)</p>		
Papers Published in Conference Proceedings(last 5 years)	<p>1) Arindam Pramanik, Ram Prakash Pandeya, Denis V Vyalikh, Alexander Generalov, Paolo Moras, Asish K Kundu, Polina M Sheverdyeva, Carlo Carbone, Bhanu Joshi, A Thamizhavel, S Ramakrishnan, Kalobaran Maiti, Surface states in noncentrosymmetric superconductor BiPd, <i>(Strongly Correlated Electron Systems (SCES) 2020 conference, 27/09/2021 - 01/10/2021, Campinas, Brazil)</i> <i>Journal of Physics: Conference Series. Vol. 2164. No. 1. IOP Publishing, (2022).</i></p> <p>2) Arindam Pramanik, Ram Prakash Pandeya, Khadiza Ali, Paolo Moras, Polina M. Sheverdyeva, Carlo Carbone, Bhanu Joshi, A. Thamizhavel, S. Ramakrishnan, and Kalobaran Maiti, Anomalous spectral evolution with bulk sensitivity in BiPd, <i>AIP Conference Proceedings</i> 2265, 030356 (2020).</p> <p>3) Buddhadeb Pal, Bhanu P. Joshi, Himadri Chakraborti, Aditya K. Jain, Barun K. Barick, Kankat Ghosh, Apurba Laha, Subhabrata Dhar, and Kantimay Das Gupta, Superconductivity in epitaxial InN thin films with large critical fields, <i>AIP Conference Proceedings</i> 1942, 110028 (2018).</p>		
Books Authored/ BookVolume Chapters	<ul style="list-style-type: none"> • None 		
No. of Conferences	National	Attended	Organized
		A) National conferences attended by himself:	

1) **Oral presentation at 55th DAE-Solid State Physics Symposium (DAE-SSPS 2010), Organized by Bhabha Atomic Research Centre, Mumbai, held at Manipal University, Manipal, India during December 26-30, 2010.**

Paper title: Superconductivity in noncentrosymmetric BiPd system,
Bhanu Joshi, A. Thamizhavel, and S. Ramakrishnan
AIP Conf. Proc. 1349, 907 (2011).

2) **Poster presentation at 56th DAE Solid State Physics Symposium (DAE-SSPS 2011), Organized by Bhabha Atomic Research Centre, Mumbai, held at SRM University, Kattankulathur (~30 km south of Chennai) India during December 19–23, 2011.**

Paper title: Study of single crystal $\text{Cu}_x\text{Bi}_2\text{Se}_3$ topological superconductor,
Bhanu Joshi, A. Thamizhavel, and S. Ramakrishnan
AIP Conf. Proc. 1447, 879 (2012).

3) **Poster presented at 58th DAE Solid State Physics Symposium (DAE-SSPS 2013), Organized by Bhabha Atomic Research Centre, Mumbai, held on December 17-21, 2013 at Thapar University, Patiala, Punjab,**

Paper title:
Tuning electron-electron correlation in noncentrosymmetric superconductor BiPd,
Bhanu Joshi, A. Thamizhavel, and S. Ramakrishnan
AIP Conf. Proc. 1591, 1549 (2014).

B) *List of national conference publications, where conference was attended by one of the co-author of the work:*

4) 62nd DAE Solid State Physics Symposium (DAE-SSPS 2013), **Organized by Bhabha Atomic Research Centre, Mumbai, was held in DAE Convention Centre, Anushaktinagar, Mumbai, India during December 26 – 30, 2017.**

Paper title: Superconductivity in epitaxial InN thin films with large critical fields, Pal, Buddhadeb, **Bhanu P. Joshi**, Himadri Chakraborti, Aditya K. Jain, Barun K. Barick, Kankat Ghosh, Apurba Laha, Subhabrata Dhar, and Kantimay Das Gupta.

AIP Conference Proceedings 1942, 110028 (2018).

5) 64th DAE Solid State Physics Symposium (DAE SSPS 2019) **Organized by Bhabha Atomic Research Centre**, Mumbai, was held at **Indian Institute of Technology Jodhpur**, Rajasthan, India, during 18–22 December 2019.

Paper title: Anomalous spectral evolution with bulk sensitivity in BiPd, Pramanik, Arindam, Ram Prakash Pandeya, Khadiza Ali, Paolo Moras, Polina M. Sheverdyaeva, Carlo Carbone, **Bhanu Joshi**, A. Thamizhavel, S. Ramakrishnan, and Kalobaran Maiti.

AIP Conference Proceedings 2265, 030356 (2020).

International

C) International conferences attended by himself:

1) Poster presented at the 10th international Conference on Materials and Mechanisms of Superconductivity (M₂S 2012), during July 29 – August 3, 2012 at the **Omni Shoreham Hotel in Washington, D.C., USA.**

Title: “Anisotropic properties of a new noncentrosymmetric superconductor BiPd”
Authors: **B. Joshi**, A. Thamizhavel, A. Grover, S. Ramakrishnan

2) Poster presented at UK Semiconductors 2018 conference held on July 4-5, 2018 at Sheffield Hallam University, Sheffield, United Kingdom.

Title: “Robust, Quasi-2D Superconductivity in Epitaxial Indium Nitride: a III-V Semiconductor”

D) *List of international conference publications, where conference was attended by one of the co-author of the work:*

3). **International conference on strongly correlated electron systems (SCES 2013)** held from 5 to 9 August 2013, at **Tokyo, Japan,**

Title: Probing anisotropy in a new noncentrosymmetric superconductor BiPd,
Bhanu Joshi, A. Thamizhavel, and S.

Ramakrishnan.

SCES 2013 Proceeding: **Journal of the Physical Society of Japan (JPSJ)**

JPS Conf. Proc.3, 015010 (2014),

arXiv:1402.7232.

4). **International conference on strongly correlated electron systems (SCES 2014)**

Conference, **Grenoble, France**, July 7-11, 2014.

Title: Superconductivity in cubic noncentrosymmetric PdBiSe crystal,
Bhanu Joshi, A. Thamizhavel and S.

Ramakrishnan.

Journal of Physics: Conference Series 592

(2015) 012069,

arXiv:1410.4459.

5). **TMU International Symposium** on "New Quantum Phases Emerging from Novel Crystal Structure" 24–25 September 2015, **Tokyo, Japan.**

Paper title: Noncentrosymmetric superconductivity in a clean crystal of type II superconductor Bi-Pd,

S. Ramakrishnan, **Bhanu P.** and A. Thamizhavel

Journal of Physics: Conference Series, Volume 683, conference 1 (2016).

6) **International conference on strongly correlated electron systems (SCES) 2020**, held from 27/09/2021 to 01/10/2021 at Campinas, **Brazil.**

Paper title: Surface states in noncentrosymmetric superconductor BiPd,

Arindam Pramanik, Ram Prakash Pandeya, Denis V Vyalikh, Alexander Generalov, Paolo Moras, Asish K Kundu, Polina M Sheverdyeva, Carlo Carbone, **Bhanu Joshi**, A Thamizhavel, S Ramakrishnan, Kalobaran Maiti.

Journal of Physics: Conference Series. Vol.

		2164. No. 1. IOP Publishing, 2022.		
Research Guidance	Awarded	PG	M. Phil	Doctorate
	Undergoing			
Research Projects	Completed			
	Undergoing			
Awards & Distinctions	<ul style="list-style-type: none"> • Qualified National Eligibility Test (NET) and Junior Research Fellowship (JRF) in the subject “Physical sciences”, Council of Scientific and Industrial Research (CSIR) - Junior Research Fellowship (JRF), exam held on 21st Dec-2008. (<i>did not availed this Junior research fellowship due to selection and award of scholarship from T.I.F.R. Mumbai</i>) • Qualified, Graduate School Admissions test (GS-2009) plus interview of T.I.F.R., thus awarded Research Scholarship to pursue PhD from Tata Institute of Fundamental Research, Mumbai. • Qualified Joint Entrance Screening Test (JEST)-2009: All India Rank (AIR)-09, Percentile = 99.79. • Qualified Graduate Aptitude Test (GATE)-2009 in Physics: All India Rank (AIR)-48, Percentile = 99.1. • Qualified Joint Entrance Screening Test (JEST)-2008: All India Rank (AIR)-74, Percentile = 98.98. • Qualified Graduate Aptitude Test (GATE)-2008 in Physics: All India Rank (AIR)-446. • All India rank 93rd in Joint Admission Test to M.Sc (JAM) 2007 conducted by I.I.T. With this I got my first preference among all IITs, IIT Kharagpur to pursue MSc Physics. • Won the Best Poster Award for the research work titled “Tuning electron-electron correlation in noncentrosymmetric superconductor BiPd” at the 58th DAE Solid State Physics Symposium held on December 17-21, 2013 at Thapar University, Patiala, Punjab, India. • Received Merit appreciation letter (given to the top 25 meritorious students of state based on marks achieved on the state board exam) in 2003 from the Honorable Chief Minister of State for achieving 19th Place in State Merit list based on 12th board Exam results, as well as topper in the class. 			
Administrative Assignments Handled				

<p>Association with Professional Bodies</p> <p>Any other Achievements</p>	<p>Life Member of Materials Research Society of India (MRSI)</p> <ul style="list-style-type: none"> • Participation in experiments at international facilities: Muon Spin Relaxation and Resonance experiment at Paul Scherrer Institute in Villigen, Switzerland on α-BiPd with Prof. Edward Forgan's group (September 2012). • Research Visit Research visit to VIGO System S.A. Poland, Ożarów Mazowiecki on 30.01.2020 as a group of 18 employees of MagTop. The Curiosity rover from NASA in 2012, was successfully landed on the red planet for the Mars Science Laboratory Mission. The purpose of the mission was to measure the concentration of methane, carbon dioxide, and water vapour from heated samples taken from the Martian surface. Thus, the curiosity rover was built as a TDL spectroscopy with a cascade laser and cooperates with infrared detectors manufactured by VIGO Photonics. We were also given about 1 hour long tour in VIGO's labs and production hall. During the presentations and tour MagTop's employees asked several detailed questions about current most pressing problems of VIGO that could be the subjects of joint research and made some comments and propositions. • Research Talk <ul style="list-style-type: none"> A) Outside India: <ul style="list-style-type: none"> i) Delivered a research talk at MagToP, Div 6 of Institute of Physics, Polish Academy of Sciences (IF PAN), Warsaw, Poland, as MagToP meeting talk on 20 December 2021, 02:30 – 03:00 PM. ii) Delivered a research talk at MagToP, Div 6 of Institute of Physics, Polish Academy of Sciences (IF PAN), Warsaw, Poland, as MagToP meeting talk on 15 February 2021, 02:30 – 03:00 PM. iii) Delivered a research talk at MagToP Div 6 of Institute of Physics, Polish Academy of Sciences (IF PAN), Warsaw, Poland, as MagToP meeting talk on 17 February 2020, 02:30 – 03:00 PM. B) Within India: <ul style="list-style-type: none"> i) Delivered a research talk at the Tata Institute of fundamental research, 17th April 2015, 10:30 – 11:00 AM, on the occasion of DCMFMS Annual meeting; Session: Superconductivity and Strongly correlated systems (Venue: Hall AG-66). • School, workshop and research projects: <ul style="list-style-type: none"> i) “Fabrication of Low Temperature AC Amplifier using HEMT” Graduate School Project with Prof. Mandar M Deshmukh successfully accomplished at the Tata Institute of Fundamental Research, Mumbai, India, 2010. ii) “Topological Superconductor, Topological Insulator and Non-centrosymmetric superconductor” Graduate School Project successfully accomplished with Prof. S Ramakrishnan at the Tata Institute of Fundamental Research, Mumbai, India, 2011.
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iii) Selected for and successfully attended the **International School on Topology in Quantum Matter** organized by international center for theoretical sciences (ICTS) during 29 June - 13 July, 2011 held at **Indian Institute of Science (IISc), Bangalore, India.**

iv) **Summer school and Internship at Institute of Plasma Research (IPR) Ahmedabad, India** during June 2 – July 11, 2008. Worked on a research project “*Neutron activation calculation for HCSB TBM (ITER Component) using EASY 2007 Code*” under the guidance of Mr Vilas Choudhary at IPR (Ahmedabad).

• **Science Outreach Programme:**

Volunteered **thrice** to participate in **Frontier of Science** (annual outreach programme aimed for school kids), at **TIFR, Mumbai** (2009-15).