

## BIO-DATA

1. **Name:** Prof. A.C. Sharma
2. **Present Position:** Dean, Faculty of Science, & Head, Physics Department.
3. **Address:**
  - (a) **Official: (i) Dean,** Faculty of Science, The M.S. University of Baroda, Vadodara-39002.; **email:** acs\_phy@yahoo.com, [acs-phy@msubaroda.ac.in](mailto:acs-phy@msubaroda.ac.in); **Phone:** 0265-2795329 (O), 09426316147 (M).
  - (ii) **Head,** Physics department, Faculty of Science, The M.S. University of Baroda, Vadodara-39002.; **email:** acs\_phy@yahoo.com, [acs-phy@msubaroda.ac.in](mailto:acs-phy@msubaroda.ac.in); **Phone:** 0265-2795339 (O), 09426316147 (M).
- (b) **Residential Address :** 12 Nandishwar Bungalows, Nr. Bright day School, Vasna-Bhayli Road, Vadodara-391410 ( Gujarat); **Phone:** 02652974554 ( R ).
4. **Date of Birth :** 15.11.1956.

### 5. Academic Qualifications

Examination Passed	Year	Class/ Div	Subject(s) Studied	Board/University
i) High School	1972	Ist	Science, Maths, Hindi, English, Drawing,	U.P. Board, Allahabad
ii) Intermediate	1974	Ist	Physics, Maths, Hindi, Chemistry, English.	U.P. Board, Allahabad
iii) B.Sc	1976	Ist	Physics, Maths, Chemistry	Agra University
iv) M.Sc	1978	Ist	Physics	Agra University
v) Ph.D	1983	-	Condensed Matter Physics	University of Roorkee (now I.I.T. Roorkee)
vi) Post-doctorate	1983-85	-	Semiconductor surfaces/interfaces	Cavendish Lab. Univ. of Cambridge (U.K.)

6. **Professional qualifications:** 27 years teaching experience & 35 years research experience.

Institution	Post held	Period	Nature of duties
ii) Indian Institute of Technology Delhi	Scientists' Pool Officer (CSIR)	06.02.1986-05.02.1989.	Research in field of superconductivity & superlattices & teaching of UG classes.
iii) Jiwaji University Gwalior	Lecturer	06.02 1989-.06.07.1994.	Teaching of P.G. Classes & research in field of superconductivity & superlattices.
v) M.S. University of Baroda	a) Reader	07.07.1994-17.08.2000	Teaching of U.G. &P.G. Classes; research in field of superconductivity, nanostructures & graphene structures.
	b) Professor	18.08. 2000 onwards	

## 7. Scholarships, Awards, etc.

- (i) Received Merit scholarship during 11<sup>th</sup> & 12<sup>th</sup> Std. studies.
- (ii) Received University Bursary during B.Sc. & M.Sc. studies.
- (iii) Stood first in class and received College **Gold Medal** for B.Sc. and M.Sc. degrees.
- (iv) Awarded UGC, New Delhi's junior research fellowship during Ph.D. degree.
- (v) Awarded Cavendish Laboratory, University of Cambridge's Post doctoral Research Assistantship for two years ( 1983-1985).
- (vi) Awarded M.P. Council of Science & Technology's Fellowship for in service Young Scientists for working at IISc, Bangalore for three months in 1990.
- (vii) Awarded Theoretical physics Seminar circuit speakership to deliver specialised scientific talks at various Indian universities for two years during 1998-2000.
- (viii) Awarded Indian National Science Academy visiting fellowship to work for two months at IIT, Roorkee during 1999-2000.

## 8. Administration related Experience

- i) Dean, Faculty of Science, from 21.12.2012.
- ii) Head of department, from 26.09.2008.
- iii) Chairman, Board of studies in Physics & meteorology since Sept.-2008.
- iv) Programme coordinator, DST-FIST, since Nov.2009.
- v) Coordinator, DST PURSE programme since 15.06.2013.
- vi) Dy. Coordinator, DRS phase-III, since Oct.-2008.
- vii) Worked as officiating head of department for the periods of 10.7.2003 to 29.8.2003, and then 26.9.2008 to 14.12.2008. Incharge head of department from May 23 - June 5, 2008 and another 5 days at different dates during 2003-2008, at M.S. university of Baroda.
- viii) Conducted M.Sc.(pre) physics admissions as chairman of admission committee for the years of 2005, 2006 & 2007.
- ix) Worked as coordinator of **central assessment cell** at faculty of Science for first & second half examinations of 2006 and first half examinations of 2008.
- x) Worked as chairman of board of examiners for M.Sc. (Pre) Physics during the examinations of first & second half of 2003, 2006, 2007 & first half of 2008.
- xi) Worked as chairman of board of examiners for T.Y.B.Sc. Physics for the examinations of first & second half of 2005.
- xii) Worked as chairman of board of examiners for F.Y.B.Sc. Physics for the examinations of first & second half of 1999.
- xiii) Member of board of studies in physics and meteorology from 1997 to date.
- xiv) Member of faculty board from 2000 to till date.
- xv) Contributed & participated in preparation and presentation (at UGC New Delhi) in COSIST programme in 2000 and in DRS phase-III programme in 2007.
- xvi) Worked as coordinator/member of several curriculum revising committees for F.Y. B.Sc. to M.Sc. (final) physics, during the period of 1996 to 2008.

## 9. Experience of Research Guidance:

a) *Ph.D.* Completed- 08; ongoing- 04, b) *M.Phil.* Completed -07

Title of Ph.D. thesis	Year of awar	Name of candidate
1) Study of the superconducting properties of copper oxide superconductors.	1994	Dr.Ina Kulshrestha
2) Study of High $T_c$ Superconductors.	1994	Dr. N. Chaturvedi
3) Collective excitations and light Scattering	1997	Dr. Ratna. Sen

compositional and Doping Superlattices		
4) Many particle interactions in Semiconductor Superlattices & microstructures.	2000	Dr. Aruna Bajpai
5) Electron-electron & electron-impurity Scattering and their effects of properties of semiconductor Superlattices.	2000	Dr. Pushpendra Tripathi
6) Electronic & Optical properties of cuprate superconductors	2000	Dr. Keyur Vyas
7) Transport properties and many body aspects of Quantum wires.	2006	Dr. Syed Sikandar Z. Ashraf
8) Ballistic Transport through Atomic Chains.	2010	Dr.S K Ambawale

**b) Candidates working for Ph.D. at present:** 1) Mr. Ketan Prajapati, 2) Miss Kavita Mishra, 3) Mr. Digish. M. Patel, 4) Mudra Dave.

**10. Principal Investigator to externally funded Research Projects; completed & ongoing**

(i) Total research grants under projects; **Rs.81, 51,760/-**.

(ii) Number of junior research Fellows granted under projects; **09**.

(iii) Research facilities created under projects; *a well established computing laboratory having 5 high end work stations, advanced text books and monographs.*

**(iv) Summary of projects**

Title of the Project	Name of Funding Agency	Amount	Duration
The Properties of Quasi -2D Electron /Hole Systems	CSIR, New Delhi	Rs.1,65,000/-	3 & 1/2 years; 6.11.'90- 31.5.'94
Many Body Interactions in Solids of Reduced Dimensions.	UGC, New Delhi	Rs.99,802 /-	3 years; 6.11.'90- 31.5.'94
The Collective Excitations & other related properties of Semiconductor Superlattices	DST, New Delhi	Rs. 6,10,442/-	4 years; 23.12.'94 - 22.12.98
Electronic & Optical Properties of Quantum Wires & Quantum Dots.	DST, New Delhi	Rs.7,03,536/-	3.5 years; 14.6.2000 to 13.12.2003
Screened potentials & Relaxation Time in Nanoparticles.	UGC, New Delhi	Rs. 2,92,500/-	3 years; 1.4.02-31.3.05
Electrochemical synthesis of organized low dimensional II-IV semiconductors and the Study of relaxation processes and scattering rates.	DST, New Delhi	Rs.24,12,800/-	3 years; 1.6.2007 onwards.
Theoretical investigations on many particle aspects involving electron-electron interactions in graphene.	DAE-BRNS, Mumbai	Rs.9, 14,500/-	3 years; 3.11.08 to 2.11.11.
Ab-initio Investigations on Structural, Transport and Optical	DST, New Delhi	Rs.14,0000/-	3 years; 15.6.2011- 14.6.2014.

Properties of small and medium size atomic wires, clusters and nanomaterials,			
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### 11. Visits to Research and Teaching Institutions abroad and in India

Sr. No.	Name of Institution	Period of Visit	Purpose of Visit
1	Department of Applied Physics Chalmers University of Technology, Sweden.	1 May to 30 June-95	Visiting Scientist Sponsored by Swedish Institute
2	Physics Department, Peking University, Beijing.	22 August to 15 Sept. 1990.	Visit to attend International workshop On high Tc superconductivity.
3	Physics department Indian Institute of Science, Bangalore.	20 January to 20 March 1992.	Visiting Scientist, sponsored by M.P. Council of science & technology, Bhopal.
4	Department of Physics, University of Roorkee.( Now IIT, Roorkee)	18 May to 18 June- 1999	Visit under INSA fellowship
5	Centre of Theoretical Studies Indian Institute of Science, Bangalore.	13 May to 15 June 1992.	Visiting Scientist Sponsored by Centre of Theoretical Studied, IISc, Bangalore

#### 11. Academic recognitions:

- (i) Worked as an evaluator for several research projects submitted for funding to Department of Science & Technology, New Delhi and the Madhya Pradesh Council of Science & Technology, Bhopal.
- (ii) Worked as Subject expert in many selection committees and the expert to assess applications for promotion under CAS for various Indian universities.
- (iii) Worked as a referee for several National/International research journals.
- (iv) Worked as an external referee/examiner to assess the Ph. D. theses and to conduct Ph.D. viva-voce examinations for many Indian Universities such as Punjab university Chandigarh, Barkhatullah University Bhopal, R.D. university Jabalpur, S.P. University, Vallabh Vidyanagar.
- (v) Has been invited to deliver specialist's scientific talks under theoretical physics seminar circuit award at;
  - (a) Punjab University Chandigargh ( 21-23, March, 1999),
  - (b) University of Roorkee ( 24-27, March 1999)
  - (c) University of Pune ( 3-6, March 2000) and
  - (d) University of Hyderabad ( 6-8, March 2000).
- (vi) Delivered a lecture series on quantum mechanics on invitations at physics department, Barkatullah University, Bhopal, Nov.20-25, 1998.

- (vi) Worked as a member of assessing and recommending committee for young scientist award in material science during 93-Indian Science Congress & 94-Indian Science Congress held in 2006 and 2007.

## 12. Membership in learned

**Societies/Association** : i) Life member of Indian Physics Association; ii) Member of departmental Physical Society, (ii) Fellow of Gujarat Science Academy.

## 13. Symposiums/ Seminars organized

1. Organised *as the organising* secretary a 4-day Symposium on “Recent developments in condensed matter Physics” at Jiwaji University, Gwalior in March 28-31, 1993.
2. Organised *as the convener* a one day Seminar on Nanostructures, at M.S. University of Baroda, in March 28, 2003.
3. Organized 3-day National Conference on physics of Nanostructures and Biomolecules during 22-24 January 2007, *as convener* at M.S. University of Baroda.
4. Organised 5-days, 54<sup>th</sup> DAE Solid State Physics Symposium, as local convener during December 14-18, 2009, at M.S. University of Baroda.

## 14 (a). Invited Lectures and Chairmanships at National or International Conference / Seminars

1. Superconductivity in Copper oxide superconductors; National Conference on Superconductivity; Dec.8-10, 1997; Physics department, University of Hyderabad.
2. Semiconductor Supperlattices & their Properties; **Also chaired one session;** National seminar on recent developments in condensed matter Physics. Sept.20-23, 1998 Govt. Model Science College, Gwalior.
3. Collective Excitations and related properties of nanostructures; **Also chaired one session;** National Conference on Science & Technology of Nanomaterials & Clusters; Nov. 23-25,2000, Physics department, Barktullah Univ. Bhopal
4. Properties of Cuprate Superconductors within Layered Electron Gas Model; **Also chaired one session;** Seminar on theoretical Physics; March 21-22, 2003;Physics Department, S.P. University, V V Nagar
5. Nanostructures & their Properties; One day Seminar on Nanostructures;March 30, 2003 Physics Deptt., faculty of Science, M.S. U. Baroda.
6. Many body aspects of a quantum wire; National symposium on science, tech. & applications of nanomaterials; March 21-22, 2005; Department of applied Physics, M. S. Univ. Baroda.
7. Many body aspects of semiconductors Nanostructures,; **Also chaired one session;** 93-Indian Science Congress; Jan.3-7, 2006; ANG Ranga Agriculture University, Hyderabad.

8. Size-dependences of optical properties and electron-hole binding energy in semiconductor nanocrystallites; 94- Indian Science Congress; Jan.3-7, 2007; Annamalai Univ. Annamalainagar,
9. Size-dependent properties of a semiconductor nanoparticles; **Also chaired one session.** Two day conference on Theoretical & Experimental Techniques in nanoscience & Technology  
March 29-30, 2007; Physics Department, Punjab University Chandigarh.
- 10.. Size-dependent energy band gap and dielectric constant of semiconductor Nanocrystallite; Workshop on Nanotechnology & it applications; March 29-31, 2007; S G S Inst. of Tech. & Sc. Indore.
11. Role of Size-dependence in nanostructures; One-day seminar in honor of Prof. Auluck, Sept. 27, 2007 ; Physics Department, IIT, Roorkee
12. Computational Synthesis and Characterization of Nanostructures; One seminar on synthesis and characterization of nanomaterials, March 31, 2008; Applied Physics department, M. S.U.
13. Computational Nano Science and Technology; Workshop on recent advances in nanotechnology; June 2-6, 2008; Ragiv Gandhi technology University, Bhopal.
14. Ab-initio computation of ballistic transport through atomic chains and optical absorption in atomic clusters; National Conference on Simulation and Characterization of Advanced materials; April 17-18, 2010; Physics department, MJP University Bareilly.
15. Electronic conduction through atomic chains, quantum well and quantum wire. 55<sup>th</sup> DAE, Solid State Physics Symposium; Dec.26-30, 2010; Manipal University, Manipal
16. Many particle interactions and the charge transport in Graphene; **Also chaired one session;** International conference on advance condensed and nano materials; Feb. 23-26, 2011; Physics Department, Punjab University, Chandigarh.
17. Ground State Many Particle Properties of Graphene, **Also chaired one session;** Workshop on Nanoscience and Nanotechnology; March 26-27, 2011; Applied Physics Department, AMU, Aligarh.
18. Charge transport and many particle interactions in Graphene; National symposium on recent advances in nano-science engineering & Tech.; Nov. 19-20, 2011  
ABV IITM, Gwalior.
19. Many particle effects and Charge transport in Graphene; Current Developments in Atomic, Molecular, optical & Nano Physics with applications; Dec. 14-16, 2011; Physics department, Delhi University.
20. Electron-electron interactions and electronic charge transports in Graphene; Golden Jubilee Year of Physics; National conference on applied physics; Feb. 25-27, 2012; Physics Department, IIT, Roorkee.

21. Semiconductor Superlattices; Refresher course in Condensed matter Physics; March 23-April 12, 1996; Physics department, Barktullah Univ. Bhopal.
22. Superconductivity in Cuprate oxides; Refresher course on Super-conductivity; Nov.-Dec. 1997; Physics Department, Jiwaji University, Gwalior.
23. Numerical techniques for Physics; Refresher course on contemporary Physics; July – August , 1999; Physics department, Barktullah Univ. Bhopal.
24. Physics of Nanostructures; Refresher course in Physics; Jan.-Feb., 2002; Physics Department, S.P. University, V.V. Nagar.
25. Superconductivity within layered electron gas model; Refresher course in Physics; Dec., 2002; Physics Department, S.P. University, V.V. Nagar.
26. Physical Phenomena that Affect Climate; Refresher course in Environmental Science; October-2006 ; Gujarat University, Ahmedabad.
27. Basics of Quantum Physics (resource person); 5-day workshop of key resource persons; March 22-26, 2004; Regional Institute of Education, Bhopal.
28. Nanoscience & technology; DST-INSPIRE programme, Oct.22-24, 2011; Bhavnagar University.
29. Material Known as Graphene; DST-INSPIRE programme; July 12, 2012; Bhavnagar University.

**14 (b). List of Conference/Symposium/Workshop attended for presenting paper**

1. Int. conf. of Solid State Physics; Dec. 1983; held at University of Oxford (U.K.).
2. Int. conf. on surface science, April 1984; held at University of York (U.K.)
3. Int. conf. of solid state physics; Dec. 1984; held at University of Southampton ( U.K.).
4. Int. conf. on physical electronics; June 1985; held at University of Milwaukee (U.S.A.).
5. Int. conf. on superconductivity; Jan. 1985; held at IISc, Bangalore ( India).
6. Int. workshop on high  $T_c$  superconductivity; Aug.-Sept. 1990; held at University of Beijing (China).
7. Int. workshop on physics of materials; Jan. 1990; held at Bhopal university ( India).
8. Int. conf. on physics & technology of semiconductor devices and integrated circuits; Feb. 1992; held at IIT Madras (India).
9. Int. workshop on semiconductor devices; Dec. 1985; held at NPL, N. Delhi (India).
10. Solid State Physics Symposium; Dec. 1980; held at IIT, Delhi.
11. Solid State Physics Symposium; Dec. 1982; held at BARC, Bombay.
12. Workshop on Photovoltaic devices; Feb. 1983; held at University of Roorkee.
13. Solid State Physics Symposium; Dec. 1987; held at BARC, Bombay.
14. Solid State Physics Symposium; Dec. 1988; held at Bhopal University.
15. National Seminar on Materials; March 1989; held at Jiwaji University, Gwalior.
16. Solid State Physics Symposium; Dec. 1989; held at IIT, Madras.
17. Solid State Physics Symposium; Dec. 1992; held at S.V. University, Trupati.

18. Recent developments in condensed matter Physics Solid State Physics; March 1993; held at Jiwaji University, Gwalior
19. Solid State Physics Symposium; Dec.1983; held at BARC, Bombay.
20. Solid State Physics Symposium; Dec. 1994; held at Rajasthan University, Jaipur.
21. National symposium on recent developments in Physics of solid State and Solid State Electronics; Nov. 1996; held at J.N. V. University, Jodhpur.
22. National Symposium on Physics of semiconductor Nanostructures; Jan. 1997; held at I.I.T. Delhi.
23. K.S. Krishnan birth centenary national symposium on condensed matter physics; Dec. 4-7, 1998; held at Allahabad University.
24. Solid State Physics Symposium; Dec. 1998; held at Kurukshetra University.
25. Solid State Physics Symposium; Dec.2000; held at Guru Ghasi Das Univ. Bilaspur.

## 15. Publications

### i) In refereed Journals

1. Sharma A.C. and Auluck S; Phys. Rev. B24 729; (1981); Transverse dielectric function for a model semiconductor.
2. Sharma A.C. and Auluck S ; Phys. Stat. Sol. (b)108 587; (1981); Small wave vector  $q$  and frequency  $\omega$  dependent longitudinal dielectric function of a model semiconductor.
3. Sharma A.C. and Auluck S.; Phys. Rev. B26 1050; (1982); Modified calculations on the wave vector dependent dielectric function for a model semiconductor.
4. Sharma A.C. and Auluck S.; Phys. Rev. B28 965; (1983); Model study on the frequency dependent dielectric properties of semiconductors.
5. Sharma A.C. and Auluck S.; Phys. Lett. 96A 255; (1983); Local Field corrections to the static dielectric function of semiconductors: A model study.
6. Sharma A.C. and Auluck S.; J. Phys. C16 L1233; (1984); Frequency dependent dielectric properties of semiconductors including local field corrections: A model study.
7. Sharma A.C., Ravindra N.M., Auluck S. and Srivastava V.K.; Phys. Stat. Sol. (b) 120 715; (1983); Temperature dependent effective mass in III-V compound semiconductors
8. Inckson J.C. and Sharma A.C.; J. Phys. C18 5435 (1985); The real space inversion of dielectric response function of a solid: The semi-infinite solid.
9. Sharma A.C.; J. Phys. C18 L153; (1985); Dielectric function of a semiconductor slab
10. Sharma A.C.; Phys. Rev. B34 1165; (1987); The image potentials and an inverse dielectric response function for a semiconductor slab.
11. Sharma A.C.; Phys. Rev. B36 13; (1987); An inverse dielectric response function of a dielectric sphere.
12. Sharma A.C.; Sol. Stat. Comm. 70 1171; (1989); Role of plasmons in high temperature superconductivity in copper oxide superconductors.
13. Singh R.K., Sharma A.C., Gaur N.K. and Varshney D.; Bull. Mat. Sci. 1023; (1991); Composition dependence of transition temperature in new



- superconductors:  $\text{La}_{2-x}(\text{Sr,Ba})_x\text{CuO}_4$ .
14. Sharma A.C.; Mod. Phys. Letts. B5 455; (1991); Plasmons in GaAs/Al<sub>x</sub>Ga<sub>1-x</sub>As Superlattice Structure: A Model Study.
  15. Sharma A.C. and Kulshrestha I.; Phys. Rev. B46 6472; (1992); The inverse dielectric response function for copper oxide superconductors.
  16. Sharma A.C. and Kulshrestha I.; Mod. Phys. Letts. B6 1729; (1992), Superconductivity in  $\text{YBa}_2\text{Cu}_3\text{O}_7$  Copper Oxide Ceramics.
  17. Sharma A.C., Chaturvedi N. and Gupta Y.M.; Physica C209 507; (1993); Effective Interaction Potential for Copper Oxide Superconductors.
  18. Sharma A.C. and Sood A.K.; J. Phys.: Cond. Matt.6 1553; (1994), Collective Excitations and their Line Shapes in Modulation Doped GaAs/AlAs Superlattice.
  19. Singh R.K., Gaur N.K., Varshney D. and Sharma A.C.; Bull. Mat. Sci.16 117; (1993); Composition dependence of transition temperature in some ceramic superconductors.
  20. Sharma A.C. and Kulshrestha I.; Physica C228 254 ; (1994); Plasmons below  $T_c$  in cuprate superconductors.
  21. Sharma A.C.; Sol. Stat. Comm.95 569; (1995); Soft acoustic plasmons in Cuprate Superconductors
  22. Sharma A.C. and Sen R.; J. Phys. :Cond. Matt.7 9551; (1995); Plasmon phonon coupled modes and their line Shapes for a doped Superlattice.
  23. Sharma A.C. and Apell S.P.; J. Phys.: Cond. Matt.8 7745; (1995); Layered Electron gas response to a transverse electromagnetic field.
  24. Sharma A.C., Sen R. and Tripathi P.; J. Phys.: Cond. Matt.9, 8042; (1997); Collective Excitations and their Lineshapes for a compositional Superlattice of type II.
  25. Sharma A.C.; Physica Scripta 57 156 ; (1998); Effective potential and superconductivity in Copper oxide superconductors.
  26. Tripathi P. and Sharma A.C. ;. Pramana. J. Phys.52, 101; (1999), Plasmons and their damping in Doped semiconductor Superlattices.
  27. Sharma A.C., P. Tripathi, Sen R. and Jain N.; Ind. Pure & Appl. Phys 37, 545 (1999); Magnetoplasmons and their line shapes for a doped Superlattice and a compositional Superlattice of type II.
  28. Sharma A.C. and Bajpai A.; Superlattices. and Microstructure 28, 121 (2000); Dynamical conductivity of Superlattices of type-I.
  29. Vyas K.N. and Sharma A.C.; Physica C334, 95-106; (200); Normal state conductivity of layered superconductors.
  30. Sharma A.C. and Tripathi P.; Physica E8,306-313; (2000); Relaxation time for a charge carrier due to its scattering from other charge carriers in Superlattices..
  31. Sharma A.C. and Vyas K.N.; Physica C351, 145-154 (2000); Dynamical Conductivity of high temperature superconductors below  $T_c$
  32. Sharma A.C and Bajpai A. ; Int. J. Mod. Phys. B16, 1511-1531 (2002); Dynamical conductivity of low dimensional systems
  33. Sharma A.C. and Ashraf S.S.Z.; J. Phys. Condens Matter 16, 3117-3132 (2004); Electron-electron scattering rate in presence of random impurity potential in low dimensional systems.
  34. Asharf S.S.Z. and Sharma A.C.; J. Phys. Condens Matter 17, 3043-3059 (2005); Many particle aspects of a semiconductor quantum wire within improved random phase approximation.

35. Asharf S.S.Z. and Sharma A.C.; *Physica-E33*, 35-40 (2006); Temperature and energy dependent electron-electron scattering rate in a disordered quantum wire.
36. Sharma A.C.; *Ind. Pure & Appl. Phys.***44**, 98-106 (2006); Many body aspects of a quantum wire
37. Makwana R. and Sharma A.C.; *Ind. Pure & Appl. Phys.***44**, 143-147 (2006); Two band model for semiconductor quantum dot.
38. Sharma A.C ; **J. Appl. Phys.****100**, 084301-1 to 084301-8 (2006); Size-dependent energy band gap and dielectric constant within the generalized Penn model applied to a semiconductor nanocrystallite.
39. Asharf S.S.Z. and Sharma A.C. & Vyas K.N.; **J. Phys. Condens Matter** **19**, 306201 (2007); Magnetic structure factor and pair correlation function for a semiconductor quantum wire.
40. P.Tripathi and A.C. Sharma; **Modern Physics Letters B** **21**, 2009, (2007); Energy exchange rate in non-degenerate electron gas confined to a GaAs heterostructure.
- 41 S.S.Z. Ashraf, P. Tripathi, S.T. Hasan and A.C. Sharma, *PhysicaE* **42**, 87–90 (2009); Energy relaxation in disordered two dimensional electron gas with dynamic deformation potential.
- 42 S.S.Z. Ashraf, P. tripathi, Sharma A.C. and S.T. Hasan, *J. Phys. Condens Matter* **21**, 025504 (2009); Electron phonon relaxation in disordered semiconductor quantum wells with dynamically screened deformation potential.
- 43 S.K. Ambavale and A.C. Sharma, *J. Theo.& Comp. Nanoscience.*, **6**, 1549 (2009); Ab-initio calculation on synthesis and transmission co-efficient for atomic chains consisting of C and Si atoms.
- 44 P. Dhuvad and A.C. Sharma, *Physica E***42**, 1365-71 (2010) (A-b initio study of photoabsorption Spectrum of ultra small CdS clusters.
  
- 45 S.K. Ambavale and A.C. Sharma, *PhysicaE* **42**, 2026–32 (2010); First principle conductance calculation of Zigzag, Armchair and Mixed chains of  $SC_6H_4S$  molecule.
- 46 S.S.Z. Ashraf, K. Mishra and A.C. Sharma, *J. Phys.: Condens. Matter* **22** 355303 (2010); Static structure factor and pair correlation function of graphene.
  
- 47. S.K. Ambawale and A.C. Sharma; Phys. Status Solidi B** **249**, No. 1, 107–112 (2011), Ab-initio study of Ballistic transport properties of Carbon atomic chains attached to Armchair andm Zigzag Edged Graphene.
  
- 48. P. Tripathi, S.S.Z. Ashraf, S. Hasan and A.C. Sharma; World J. Cond. Matt. Phy.-2;**42-46. doi: 10.4236/wjcmp.2012.21007; Dynamically Deformation Electron-Phonon Interaction in Disordered Bulk Semiconductor.
  
- 49. K. Mishra, Sikandar Ashraf and A.C. Sharma; World J. Cond. Matt. Phy.-2;** pp. 36-41. doi: 10.4236/wjcmp.2012.21006; Ground State Properties of Monolayer Doped Graphene.
- 50. Digish k. patel\*, A.C. Sharma\* and S.S.Z. Ashraf, modern physics letters B** vol. 27, No. 5 (2013) 1350033; electron-impurity scattering in doped single layer graphene.

## ii) In Edited Books

51. Singh R.K., Sharma A.C., Gaur N.K. and Varshney D.; Proc. Asia Pacific Conf. ( World Scientific Publication) Vol.1 60 ; (1990); Effect of Plasmons on High temperature of Ceramic Superconductors.
52. Sharma A.C.; Proc. Conf. on Phys. & Tech. of Semicod. Devices and Integrated Circuits, ( SPIE Publication) Vol. 1523 616; (1992); Energy Loss Function for a GaAs/Al<sub>x</sub>Ga<sub>1-x</sub>As Superlattice.
53. Sharma A.C., Chaturvedi N. and Gupta Y.M.; Proc. Europ. Conf. Appl. Supercond. ( Published by Springer Verlag); (1993); Relaxation time for electron phonon Interaction in Cuprate Superconductors.
54. Sharma A.C. and Kulshrestha I.; in Superconducting Superlattices and Multilayer ( SPIE proceedings 22157), edited by I. Bozovic ( SPIE, Bellingham);(1994); Collective Excitations below T<sub>c</sub> in Cuprate Superconductors. ,
55. Sharma A.C., Physics of Semiconductor Devices ( Proc. Int Workshop pp.144) edited by K. Lal , 1996, Charge Carrier impurity scattering in a Doping Superlattice.
56. Sharma A.C. and Bajpai A.; Semiconductor Nanostructure (ed.) K.P. Jain, ( Narosa, New Delhi 1997); Conductivity of quantum wires structures.
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