Dr. Bhagwat Saluram Kharat

Home Address
Polt.no. 136, Sonal Nagar
Jalna, Dist-Jalna 431501

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Dept. of Physics, S. V. Sr. College
Mantha, Dist-Jalna 431504

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ACADEMIC PROFILE

Ph.D. (Physics)

- Ph.D. degree awarded in August 2012 from *Swami Ramanand Tirth Marathwada University Nanded, Maharashtra, India*, in Physics under the guidance of **Dr Ajay Chaudhari,** Head & Professor at Department of Physics, *The Institute of Science, 15 Madam Kama road Mumbai, Maharashtra, India*
- Thesis title: "**Density Functional Study of Oligomers and their NLO Properties"**

M.Phil. (Physics)

- M.Phil. degree awarded in August 2008 from *Alagappa University Karaikudi – 630003 Tamilnadu, India*, in physics, under the guidance of **Dr. Sushant Deshmukh,***J. E. S. College Jalna, Maharashtra, India*
- Title: "**Computational study of 4d-Metal Monoborides, Monocarbides, Mononitrides, Monoxides and Monofluorides using DFT methods**"

M. Sc. (Physics)

Department of Physics, *Dr. B. A. M. University Aurangabad, Maharashtra, India* in IInd Division

B.Sc. (Physics, Mathematics and Electronics)

Deogiri College, Aurangabad (Dr. B. A. M. University Aurangabad. Maharashtra, India) in IInd Division

TEACHING EXPERIENCE

Twenty two year teaching experience at under graduate level (B.Sc).

- L. B. S. Sr. College, Partur Dist Jalna. (**01 Feb 2000 to 30 June 2016**).
- Swami Vivekanand Sr. College, Mantha, Dist. Jalna, (**01July 2016 to Till date**)

COLLEGE / UNIVERSITY EXAMINATION DUTIES

- Question paper setting
- Evaluation of answer scripts
- Invigilation and additional examination work.
- Member of Affiliation committee, Dr. B. A. M. U. Aurangabad
- Co-ordinator/Member of various committee at college level
- VC-Nominated subject expert

- Member of syllabus design committee at under graduate level
- Coordinator of Criterion III–Research, Innovations and Extension

CONFERENCES IN ORAL/POSTER PRESENTATION

- Poster presentation in *3rd International Conference* on**"Current Developments in Atomic, Molecular, Optical and Nano Physics (CDAMOP 2011)"** held at *University of Delhi, Delhi – 110007, India* in December, 2011 (14th Dec 2011 to 16th Dec 2011).
- Poster presentation in *1st International Conference*on **"Physics of Materials and Materials Based Device Fabrication (ICPM-MDF-2012)"** Organized by *Department of Physics, Shivaji University, Kolhapur, Maharashtra, India* in January 2012 (17th Jan 2012 to19 Jan 2012).
- Poster presentation in *Indo-German Conference*on **"LASER APPLICATION AND NANOSCIENCE"** Organized by *Srinivasa Ramanujan Institute for Basic Sciences, KSCSTE, Goethe-Zentrum and Humboldt Club of Kerala, India* in December 2013 (5th - 7th Dec 2013).
- Participated in **"National Symposium on Applied Spectroscopy in Sciences and Technology, NSASST-2014"** Organized by *School of Physical Sciences, Swami Ramanand Teerth Marathwada University, Nanded, Maharashtra, India, during* March 2013 (21th -22th March 2013).
- Poster presentation in *International Conference*on **"Functional Materials and Microwaves (ICFMM) - 2015)"** Organized by *Department of Physics, Dr. Babasaheb Ambedkar Marathwada University, Aurangabad, Maharashtra, India* in *December* 2015 (28th Dec. 2015 to 30th Dec. 2015).
- Oral presentation in *National level Seminar* on **"Recent Advances in Physical Sciences"** organized by *S.B.E.S. College of Science, Aurangabad, India,* held on 14th Feb 2018.
- Participated in **"National Symposium on higher education"** organized by Maharaja Agrasen Foundation, Jalna, India, held on 02nd April 2018.
- Oral presentation in *International conference* on **" Innovation in Physical, Chemical and Life Sciences (IPCLS-2018)"** organized by *Department of Physics and IQAC, New Arts, Commerce and Science College, Parner, Dist. Ahmednagar, India,* held on 27-28th December 2018.
- Oral presentation in *National conference* on **"Functional Materials Synthesis and Characterization Techniques (NCFMSCT-2019)"** organized by *Department of Physics, Vaidyanath College, Parli-Vaijnath, Beed, Maharastra, India,* held on 2nd March 2019.
- Oral presentation in *National conference* on **"Recent Advances In Nanotechnology-2019 - An Interdisciplinary Approach (RAN-2019)"** organized by *Department of Physics, Toshniwal Arts, Commerce & Science College, Sengaon, Dist. Hingoli, Maharashtra, India*, on 5th March 2019.
- Oral presentation in *National conference* on **"Recent Trends in Material Science & Nanotechnology (RTMSN-2019)"** organized by Department of Physics , Anandrao Dhonde Alias Babaji Mahavidyalaya, Kada, Asthi, Dist. Beed, MAharastra, India, on 17th March-2019.
- Participated in **"One Day National Seminar on e-content Development and MOOC-2019"** Organized by Milliya Arts, Science & Management Science College, Beed, Maharashtra held on 24th August 2019.

- Oral presentation on *International E-Conference* on **"Advanced Materials in Innovative Technology (ICAMIT-2022)"** organized by Milliya Arts, Science and Management science college, Beed (MS), India, on 11th January-2022
- Oral presentation on *one dayNational conference* on **"The Role of Information Technology in Entrepreneurship and Higher Education"** organized by VSS College Jalna & Dr. B. A. M. University Aurangabad, MAharastra, India, on 26th March-2022.

CONFERENCES/SEMINARS/WORKSHOPS

- Attended *National Conference*on **"Microwave and Optoelectronics (NCMO-2004)",** Organized by Department of Physics, *Dr. B. A. M. University, Aurangabad, Maharashtra, India*, in June 2004 (29th Jun 2004 to 30 Jun 2004).
- Attended *National Conference*on **"Current trends in materials research for advanced technology" (NCMART-2007),** Organized by Department of Physics, *Dr. B. A. M. University, Aurangabad, Maharashtra, India*, in January 2007 (29 Jan 2007 to 31 Jan 2007).
- Attended *National Seminar* on **"Recent trends in multifunctional oxide materials"** Organized by *Department of Physics, Osmania University, Hyderabad, Andhra Pradesh, India*, in July 2009 (17th July 2009 to 18th July, 2009).
- Attended *State Level Seminar* on **"Emerging trends in curriculum & teaching methods in physics"** Organized by *Department of Physics, Nutan Mahavidyalaya Sailu Dist. Parbhani, Maharashtra, India*, in February 2007 (6 Feb 2007 to 7 Feb 2007).
- Attended *State Level Workshop*on **"Data Processing' (UGC Sponsored regional workshop)"** Organized by *Department of Physics, J. E. S. College Jalna, Maharashtra, India*, in March 2005 (14th Mar 2005 to 15th Mar 2005).
- Attended *State Level Workshop*on **"Physics experiments in new curriculum"** Organized by *Department of Physics, J. E. S. College Jalna, Maharashtra, India,* in September 2003 (12th Sept 2003 to13th Sept 2003).
- Attended *State Level Workshop*on **"B.Sc. Physics practicals (SLWPP-04)"** Organized by *Department of Physics, Deogiri College, Aurangabad, Maharashtra, India,* on 19th August 2004.
- Attended *State Level Workshop*on **"B.Sc. Physics practicals (New UGC syllabus)"** Organized by *Department of Physics, Maulana Azad College, Aurangabad, Maharashtra, India,* on 16th September 2005.

ORIENTATION / REFRESHER COURSE

- **69th Orientation Course**, *Himachal Pradesh University, Shimla, India* (14 may 2004 to 10 June 2004)
- **13th Refresher Course in Physics**, *Osmania University, Hyderabad, India* (08 July 2009 to 29 July 2009)
- **Refresher course in ICT Application (ID)** , Sant Gadge Baba Amravati University, Amravati, India (14 sept. 2015 to 05 oct. 2015)
- **STC in Research Methodology (Science)**, HRDC,Dr. B. A. M. University Aurangabad, India (24th June to 29th June 2019)
- **STC in Workshop on MOOCs e-content development and open Educational Resources**, HRDC, Dr. B. A. M. University Aurangabad, India, (24th Feb. to 29th Feb. 2020.).

- **STC in Yogic practices for Holistic fitness and wellness**, UGC-HRDC, University of Mumbai, India (13.12.2021 to 18.12.2021).

RESEARCH PUBLICATIONS

- "*4d Transition Metal Monoxides, Monocarbides, Monoborides, Mononitrides and Monofluorides: A Quantum Chemical study*" in *"**International Journal of Quantum Chemistry 109 (2009) 1103-1115**"*by **Bhagwat Kharat**, S. B. Deshmukh and Ajay Chaudhari
- "*Cyclic and ladder hydrogen bonded cyanamide oligomers: a density functional theory and many-body analysis approach*" in "***Structural Chemistry*23 (2012) 37-45"** by **Bhagwat Kharat**, Vinayak Deshmukh and Ajay Chaudhari
- *"Nonlinear optical properties and spectroscopic characterization of aniline in singlet, triplet and quintet state using quantum chemical methods"* in "***Computational Theoretical Chemistry*980 (2012) 115-122"** by Vinayak Deshmukh, **Bhagwat Kharat** and Ajay Chaudhari
- *"Hydrogen-bonding interactions in acetonitrile oligomers using density functional theory method"* in ***"Structural Chemistry 23*(2012) 637–644"** by **Bhagwat Kharat**, Vinayak Deshmuk hand Ajay Chaudhari
- "Effect of spin multiplicity on structure, second hyperpolarizability and vibrational spectrum of cyanamide" in ***"J. Computational and Theo. Nanoscience* 10 (2013) 19-26"** by **Bhagwat Kharat,**Vinayak Deshmukh, and Ajay Chaudhari
- *"Borazine in Singlet, Triplet And Quintet: Spectroscopic Characterization and Nonlinear Optical Properties Using Ab Initio and Density Functional Theory Method "* in ***"J. Computational and Theo. Nanoscience* 9 (2012) 1633-1641"** *by* Vinayak Deshmukh, **Bhagwat Kharat** and Ajay Chaudhari
- *"Computational study of* $(CH_3\text{-}C{\equiv}N)_n$ *(n=1-5) oligomers using Density Functional Theory method"* in***"Journal of Molecular Liquids* 177 (2013) 172-181"** by **Bhagwat Kharat,**Vinayak Deshmukh, and Ajay Chaudhari
- *"Monosubstituted acetonitrile: structure, spectroscopic characterization and hyperpolarizabilities"* in ***"Optical Materials* 35 (2013) 353-360"**byVinayak Deshmukh, Mahadevappa Nagnathappa, **Bhagwat Kharat** and Ajay Chaudhari
- "*Hydrogen bond co-operativity effects in cyclic and ladder cyanamide oligomers using density functional theory method"* in "***Journal of Molecular Liquids* 186 (2013) 131-141"** by **Bhagwat Kharat,**Vinayak Deshmukh, and Ajay Chaudhari
- *"Theoretical Study of borazine and substituted using Density functional theory method"* in "***J. Molecular Liquids* 193 (2014) 13-22"** by Vinayak Deshmukh, Mahadevappa Nagnathappa, **Bhagwat Kharat** and Ajay Chaudhari
- *"Hyperpolarizabilities of 1, 3, 5-triamino-2, 4, 6-trinitrobenzene using ab initio and Density Functional Theory method"* in "***Quantum matter 5 (2016)1-8"*** Vinayak Deshmukh, **Bhagwat Kharat**and Ajay Chaudhari
- *"Hydrogen-bonded cluster of nitroxyl: many-body analysis and spectroscopic characterization"*in ***"Structural Chemistry 32* (2021) 1163–1170"** by **Bhagwat Kharat**, Mahadevappa Naganathappa, S. Ramesh and Ajay Chaudhari
- *"Spectroscopy and second hyperpolarizability of odd spin states of acetonitrile: Theoretical study"*in ***"Spectrochimica Acta Part A: Molecular and Biomolecular***

Spectroscopy 265 (2021) 120389" by **Bhagwat Kharat,** Mahadevappa Naganathappa, Vasant Jagrut, Ajay Chaudhari

- *"DFT investigation of electronic structure of InGaAs and Ge for solar cell application"in* ***"Journal of Advances in Applied Science and Technology ISSN: 2393-8188 (print), 2393-8196 (online)"*** by K. R. Sature, **B. S. Kharat,**
- *"Artifical intelligence is enthusiastic innovation astronomy****"Entrepreneurship Higher education & information technology, ISBN: 978-93-91621-47-6 (2022)"*** by P. M. Kokne, A. N. Ardad, R. S. Yannawar, **B. S. Kharat,**R. S. Bankar, & S. P. Kokne.
- *"Many-body analysis and spectroscopic characterization of diazene oligomers: A Theoretical study*" in "***Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy 287 (2023) 121957"*** by Sumalya Kaluva, **Bhagwat Kharat**, venkata lakshmi karri, Mahadevappa Naganathappa.
- *"Nitrosamine oligomers: Many-body interactions, hydrogen bonding, and spectroscopic study****" Journal of Chemical Physics*** *By Mahadevappa Naganathappa, Sumalya Kaluva, and* ***Bhagwat Kharat.*** (Submitted)

- "Spin Multiplicity of 4d-Transition Metal Monofluoride: A Quantum Chemical Method" **An International Multidisciplinary Half Yearly Research Journal "Royal" ISSN-2278-8158, Page no.19-26,Vol-VI, (2017)**Bhagwat Kharat.
- "Accurate Theoretical Prediction of Transition Metal Mononitride using Density Functional Theory Method" **An International Multidisciplinary Quarterly Research Journal "Ajanta" ISSN-2277-5730, Page no.23-30, Vol-VII (2018)**, Bhagwat Kharat
- *"Many-body interaction of cyanamide oligomers using:Quantum chemical method" in* ***universal research analysis*** *in* **Issue:XII, Vol.VI ISSN 2229-4406 (Aug-2016)Bhagwat Kharat**.
- *"Computational study of 4d transition metal monoborides using quantum chemical method" in* ***"Review of research"*** **ISSN: 2249-894X, Vol-1,(March-2019)Bhagwat Kharat**
- *"Theoretical investigation of transition metal monoxides using density functional theory calculations"***"Research Journey ISSN: 2348-7143, Page no. 16-24, Vol-1, Issue-1, (March-2019) Bhagwat Kharat**
- *"Spin multiplicity on structure and vibrational spectrum of cyanamide"***Innovare Journal of Science, ISSN-2321-5496, Page no. 108-110, Vol-8, Issue-1, (2020)**Bhagwat Kharat
- *"Photon interaction study of smart materials using gamma ray spectrometry"***OurHeritage Page no.265-273, ISSN-0474-9030, Vol-68, Issue-38, (2020),** Bhagwat Kharat

PATENT:

- **Patent:** Innovation Patent granted by Australian government on dated 13th February 2019.

Patent no: 2019100087

Title of Invention: Oligomers with increased hyperpolarizabilities.

- **Patent:** Innovation Patent granted by Australian government on dated 19th February 2020.

  Patent no: 2019101678

Title of Invention: Stable oligomers and Polymers.

RESEARCH INTREST

- Hydrogen bonding
- Nonlinear optical properties
- Molecular modeling
- Spectroscopic characterization of molecules

RESEARCH GUIDE

- Recognized research guide at Swami Vivekanand sr. college, Mantha, Dist. Jalna. Affiliated to Dr. Babasaheb Ambedkar Marathawada University, Aurangabad.

RESEARCH PROJECT

- **Minor Research Project**

Title	Agency	Period	Grant/Amount (Rs. Lakhs)
Co-oparativity effects in oligomers of organic molecules using quantum chemical method	University Grants Commission	From Academic Year 2015-2016	2,40,000/-

MEMBERSHIP OF PROFESSIONAL\SCIENTIFIC ORGANIZATION

- **Life member of Indian Association of Physics Teachers (13557 L8570)**

ORGANIZER/COORDINATOR

- Organizer of One Day National Webinar on "Intellectual properties of right (IPR) and Patent filing" held on 09th June 2020 at Swami Vivekanand Sr. College, Mantha Dist. Jalna (M.S.).

PERSONAL INFORMATION

Designation: Associate Professor
Marital Status: Married **Gender:** Male
Date of Birth: 30th June 1975 **Nationality:** Indian
Category: OBC **Languages Known:** English, Marathi and Hindi.

DECLARATION

I hereby declare that the above written particulars are true to the best of my knowledge and belief.

Dr. Bhagwat S. Kharat
Associate Professor & Head
Department of Physics
Swami Vivekanand Sr. College, Mantha