

### **Research Publications 2008-2009**

01. On the collective dynamics of non-crystalline Aluminium-Nickel binary alloy by pseudopotential theory. B. Y. Thakore, Hetal Dabhi, Mitesh Joshi and A. R. Jani.; *Physica Scripta* **79** (2009)025007
02. Electronic transport properties of liquid Cd-Te alloys. Manjul Kumar, P. N. Gajjar, B. Y. Thakore and A. R. Jani; *Indian Journal of Pure and Applied Physics (India)* **46** (2008)431.
03. Bulk Modulus of some simple liquid metals. P. B. Thakor, V. N. Patel, B. Y. Thakore , P. N. Gajjar and A. R. Jani; *Indian Journal of Pure and Applied Physics (India)* **46** (2008)431.
04. A New method for characterizing single parametric model potential. P. S. Vyas, P. N. Gajjar, B. Y. Thakore and A. R. Jani; *Communications in Theoretical Physics (China)* **50** (2008),763.
05. High-pressure study of Na: A mean-field potential approach. N. K. Bhatt, P. R. Vyas, V. B. Gohel, and A. R. Jani; *Indian Journal of Pure and Applied Physics*, vol. **46**, (2008. 443).
06. Transport property measurements in tungsten sulphoselenide single crystals grown by a chemical vapour transport technique". D. N. Gujarathi, G. K. Solanki, M. P. Deshpande, D. Laxminarayana and M. K. Agarwal; *Crystal Research Technology* **43 (2)** (2008) 179-185
07. Synthesis of CdS nanoparticles by chemical route and their characterisation". M. P. Deshpande, Nilesh N. Pandya, Bindiya Soni M. N. Parmar, & G.K. Solanki,; *Nanotrends* **5(2)** (2008)13-17.
08. Transport property measurements in off-stoichiometric tungsten selenide single crystals grown by a PVT technique. G.K.Solanki, M.N.Vashi, Y.A.Patel, Sandip Unadkat & M.K.Agarwal; *Chalcogenide Letters* **12** (Dec. 2008) p.397-404.
09. Growth and X-ray diffraction studies of ZnTe crystals grown by physical vapour transport technique. K.D.Patel, J.R.Gandhi, G.K.Solanki and S.G.Patel; 'Prajna'-Journal of Pure & Applied Sciences **16** (2008) 165-171.
10. Effect of enhancement of selenium content in zirconium sulphoselenide on its photoelectrochemical behavior. G.K.Solanki, Sudip Goyal, S.K.Arora, Dipika Patel & M.K.Agarwal; *Indian Journal of Physics* **83 (3)** (2009) 109-118.

11. Electrical properties and surface microtopographic studies of tungsten disulfide single crystals grown by CVT technique. Sunil Chaki & Ajay Agarwal; Synthesis and Reactivity in Inorganic, Metal Organic and Nonmetal Chemistry (USA) **38** (2008) 267-271.
12. Thermal decomposition studies of CuInS<sub>2</sub>. Sunil H. Chaki; Frontiers of Materials Science in China **2(3)** (2008) 322 -325.
13. High pressure studies on single crystals of molybdenum sulphoselenide. Sunil H. Chaki, G. K. Solanki, A. J. Patel and S. G. Patel; High Pressure Physics **28(2)** (2008)133-140.
14. Growth, thermal and surface microtopographical studies of ZnSe single crystals. M K. Bhayani, A. J. Patel, Sunil H. Chaki and A. R. Jani; Journal of Optoelectronics and Advanced Materials **11 (5)** (2009) 597-601.
15. Seebeck Coefficient and Optoelectronics Studies of Cadmium Doped CuInS<sub>2</sub> Single Crystal. S. H. Chaki; Acta Physica Polonica A **115(5)** (2009) 999-1003.
16. Chemical and Structural Characterization of CdSe Thin films. K.D.Patel, R.K.Shah, D.L.Makhija, V.M.Pathak and R.Srivastava; Journal of Ovonic Research **4(6)** (2008) 129.
17. Optical Transition in WSe<sub>2</sub> single Crystals. Deepa L. Makhija, K.D.Patel, V.M Pathak and R.Srivastava; Journal of Ovonic Research **4(6)** (2008) 141.
18. Thermoelectric Power of Tungsten Diselenide Grown by Direct Vapour Transport Technique. Deepa Makhija, Mayur Patel, M.S.Jani and P.R.Jakhmola; Prajna - Journal of Pure and Applied Science **16** (2008)172- 17.
19. Twofold Conduction Mechanisms in Molybdenum Diselenide Single Crystals in the wide Temperature Range of 300K to 12K. C. K. Sumesh, K. D. Patel, V. M. Pathak, R. Srivastava; Chalcogenide Letters, **5 (8)** (2008), 177-180.
20. An Insight to Improved van der pauw factor and their Stability in the Temperature range 300 K-10 K of layered Semiconducting material, Molybdenum diselenide single Crystals. C. K. Sumesh, K. D. Patel, V. M. Pathak, R. Srivastava; Chalcogenide Letters, **5(12)** (2008) 303 – 308.
21. Growth, Physical, Structural and chemical Characterization of layered Semiconductor Molybdenum Diselenide. C. K. Sumesh, K. D. Patel, V. M. Pathak, R. Srivastava; Journal of Ovonic Research **4(3)** (2008) 61 – 68.
22. Low temperature transport properties of n- WSe<sub>2</sub> single crystals. K. D. Patel, C. K. Sumesh, Achamma John Mathai, V. M. Pathak and R. Srivastava; Prajna - Journal of Pure and Applied Science, **16** (2008) 101 – 109.
23. Spectroscopy of charge transfer complexes of four amino acids as organic two-dimensional conductors. Ashvin Padhiyar, A. J. Patel and A. T. Oza,; J. Phys. Condensed Matter, **19** (2007) 486214.

24. Spectroscopic study of ternary CT complexes based on the organometallic donor bis (diphenylglyoximato)Ni.<sup>II</sup>. Ashok N. Patel and A. T. Oza; Mol. Cryst. Liq. Cryst., **482**, (2008)117-134.
25. Vibrational spectra of CT complexes of acridine orange, Sagar Agrawal, Vishal Jain and A. T. Oza.; Indian J. Chem. (A), **47A**, (2008) P. 341-347.
26. UV-Visible – near IR and infrared spectroscopy of b-carotene and b-carotene-iodine complex. A.T.Oza, G.K.Solanki, Anand Amin and Parimal Trivedi; Indian Journal of Physics **82** (11) (2008) 1513-1533.
27. Polaron hopping in some biomolecular solids and their charge transfer complexes,. G.K. Solanki, Anand Amin, Ashvin Padhiyar, A. K. Ray and A. T. Oza, Indian J. Biochem. Biophys. **45** (2008) 421-429.
28. Infrared spectroscopy of donor-acceptor complexes of indole (benzopyrrole), G. K. Solanki, Mukesh Patel and A. T. Oza, Prajna-SPU Res. Jour. **16** (2008)150-164.
29. Theory of high pressure studies on low-dimensional conductors,. A.T.Oza and P.C. Vinodkumar; Ind. J. Pure & Appl. Phys., **47**, (2009) 32-42,
30. Electron impact calculations of total and ionization cross section for Germanium, hydrides ( $GeH_x$  ; X=1,2,3,4) and digermane  $Ge_2H_6$ . Minaxi Vinodkumar, Chetan Limbachiya, Kirti Korot, K. N. Joshipura and Nigel Mason; Int. J. Mass Spectrom., **273** (2008) 145-150.
31. Theoretical electron impact elastic, ionization & total cross sections for silicon hydrides  $SiH_x$  (x=1,2,3,4) & Disilane,  $Si_2H_6$  from Threshold to 5 KeV. Minaxi Vinodkumar, Chetan Limbachiya, Kirti Korot, and K N Joshipura; European Physical Journal-D **48(3)** (2008)333-342.
32. Computation of total electron scattering cross sections for molecules of astrophysical relevance. Minaxi V., Chetan Limbachiya., K N Joshipura, B.G. Vaishnav & Sumona Gangopadhyay. J. Phys. CS (IOP, UK) **115** (2008) 012013.
33. Electron impact processes with lesser known and exotic molecular targets, K. N. Joshipura “Advances in Atomic Molecular and Optical Science” Research Monograph of Proceedings (Published by Allied Publishers Pvt. Ltd. New Delhi) p. 167 (2008).
34. Electron collisions with sulfur compounds SO,  $SO_2$ , and  $SO_2AB$  (A,B= Cl ,F): various total cross sections,. Sumona Gangopadhyay & K N Joshipura; J. Phys. B **41** (2008) 215205.
35. Masses and Magnetic Moments of Heavy Flavour Baryons using Hypercentral Model. Bhavin Patel, Ajay K. Rai and P C Vinodkumar:; J Phys. G : Nucl. Part. Phys. **35** (2008) 065001.

36. Masses and Magnetic Moments of Charmed Baryons using Hypercentral Model. Bhavin Patel, Ajay K. Rai and P C Vinodkumar; J Phys. G : Conference Series. **110** (2008) 122010, [ also in arXiv:hep-ph/0710.3828].
37. Sensitivity of Quark matter EOS parameters and Quark star Properties. Clement J Chammesheril and P C Vinodkumar; J Phys. G : Conference Series. **110** (2008) 122252.
38. Single Heavy Flavour Baryons using Coulomb plus Power law interquark Potential. Ajay Majethiya, Bhavin Patel and P C Vinodkumar;; Eur. Phys. J. A. **38** (2008) 307 [also in arXiv: hep-ph/0805.3439].
39. Properties of Q  $^1Q$  mesons in NRQCD formalism. Ajay Kumar Rai, Bhavin Patel and P C Vinodkumar;; Physical Review C. **78** (2008) 055202 [also in arXiv: hep-ph/0810.1832].
40. Decay Properties of quarkonia with NRQCD formalism using spectroscopic parameters of potential models. Ajay Kumar Rai, J N Pandya and P C Vinodkumar; Eur. Phys. J A **38**, (2008) 77, [also in arXiv: hep-ph/0901.1546].
41. Heavy Flavour Baryons using Hypercentral Model. Bhavin Patel, Ajay K. Rai and P C Vinodkumar; Pramana - J. Phys. **70** (2008) 797, [arXiv: hep-ph/0802.4408].
42. A study on the behaviour of hydromagnetic squeeze films between two conducting rough porous annular plates. P. A. Vadher, P. C. Vinodkumar, G. M. Deheri and R. M. Patel;; Proc. Pakistan Acad. Sci. **45(2)** (2008) 81-95.
43. Binding energy and masses of QQq baryons in analogy with  $H_2^+$  molecule, Ajay Majethiya, Bhavin Patel and P C Vinodkumar;; Prajna - Jnl. Pure & Appl. Science. **16** (2008)121-126.
44. Behaviour of hydromagnetic squeeze films between two conducting rough porous circular plates. P. A. Vadher, P. C. Vinodkumar, G. M. Deheri and R. M. Patel;; Proc. I Mech E. **222** Part J: J. Engineering Tribology (2008) 569-579.
45. Theory of high pressure studies on low-dimensional conductors. A. T. Oza and P. C. Vinodkumar, Indian J of Pure & Applied Physics **47** (2009) 32-42.
46. Masses and Magnetic Moments of Triply Heavy Flavour Baryons using Hypercentral Model. Bhavin Patel, Ajay Majethiya and P C Vinodkumar;; Pramana - J. Phys. **72** (2009) 679-688 [also in arXiv: hep-ph/0808.2880].
47. Properties of \$Q \bar{Q}\$ (Q belongs b,c) mesons in Coulomb plus power potential. Bhavin Patel and P.C. Vinodkumar ; J Phys. G : Nucl. Part. Phys. **36** (2009) 035003 , [also in arXiv:hep-ph/0808.2888].