

Curriculum Vitae
of
Dr. Jagendrasinh Kamalsinh Baria



Associate Professor in Physics
V. P. & R. P. T. P. Science College
Vallabh Vidyanagar 388 120

Curriculum Vitae of Dr. Jagendrasinh Kamalsinh Baria

Name : Dr. Jagendrasinh Kamalsinh Baria

Date of Birth : 01-10-1968

Designation : Associate Professor in Physics
V. P. & R. P. T. P. Science College,
Vallabh Vidyanagar 388 120

Date of Joining : 25-11-1991 **Teaching experience:** Nineteen Years

Address of Institute : V. P. & R. P. T. P. Science College,
Vallabh Vidyanagar - 388 120

Address for Correspondence : A-1/3 Ashirwad Society
B/H Nilkamal Society, Karamsad Road,
Vallabh Vidyanagar - 388 120

Courses taught : F. Y., S. Y. & T. Y. B. Sc.: **Theory and Practical, (Modern Physics, Optics, Atomic and Nuclear Physics, Thermodynamics, Quantum Mechanics, Classical Mechanics, Electrodynamics, Computer Languages (FORTRAN, C & C++) and Condensed Matter Physics, Nano Science and Technology)**

Email Address : jay_baria@yahoo.com

Phone No. : (O) 02692-230011, (R) 02692-237409

Foreign Visit : Metz (France), Luxemburg, Frankfurt (Germany), Prague (Czech Republic) and St. Petersburg (Russia), "Sapienza University", Rome, Trieste & Vallico Sotto (Italy).

Visiting Scientist : The Abdus Salam International Centre For Theoretical Physics (ICTP), Trieste, Italy.

Expert for e-Content Preparation: I am invited by MHRD New Delhi for E-Content preparation of Solid State Physics for Under Graduate Students under National Mission on Education through Information and Technology (NME-ICT) Project.

Educational Qualification:

Degree	School/College/University	Year of Passing	Class	Subject
S.S.C.	Guj. Sec. Edu. Board Gandhinagar	March, 1984	First Class	Guj., Maths, Scie., Soc. Stu., Eng., Sanskrit
H.S.C.	-do-	March, 1986	Second Class	Science
B. Sc.	Sardar Patel University Vidyanagar	April, 1989	First Class with Distinction	Physics
M. Sc.	-do-	May, 1991	First Class	Solid State Electronics
M. Phil.	-do-	April, 1992	First Class	Theoretical Condensed Matter Physics
Ph. D.	-do-	December, 2003	-do-	-do-

Title of M. Phil. Dissertation ***“Study of Certain magnetic properties of Liquid alkali metals by local Pseudopotentials”***

Title of Ph. D. Thesis ***“Study of Certain Physical Properties of Some d and f – shell Metals by Pseudopotential Theory”***

Recognition as P. G. Teacher: I recognize as a P. G. Teacher by Sardar Patel University, Vallabh Vidyanagar – 388 120 Notification No.: D.E./-10/6831 dated 19-03-1997.

Recognition as Ph. D. Guide: I recognize as Ph. D. guide by Sardar Patel University, Vallabh Vidyanagar – 388 120 Notification No.: D.E./10/8852 dated 20-03-2010.

I have received financial support of Rs. 1,00,000.00 under the minor research project of UGC **File No.: 47-719/08 (WRO) dated 6th March 2009.**

For the other details see Appendices A to E

(Dr. J. K. Baria)

List of Publication in International Journals

1. J. K. Baria, and A. R. Jani, **Proc. Of International conference on 14th on Liquid and Amorphous Metals (LAM14) Held at "Sapienza" University, Rome (Italy) (2010) P-77**, Structural Studies of Ca, Sr and Ba using Molecular Dynamics.
2. J. K. Baria, and A. R. Jani, **J. of Non-Crystalline Solids 356, 1696-1702(2010)**, Molecular dynamics of liquid alkali metals near melting temperature.
3. J. K. Baria, and A. R. Jani, **Indian Journal of Physics (2010) In Press**, The effect of temperature on elastic constants and bulk modulus.
4. J. K. Baria, and A. R. Jani, **Pramana 75, 737-748 (2010)**, Molecular Dynamics of liquid alkaline-earth metals near melting point temperature.
5. J. K. Baria, and A. R. Jani, **Digest J. of Nanomaterials and Biostructures, 5/2, 317-322 (2010)**, Enthalpy, Entropy and Helmholtz free energy of transition and rare earth liquid metals.
6. J. K. Baria, and A. R. Jani, **Journal of Modern Physics, (2010) In Press**, Theoretical Investigation of Transport Property of Simple and Non-simple Liquid Metals.
7. J. K. Baria, and A. R. Jani, **Brazilian j of Physics 40, 204-209 (2010)**, Structural Studies of Liquid Alkaline-earth Metals -A Molecular Dynamics Approach.
8. J. K. Baria, and A. R. Jani, **Digest J. of Nanomaterials and Biostructures, 5, 23-27 (2010)**, New criteria for the selection of exchange and correlation function.
9. J. K. Baria, and A. R. Jani, **Physica B: Condensed Matter, 405, 2065-2071 (2010)**, Lattice Dynamics of La, Yb, Ce and Th.
10. J. K. Baria, and A. R. Jani, **Physica B: Condensed Matter, 404, 2401-2411 (2009)**, Lattice mechanical properties of alkaline earth metals in bcc and fcc Phase.
11. J. K. Baria, and A. R. Jani, **Turk J Phys 33, 81 (2009)**, Asphericity in the Fermi Surface of d and f-shell metals.
12. J. K. Baria, and A. R. Jani, **Moroccan J Of Phys. : Condensed Matter, 11, 09 (2009)**, Contribution of a point defect to the electrical resistivity of simple and non-simple metals.

13. J. K. Baria, and A. R. Jani, **Digest J. of Nanomaterials and Biostructures**, **4**, 415 (2009), Magnetic and Electronic properties of simple, transition and rare earth liquid metals.
14. J. K. Baria, and A. R. Jani, **International J. of Modern Phys** (2009) in press, Lattice Dynamics of alkali metals.
15. J. K. Baria, **Physica B**, **371**, 280 (2006), Lattice Mechanical properties of alkali metals.
16. J. K. Baria, **Chinese J. of Phys.**, **42**, 287 (2004), Temperature dependent lattice mechanical properties of some fcc transition metals.
17. J. K. Baria, **Brazelian Journal of Physics**, **1185**, 34 (2004), Unified study of electrical resistivity of simple and non simple liquid metals.
18. J. K. Baria, **Czech. J. of Phys.** **54**, 575 (2004), The effect of temperature on Lattice mechanical properties of noble and transition metals.
19. J. K. Baria, **Czech. J. of Phys.** **54**, 469 (2004), Lattice mechanical properties of noble and transition metals.
20. J. K. Baria, **Chinese J. of Phys.** **41**, 528 (2003), Knight-shift and susceptibility of non-transition and transition liquid metals,
21. J. K. Baria, P. N. Gajjar and A. R. Jani, **FIZIK A, (Zagreb) J. of Phys.** **12**, 23 (2003), Equation of state, Binding energies, Bulk modulus and Grüneisen constants of 3d, 4d and 5d transition metals.
22. J. K. Baria, **Physica B: Condensed Matter**, **337**, 245 (2003), Electrical resistivity of d and f-shell liquid metals.
23. J. K. Baria, **Acta Physica Slovaca**, **53**, 117 (2003), A local pseudopotential in the study of metallic properties of Rhodium and Iridium.
24. J. K. Baria, **Chinese Phys. Letters** **20**, 894 (2003), Analysis of thermodynamics of liquid d and f-shell metals with the variational approach.
25. J. K. Baria and A. R. Jani, **Pramana J. of Phys.** **60**, 1235 (2003), Lattice mechanical properties of some fcc f-shell metals.
26. J. K. Baria and A. R. Jani, **Physica B: Condensed Matter**, **328**, 317 (2003), Comprehensive study of lattice mechanical properties of some fcc transition metals.
27. J. K. Baria, **Czech. J. Phys.** **52**, 969 (2002), Static and vibrational properties of transition metals.

List of Publication in National Journals

28. J. K. Baria, A. R. Jivani and A. R. Jani, **Structural studies of liquid sodium at various temperatures using molecular dynamics, Solid State Physics Vol. 54, 505 (2009).**
29. A. R. Jivani, J. K. Baria and A. R. Jani, **Dynamical bulk modulus of Si and Ge using higher-order perturbation theory, Solid State Physics Vol. 54, J41 (2009).**
30. J. K. Baria, **Solid State Physics (India) 46C SSPS (2003)**, Study of Certain Physical Properties of Some d and f – shell Metals by Pseudopotential Theory.
31. J. K. Baria, P. N. Gajjar and A. R. Jani, **Ind. J. Of Pure & Appl. Physics, 40,714 (2002)**, Lattice dynamics of thorium using semi nonlocal pseudopotential.
32. J. K. Baria, H. J. Trivedi, P. N. Gajjar and A. R. Jani, **Solid State Physics (India) 45C SSPS (2002)**, Theoretical investigation of structural phase stability of Na, Mg and Al.
33. J. K. Baria, P. N. Gajjar and A. R. Jani, **Proc. Of International conference on Disordered materials, INDIAS-2000, (2002) Page-30**, Model potential in the study of electrical resistivity of liquid metals, Editors K. Furukava, J. T. Watson and S. N. Saxena, Chief editor, S. K. Srivastava.
34. J. K. Baria and A. R. Jani, **Proceedings of GSRS-2001, P-3**, Study of Phonon dispersion in Al and Pb,
35. J. K. Baria and A. R. Jani, **Proceedings of SCMP-2001, P-29**, Electrical resistivity and thermo electric power of alkali metals.
36. J. K. Baria, B. Y. Thakore, P. N. Gajjar and A. R. Jani, **Solid State Physics (India) 44C, 377 (2001)**, The study of Knight-shift of liquid non-transition and transition metals.
37. J. K. Baria, **Proceedings of CMDAYS-2000, P-9**, Temperature coefficient of Knight-shift and Susceptibility of liquid simple and non-simple metals.
38. J. K. Baria, P. N. Gajjar and A. R. Jani, **Proc. Of International Conference on Advanced materials, ICAM-2000, P-51**, A model potential for transport and

magnetic properties of Ge and Si, Proc. Of International Conference on Advanced materials.

39. J. K. Baria and A. R. Jani, **Proceedings of Gujarat Science Congress, 2000, P-15**, Molecular Dynamics of Sodium,
40. J. K. Baria, B. Y. Thakore, P. N. Gajjar and A. R. Jani, **Solid State Physics** (India) **42C**, 499 (1999), Electronic susceptibility of some simple liquid metals,
41. J. K. Baria, P. N. Gajjar and A. R. Jani, **Solid State Physics** (India) **37C**, 133 (1993), Calculation of Knight-shift of some simple liquid metals.

Appendix - F

Publication of Books

1. **J. K. Baria and J. S. Luhar**, July 1998, Published by Nirav Prakashan, Relief Road, Ahmedabad. **Nirav College Physics For F. Y. B. Sc.**
2. **Dr. P. M. Patel, Dr. T. H. Patel, Dr. J. K. Baria, M. A. Kaushik, P. C. Patel, Dr. J. S. Luhar, J. A. Gothi and A. R. Jivani**, July 2003, Published by Atul Prakashan, Ahmedabad. **Physics Part – I, For F. Y. B. Sc.**
3. **Dr. P. M. Patel, Dr. T. H. Patel, Dr. J. K. Baria, M. A. Kaushik, P. C. Patel, Dr. J. S. Luhar, J. A. Gothi and A. R. Jivani**, July 2003, Published by Atul Prakashan, Ahmedabad. **Physics Part – II, For F. Y. B. Sc.**
4. **Dr. P. M. Patel, Dr. J. K. Baria, Dr. T. H. Patel, Dr. A. R. Jivani and others**, July 2006 by Atul Prakashan, Ahmedabad, College Physics for F. Y. B. Sc.
5. **Dr. P. M. Patel, Dr. J. K. Baria, Dr. T. H. Patel, Dr. A. R. Jivani and others**, July 2006 by Atul Prakashan, Ahmedabad, College Practical Physics for F. Y. B. Sc.

Conference and seminar attended

International Conferences/ Workshop:

1. 14th International conference on Liquid and Amorphous Metals (LAM14) Held at **Sapienza University, Rome (Italy) during 11th to 16th July 2010.**
2. Visited The Abdus Salam International Centre for Theoretical Physics, Trieste (Italy) as a Guest Scientist **during 17th July to 1st August 2010.**
3. **Attended International Workshop on “Quantum Monte Carlo The Casino Program V ” at Vallico Sotto (Italy) during 1st to 8th August 2010.**
4. 12th International conference on Liquid and Amorphous Metals (LAM12) Held at **Metz, France during 11th to 16th July 2004.**
5. 20th General conference Condensed Matter Division EPS, (2004) Held at **Prague, Czech Republic during 19th to 23rd July 2004.**
6. 11th International Conference on Phonon Scattering in Condensed Matter – PHONONS2004 Held at **St. Petersburg, Russia during 25th to 30th July 2004.**
7. International Conference on Advanced materials, **ICAM-2000 at Meerut, (India) During 26th to 28th December, 2000.**
8. International conference on Disordered materials, **INDIAS-2000, at Allahabad, (India) During 1st to 3rd December 2000.**

National and State level Conferences/ Workshop:

1. Workshop on “e-Content Development (NME-ICT)” at Sardar Patel University, Vallabh Vidyanagar – 388 120 on 21st August 2010.
2. Visited Department of Physics & Astrophysics at University of Delhi, Delhi, during 26th to 27th March 2010.
3. 54th DAE - Solid State Physics Symposium, at M. S. University Baroda, Vadodra (India) During 14-18 December, 2009

4. Symposium on Prospective roles of Nanoscience and technology in the industrial development of Gujarat on 9th January 2008 at Department of Chemical Engineering, Faculty of Technology, Dharmsinh Desai University, Nadiad.
5. Seminar on Alternative Sources of Energy at B V M Engineering College, Vallabh Vidyanagar – 388 120 on 11th January 2008.
6. Seminar on Exploring current trends in development of Science under Community Science Centre Sardar Patel University, Vallabh Vidyanagar – 388 120 on 29th January 2006.
7. Seminar on Condensed matter Physics, Under the aegis of DRS/SAP programme at Department of Physics, Sardar Patel University Vallabh Vidyanagar – 388 120, on 21st February 2004 and **I won the award for best thesis presentation.**
8. 46th DAE - Solid State Physics Symposium, at Gwalior (India) During 26-30 December, 2003
9. Conference on theoretical physics for Condensed Matter DAYS - 2003 held at department of physics, Jadavpur University Kolkata during 27-29 August 2003.
10. Seminar on Theoretical Physics for condensed matter, Atoms- Molecules & Particles (21-22 March, 2003), at Sardar Patel University Vallabh Vidyanagar 388 120.
11. 45th DAE - Solid State Physics Symposium, at Chandigarh (India) During 26-30 December, 2002
12. 44th DAE - Solid State Physics Symposium, at BARC, Trombay, Mumbai (India) During 26-30 December, 2001
13. One Day Seminar on Condensed matter Physics (Compose – 2001) Sponsored by UGC, New Delhi (DRS/SAP-II) at Sardar Patel University, Vallabh Vidyanagar – 388 120, on 17th March, 2001
14. Gujarat State Research Student Meet, Department of Material Science, Sardar Patel University on 22nd December 2001. (Also the member of organizing committee)
15. One day Seminar in Condensed Matter Physics, Sponsored by UGC, New Delhi (DRS-II) at M. S. University Baroda, Vadodra, on 25th March 2001.
16. 15th Gujarat Science Congress, Organized by Gujarat Science Academy, at M. S. University Baroda, Vadodra on 12-13th February 2000.

17. 42nd DAE - Solid State Physics Symposium, at Kalpakkam (India) During 20-24th December 1999.
18. Industrial Application of materials IAM, at M. S. University Baroda, Vadodra, on 21st March 1999.

Appendix - C

Refresher Courses and Orientation Program attended

1. Refresher course in physics, at Department of Physics, Sardar Patel University, Vallabh Vidyanagar – 388 120, during 1st Dec. to 20th Dec., 1997.
2. Refresher course in physics, at Department of Physics, Sardar Patel University, Vallabh Vidyanagar – 388 120, during 16th Nov. to 5th Dec. , 1998.
3. Orientation course, at Gujarat University, Ahmedabad, during 7th April to 27th April 1999.
4. Refresher course in physics, at Department of Physics, Sardar Patel University, Vallabh Vidyanagar – 388 120, during 4th Nov. to 21st Nov. 2000.
5. Short term course in RDBMS (Oracle) , at Department of Computer Science, Sardar Patel University, Vallabh Vidyanagar – 388 120, during 10th March to 13th April, 1998.

Appendix - D

Member of professional associations/bodies

1. Member of Board of studies of Physics, Sardar Patel University, Vallabh Vidyanagar 388 120
2. Member of Academic Council faculty of science, Sardar Patel University, Vallabh Vidyanagar 388 120
3. Member of syllabus committee in Physics (Undergraduate courses), Sardar Patel University, Vallabh Vidyanagar 388 120
4. Life member of Indian Physics Association.
5. Life member of International Disordered Systems Associates Society - (INDIAS).
6. Member of Physical Society, Sardar Patel University

Special achievements - Reviews/Reports:

I am the referee of the following International Journals

1. Journal of Non-Crystalline Solids in the subject Theoretical Condensed Matter Physics, published by well-known publisher **Elsevier science, U. K.**
2. Physica B: Condensed Matter Physics, published by well-known publisher **Elsevier science, U. K.**
3. Central European Journal of Physics, published by Central European Science Journal, Przasnyska 6, Poland.
4. Journal of Structural Chemistry, published by well-known publisher **Elsevier science, U. K.**
5. Moroccan Journal of Condensed Matter Physics, published by Faculty of Science, Morocco.

I have reviewed the following Research articles in the international journals

1. Prediction of the density of molten metals: Part II
2. Simulation of crystallization and glass formation of binary Pd-Ag metal alloys.
3. Temperature dependence of electrical resistivity of liquid simple metals.
4. Theoretical calculations of the temperature dependence of the electrical and thermal conductivities of liquid Gallium.
5. Ab initio calculation of the structural and elastic properties of CoSi₂
6. Preferential Co partitioning to α -Fe in noncrystalline CoFeNbB alloys by Mn addition.
7. A comprehensive study of electrical transport properties of liquid metals.
8. Quasi-static and dynamic deformation behaviors of in situ Zr-based bulk-metallic-glass-matrix composites.

I had attended the international conferences/workshop at overseas are:

1. 14th International conference on Liquid and Amorphous Metals (LAM14) Held at **Sapienza University, Rome (Italy)** during **11th to 16th July 2010.**
2. Visited The Abdus Salam International Centre for Theoretical Physics, Trieste (Italy) as a Guest Scientist **during 17th July to 1st August 2010.**
3. Attended International Workshop on “**Quantum Monte Carlo The Casino Program V**” at **Vallico Sotto (Italy)** during **1st to 8th August 2010.**
4. 12th International conference on Liquid and Amorphous Metals (LAM12) Held at **Metz, France** during **11th to 16th July 2004.**
5. 20th General conference Condensed Matter Division EPS, (2004) Held at **Prague, Czech Republic** during **19th to 23rd July 2004.**
6. 11th International Conference on Phonon Scattering in Condensed Matter – PHONONS2004 Held at **St. Petersburg, Russia** during **25th to 30th July 2004.**

I won the award for best thesis presentation at the state level in the Seminar on Condensed matter Physics, Under the aegis of DRS/SAP programme at Department of Physics, Sardar Patel University Vallabh Vidyanagar – 388 120, on 21st February 2004.

Minor Research Project

I have received financial support of Rs. 1,00,000.00 under the minor research project of UGC File No.: 47-719/08 (WRO) dated 6th March 2009.

Title: “Theoretical Investigations of Ordered and Disordered Materials Using Various Simulation Techniques”

Duration: 2 Years [30th April, 2009 to 1st May, 2011]

Expert for e-Content Preparation:

I am invited by MHRD New Delhi for E-Content preparation of Solid State Physics for Under Graduate Students under National Mission on Education through Information and Technology (NME-ICT) Project. This Program is Jointly Executed by NME-ICT & Indian Institute of Technology Kanpur (IITK).