

## CURRICULUM VITAE

**Dr. Khadke Udaykumar** M.Sc., M.Phil., Ph.D., (MBA)

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### PRESENT ORGANISATION:

Present Designation: Assoc. Prof. Department of Physics,

Present Organisation: VSK University Ballari

Highest Qualification: Ph. D. in Physics

### TEACHING EXPERIENCE (in chronological order): (14 YEARS)

2019 - till date: Associate Professor, Department of Physics, VSK University Ballari

2018 – 2019: Associate Professor & Head, Presidency University, Bangalore

2017 - 2018: Faculty of Physics, Central University of Karnataka, kalaburagi

2013 - 2017: Associate Professor, at BKIT Bhalki, Dist Bidar, Karnataka, INDIA

2013 - 2014: (on Deputation) Special Officer and PG Co-ordinator, VTU Belgaum

2010– 2013: Assistant Prof. & Head (Physics). at Jain College of Engineering, Belgaum,

2004 –2010: Assistant Prof. & Head (Physics) at Gogte Institute of Technology (GIT),

2001: Lecturer at Chandrakant Patil College, Gulbarga

1997 – 2004: Research Scholar, also conducted classes to PG students

### RESEARCH EXPERIENCE: (7 YEARS)

2015 - 2016: Visiting Fellow of JNCASR Bangalore

2001 - 2004: SRF, CSIR New Delhi

1998 - 2001: JRF, UGC-NSC project UFUP-2302.

1997 - 1998: PF in UGC-NSC sponsored project S-34

### RESPONSIBILITY AT COLLEGE LEVEL:

- Chairman, Cultural Committee, NSS Program Officer
- Co-ordinator for various Technical and Cultural events at College level

### RESPONSIBILITY AT UNIVERSITY LEVEL:

- Special Officer and PG Coordinator, VTU Belgaum and Gulbarga Region (2013-14)
- BOE member, VTU (2011-12), (2014-15), (2016-17), PTU (2009-10)
- Paper Setter, UG, Ph.D., coursework, KPSC Govt. of Karnataka
- Member-Local Inspection Committee (LIC), Research Review Committee, VTU Belgaum
- DCS/CS and Squad Chairman/Member for VTU Exam
- Co-ordinator for Noble Laureate Initiative programme organized by Honey-well
- Research Guide: VTU Research e-Resource Centre,

### CONTRIBUTION IN THE PREVIOUS ORGANISATION

1. Establishment of VTU Research Centre at GIT Belgaum, BKIT Bhalki
2. Research and computational facility setup at BKIT Bhalki (funded by VGST)
3. Assisting in establishment of a new engineering college
4. Initiation of 12B of UGC act approval as a PG Coordinator/Special Officer (2013-14)

**PERSONAL PROFILE:**

Name : Dr. Khadke Udaykumar  
Father Name : Vasantao Khadke  
Date of birth : 08-04-1972  
Nationality : Indian.  
Languages known : English, Hindi, Kannada and Marathi.  
Passport No. : N7388025 (valid till 2026)  
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**ACADEMIC QUALIFICATION: M.Sc., M.Phil., Ph.D**

Course	Name of the Institution/Board	Year of passing	Subject	Percentage
Ph.D.	Gulbarga University	2005	Physics	-
M. Phil	Gulbarga University	1999	Physics	74.20
M.Sc.	Gulbarga University	1997	Physics	60.43
B.Sc.	Gulbarga University	1995	Physics, Electronics, Maths	62.78

**SUBJECT INTEREST:**

Subjects taught (Titles): 1) Nuclear Physics, 2) Energy physics, 3) Radiation Physics, 4) Quantum mechanics, 5) Classical Mechanics, 6) Laser & Optical Fibers 7) Mathematical & computational methods, 8) Engineering Physics, 9) Materials science.

Research fields: 1) Radiation physics, 2) conducting polymers, 3) Materials Science.

**RESEARCH GUIDANCE: Doctor of Philosophy (Ph.D.): 06 pursuing**

Name of the student	Topic	Year of Registration
Mr. S S Kulkarni	Synthesis & Characterization of Ferroelectric polymer nano-composites and their applications	Awarded
Mrs. Arundatti H Patil	Stopping power of material for energetic particles	2012
Mrs Vaishali Bigre	Study on Detection and analysis of Natural Radioactivity using Solid State Detectors	2015

**Master of Philosophy: 02 awarded**

Name of the student	Topic	Year
Ms. Urmila B Gundkal	X-Ray Fluorescence Studies	2008
Mr. Shreenivas N Gondkar	Stopping power simulation for charged particles in condensed media	2008

**RESEARCH PROJECTS:**

Sl. No.	Title of the project	Funding Agency	Duration	Amount (INR)
01	Development of energy spectrometer for the measurement of energy Radiation concentration	VGST, Bangalore	2 years (2014-16)	20,00,000.00
02	Development of PC interfaced Science & Engineering experiments	VGST, Bangalore	6 months (2011-12)	30,000.00
<b>As a Collaborator</b>				
03	Electromagnetic Interference (EMI) shielding applications of conducting polymer nano composites	VTU, Bangalore	3 years (2009-2011)	13,15,000.00
04	Studies in the interaction of charged particles with condensed media	CSIR-SRF	4 years (2000-2004)	3,84,000.00
05	Interaction of radiation with materials undergoing phase transition	UGC, New Delhi	3 years (1997-2000)	5,00,000.00
06	Energy loss of heavy ions in materials undergoing phase transition	UGC, New Delhi	2 years (1995-1997)	4,00,000.00

**RESEARCH SKILLS:**

Spectrometers	Alpha, Beta and Proton spectrometer using Silicon Surface Barrier Detector (SSBD), Magnetic Spectrometer for detection of energy electrons, familiar with design/development of Radiation detectors.
Material preparations	Thin film synthesis using Vacuum evaporation techniques, Crystal growth techniques and synthesis of ceramic materials
Material Characterization	XRD, SEM, Dielectric measurement and Hysteresis loop
Computer O/S	Linux, Simulation code using Freedom. Multi channel analyser using CAMAC Crate. Familiar with Windows 2000/XP.
Tools used	Drilling machine and Lathe machine, Familiar with EDM & CNC
Instrumentation	High Temperature furnace, design of special kind sample holder, heating elements and temperature sensors, Interfacing with PC

**RESEARCH CONTRIBUTION:**

**New Research findings:** A new mode of energy loss of charged particles during their passage through ferroelectric medium has been discovered. The new phenomenon involves interaction of a charged particle with a cluster of unit cells & is yet to be theoretically explained. It is expected to be of great help in developing efficient biological shields against nuclear radiations.

**MEMBERSHIP OF PROFESSIONAL BODIES:**

Life Member of

- **National:** IACG, Chennai (L463), IAPT Kanpur (7599L4250), MRSI, Bangalore (LM1353)
- **International:** ICTP Triestly, Italy and FRIB, USA

## RESEARCH PUBLICATIONS:

### Referred Journals

1. U V Khadke Technique for measurement of energy loss of proton in target medium 2018 "AIP Proceedings 1953 (1), 090084
2. "S S Kulkarni, P B Belavi, U V Khadke""Synthesis, structural, characterization and dielectric spectroscopy of PVDF – BaTiO<sub>3</sub> polymer composite" 2018"AIP Proceedings 1953 (1), 090046"
3. "M Limbitot, S Kalyane, N Sharanappa, RD Balikile, UV Khadke" Electrical & dielectric studies of Silver oxide/Polyaniline nanocomposites influenced by ammonium dichromate 2018, International Journal of Advanced Science and Research
4. Sangshetty Kalyane and **U. V. Khadke.**, (2017) "Dielectric Spectroscopy of Polyaniline/ Mixed Metal Oxide Composites" *Intl. Jr. of Pure and Applied Physics*, 13(2), 175-183
5. Sangshetty Kalyane and **U. V. Khadke.**, (2017) "AC conductivity of Polyaniline/Mixed metal oxide (Pani/NiCoFe<sub>2</sub>O<sub>3</sub>) Composites" *Intl. Jr. of Pure and Applied Physics*, 13(2), 201-209
6. **U. V. Khadke**, (2017) "PC Based Temperature Control System for Energy Spectrometer" *Adv. Comput. Sci. & Tech.* 10(7), 2119-2123
7. **U. V. Khadke** and Sangshetty Kalyane, (2017) "Present Status of Applied Science in Indian Technical Institutions" *Intl. Edu. Res. Jr.* 3(5), 402-403
8. S S Kulkarni and **U V Khadke**, (2016) "Low Energy Gamma Radiation Induced Effects on Ultrasonic Velocity and Acoustic Parameters in Polyvinylidene Fluoride Solution" *Jr. of Materials.*, Article ID 8470689, 1-8
9. **U V Khadke**, (2016) "The Energy Loss of  $\alpha$ -Particles in Ferromagnetic Nickel at Phase Transition" *Jr. of Materials.*, 2016, Article ID 4576194, 1-3
10. S S Kulkarni and **U V Khadke** (2016) "Effect of Solvents on the Ultrasonic Velocity and Acoustic Parameters of Polyvinylidene Fluoride Solutions" *Ind. Jr. of Mater. Sci.* Article ID 9582582, 1-6
11. **Khadke Udaykumar**, M. T. Lagare, S. M. Hangodimath, D. K. Avasthi (2005) "Temperature dependent energy loss of protons in ferroelectric barium Titanate single crystals" *Ferroelectrics*, 328, 65-70
12. **U V Khadke** (2015) "Development of Low Cost  $\gamma$  - Ray Energy Spectrometer" *Intl Jr. on Emerging Technology*, 6(2): 315-319 (Special Issue on NCRIET-2015)
13. **UdayKumar Khadke**, B.R. Kerur, S.M. Hangodimath, M.T. Lagare, S.K. Srivastva, S.V.S. Nageshwar Rao, A.Mandal & D.K. Avasthi, (2003) "The effect of temperature on the behavior of semiconductor silicon surface barrier detectors" *Radiation Measurements.* 36, 625-628
14. P. K. Diwan, S. Kumar, V. Sharma, S. K. Sharma, V. K. Mittal, B. Sannakki, R. D. Mathad, **K. Uday Kumar**, S. A. Khan & D. K. Avasthi (2003). "Slowing down of MeV heavy ions with Z=6-29 in PEN (C<sub>7</sub>H<sub>5</sub>O<sub>2</sub>)". *Nucl. Instrum. and Methods Phys.* B201 389-395

### Books:

1. "Interaction of Radiation with Materials Undergoing Phase Transition", U V Khadke, Lambert Academic Publishing Co. Germany, 2017, (ISBN: 978-3-659-89057-4)
2. "Ferroelectric Polymer Composites: Modification and Applications", S S Kulkarni and U V Khadke Lambert Academic Publishing Co. Germany, 2017, (ISBN: 978-613-9-92980-1)

### TECHNICAL PAPER PUBLICATIONS:

1. **U. V. Khadke**, S. M. Hangodimath, B. R. Kerur, R. D. Mathad, M. T. Lagare & R. N. Dutta "A PC Based Temperature Control System" NSC Annual Report 82, (2000-01).
2. **U. V. Khadke**, M. T. Lagare, A. Mandal, P. Barua, Ashok Kothari, Rewa Ram, S. K. Srivastava, and S.V.S.Nageshwar Rao "Accessories for the new chamber in LIBR line" NSC Annual Report 83, (2000-2001)
3. **U. V. Khadke**, B. R. Kerur, S. M. Hangodimath, R. D. Mathad, M. T. Lagare, A. Mandal, S. V. S. N. Rao, S. K. Srivastava, and D. K. Avasthi "Technique for the measurement of energy loss of Protons in thick Targets" NSC Annual Report, 165 (2000-2001).

#### CONFERENCE/WORKSHOP/SYMPOSIUM ATTENDED AND PRESENTED PAPER:

1. **U V Khadke (2016)** “Dielectric Response of Ferroelectric Polymer PVDF-BT Composites” National Conference on Materials in Advance Technology and Applications” 20-21 Sept’2016 at Maharashtra Institute of Technology, Aurangabad
2. **U V Khadke (2015)** “Development of Low Cost  $\gamma$  - Ray Energy Spectrometer” National Conference of Recent Innovations in Engineering and Technology at BKIT, Bhalki 7-8 Nov’2015 published in Intl. Jr. on emerging Technology, 6(2): 315-319
3. **S S Kulkarni and U V Khadke, (2015)** “Radiation Induced Modification of Acoustic Parameters in PVDF Solution” Proceedings of 20<sup>th</sup> National Symposium on Radiation Physics, Oct 28-30 2015 at Mangalore University
4. **S S Kulkarni and U V Khadke (2015)** “Effect of solvents on the Acoustic parameters of ferroelectric polymer solutions “ 102<sup>nd</sup> Indian Science Congress, 3–5 Jan’2015, University of Mumbai.
5. **S S Kulkarni, H. Bendigeri, V K Vijay and U V Khadke\* (2013)** “Present Status of Applied Science in Indian Technical Institutions” 100<sup>th</sup> Indian Science Congress, 3<sup>rd</sup> – 7<sup>th</sup> January, 2013 Kolkota
6. **U V Khadke and M T Lagare, (2012)** “Energy Loss of Alpha Particles in ferromagnetic and polymer materials” International Conference on Swift Heavy Ions in Materials Engineering & Characterisation (SHIMEC-12) 9<sup>th</sup>–12<sup>th</sup> Oct’2012, IUAC New Delhi
7. **A P Deshpande, S S joshi and U V Khadke\* (2012)** “Present Status of Applied Science in South Indian Technical Institutions” National Seminar – workshop held at SRS Govt. Polytechnic College Ludhiana Panjab during 23-24 Feb 2012
8. **Ashwini Araballi, Anuja P. Jain and U V Khadke (2012)** “Physics Experiments using Phoenix kit” National Seminar – workshop held at SRS Govt. Polytechnic College Ludhiana Panjab during 23-24 Feb 2012
9. **U. V. Khadke and S. S. Kulkarni, R. S. Mangelwede & V. V. Sondur (2005)** “Detection of High-Energy Radiation using Semiconductor Crystals” Tenth National Seminar on Crystal Growth, Kongu Engineering College, Perundurai, Erode TN 27–29 January 2005
10. **Khadke Udaykumar, M. T. Lagare, S. D. Dhole & V. N Boraskar** “Anomalous energy loss of 6 MeV electrons in ferroelectric targets”. 4<sup>th</sup> International Conference on Ion Beam Modification In materials at Asilomar, California, USA. 5–11 Sept’2004
11. **Syed Khasim, S. C. Raghavendra, K. Uday Kumar, M.V.N Ambika Prasad,** “Dielectric & ferroelectric response of polyaniline-BaTiO<sub>3</sub> composites” MRSI-14<sup>th</sup> meeting & theme symposium on Novel polymeric materials, Baba Atomic Research Centre Feb 11-13, 2003
12. **Khadke UdayKumar,** “Design & fabrication of low cost furnace & the ferroelectric loop traces” 17-Annual Convention of IAPT, November 14-16, 2002, S.B College Gulbarga

#### Event Organized:

1. **Organising Secretary:** Two Weeks National Level Faculty Orientation Programme on “Educate the Educators” at BKIT Bhalki, 1-10 June 2016
2. **Organising Member:** One Week National Level Short Term Technical Programme on “Tools in Teaching, Learning and Research” organised by BKIT, Bhalki 25-30 Nov’2016
3. **Organising Convener:** One day Acquaintance Programme of IUAC at Visvesvaraya Technological University, Belgaum on 18th Nov’2014 (Funded IUAC)
4. **Organising Convener:** Faculty Development Programme on “Role of Teachers: Challenges and Opportunities in Technology” VTU RO Kalaburgi, 7<sup>th</sup> – 10<sup>th</sup> May 2014 (Funded VGST)
5. **Organising Member:** National Conference on Engineering of Materials through Energetic Particles at Bahubali College of Engineering, Shravanabelagola, 8<sup>th</sup> – 10<sup>th</sup> April 2010

#### Resource Person:

1. Material Modification by Ion Beam, National conf. of Material Science at BKIT Bhalki
2. Scope for Engineering aspirants, Career Guidance Meet at AIET Kalaburgi by “The Hindu”
3. Science in 21<sup>st</sup> Century, Science Centre Belgaum
4. Opportunities in Engg. & Technological discipline, Career Guidance Meet at BKIT Bhalki

5. Energy loss of charged particles in ferroelectrics, IUAC Acquaintance Prog. at VTU Belgaum
6. An overview of hybrid Energy Systems, A week FDP on Renewable energies at BKIT Bhalki

**FDP/ORIENTATION PROGRAMME/REFRESHER COURSE/SCHOOL ATTENDED:**

1. Refresher Course on Recent Trends in Physics of Material Science and Technology held at UGC-HRD Centre JNTU Hyderabad 17-07-2017 to 5-8-2017
2. National Level Short Term Technical Programme on Tools in Teaching-Learning & Research organised by BKIT, Bhalki 25-30 Nov'2016
3. National Level Faculty Orientation Programme on Educate the Educators organized by BKIT, Bhalki June 1-10, 2016
4. Workshop in "Training the Trainer on Intellectual Property Rights" held at VTU Belgaum on 6<sup>th</sup> Jan 2014
5. Workshop cum Seminar on surface Modification and Characterization held during 23-24 Nov 2001 at Materials Science Laboratory, University of Rajasthan
6. Workshop for Microtron Users held during 24 -25 October 2001 at Dept. of Physics Mangalore University
7. Workshop on Experiments with Lasers held on 23 Jan 2001 at Department of Physics Gulbarga University Gulbarga Karnataka state India
8. International School on Crystal Growth Methods and Processes held during 24<sup>th</sup> Jan – 4<sup>th</sup> Feb 2000 at Crystal Growth Center Anna University Chennai
9. Vacuum Technology under Consortium Education Programme (CEP) held during 6<sup>th</sup> 10<sup>th</sup> Sept 1999 at Solid State Physics Laboratory New Delhi
10. Swift Heavy Ions in Materials and characterization-Basic Phenomenon and its application held on 24<sup>th</sup> October 1998 at Nuclear Science Center New Delhi
11. International conference on Swift Heavy Ions in Materials and characterization [SHIMAC] 19<sup>th</sup> – 22<sup>nd</sup> October 1998 at Nuclear Science Center New Delhi

**Dr. Khadke Udaykumar**