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Educational background

- M.Sc. Physics, Panjab University, Chandigarh (1985)
- M.Phil. Physics, Panjab University, Chandigarh (1987)
- Ph.D. (Science), Panjab University, Chandigarh (1992)

Professional background

- Lecturer, DAV College (Panjab University), Chandigarh (1992–1998)
- Lecturer, Government College, Naraingarh (1998–1999)
- Programmer, Panjab University, Chandigarh (1999–2004)
- Assistant Professor, Panjab University, Chandigarh (2004 onwards)

Main area of work

Nanofluids, Nanoconfinement, DFT Theory & Computer Simulations

Recent publications

1. Spin Polarized Electrons in a Metallic Quantum Wire, *Eur. Phys. J. B* (2014) 87: 5, DOI: [10.1140/epjb/e2013-40567-3](https://doi.org/10.1140/epjb/e2013-40567-3)
2. DFT study of structural and electronic properties of endohedral complexes of group V atoms with C60 International Journal of Modern Physics B, vol. 27 (2013) article id 1350152
3. Longitudinal and volume viscosities of fluids confined in nanochannel, *Physics and Chemistry of Liquids* (2013), DOI:10.1080/00319104.2012.760088
4. Role of Triplet Correlations in Anomalous Self- Diffusion Coefficient, *Chemical Physics, Volume 405, p. 60-66.*
5. Exchange and correlation effects on density excitation spectra of metallic quantum wires at finite temperature, [J Phys Condens Matter. 24 \(2012\) 245302.](#)
6. Effect of Roughness of Confining Surface on Diffusive Motion of Fluid, *Micro Nano Systems*, **4** (2012) 25-28

LIST OF PUBLICATIONS

Articles/Chapters in Books

1. Variational Perturbation Theory (Sunita Srivastava and Vishwamittar) in a book “*Path Integrals in Quantum Mechanics, Statistics, Polymer Physics and Financial Markets*” Edited by Hagen Kleinert (World Scientific Publishing Co.Pvt.Ltd.,1990).
2. Restricted flow in Nano-Channels (K. Tankeshwar, Sunita Srivastava and Jyoti Sood) in a book “*Nanotechnology Research Progress*”, Editor Julian F. Vogel and Felix T. Jung (Nova Publishers. New York, 2009)

Research Papers in Journals (International)

7. Spin Polarized Electrons in a Metallic Quantum Wire
(Renu Bala, R. K. Moudgil, Sunita Srivastava and K. N. Pathak
Eur. Phys. J. B (2014) 87: 5, DOI: [10.1140/epjb/e2013-40567-3](https://doi.org/10.1140/epjb/e2013-40567-3)
1. DFT study of structural and electronic properties of endohedral complexes of group V atoms with C60 (Akshu Pahuja and Sunita Srivastava) *International Journal of Modern Physics B* 27 (2013) (Accepted on June 24, 2013)
2. Longitudinal and volume viscosities of fluids confined in nanochannel (Ishu Goyal, A.H.M. Zaheri, Sunita Srivastava & K.Tankeshwar) *Physics and Chemistry of Liquids*, 2013, <http://dx.doi.org/10.1080/00319104.2012.760088>
3. Role of Triplet Correlations in Anomalous Self- Diffusion Coefficient (Gaganpreet, Sunita Srivastava, and K. Tankeshwar) *Chemical Physics, Volume 405, p. 60-66.*
4. Exchange and correlation effects on density excitation spectra of metallic quantum wires at finite temperature (Bala R, Moudgil RK, Srivastava S, Pathak KN.) *J Phys Condens Matter.* 24 (2012) 245302.
5. Effect of aggregation on thermal conductivity and viscosity of nanofluids (Gaganpreet and Sunita Srivastava) *Appl Nanosci* 2 (2012) 325–331
6. Effect of Roughness of Confining Surface on Diffusive Motion of Fluid (K. Tankeshwar and Sunita Srivastava) *Micro Nano Systems*, 4 (2012) 25-28
7. Dynamics of fluids contained in Nanocube (Reena Devi, Sunita Srivastava, K.Tankeshwar) *Nano Biomedicine Engineering* 3 (2011) 47.

8. Diffusion of fluid confined to nanotube with rectangular cross section (Reena Devi, Jyoti Sood, Sunita Srivastava and K.Tankeshwar) *Microfluidics and Nanofluidics* 9 (2010) 737.
9. Dynamics of gelling liquids: Algebraic Relaxation: Sunita Srivastava, CN Kumar, K.Tankeshwar *J.Phys: Condensed Matter* **21** 335106 (2009).
10. Effect of Mass on Shear Viscosity of Binary Fluid Mixture confined to Nanochannel (Roahn Kaushal, Sunita Srivastava and K. Tankeshwar) *Int. Journ. Nanosci.* **8** (2009)
11. Effect of Nano-Confinement on Molecular Motion of Fluid (K. Tankeshwar, Sunita Srivastava and Jyoti Sood) Volume 2 Issue 2/3 (*Nanotechnology Research Journal*) (2008)
12. Longitudinal and Bulk viscosity of Binary fluid Mixtures, A.H.M.Zaheri, Sunita Srivastava and K.Tankeshwar *Eur. Phys. J. B* 61, 465-473 (2008).
13. "TEMPOS devices as humidity sensors" M. Saroch, S. Srivastava, D. Fink and A. Chandra, *Radiation Effects and Defects in Solids* 163 (2008) 645.
14. "Room Temperature Ammonia Gas Sensing using Mixed Conductor based TEMPOS Structures" Mamta Saroch , Sunita Srivastava , Dietmar Fink and Amita Chandra , *Sensors* 2008, 8(10), 6355-6370
15. Theoretical evaluation of bulk viscosity: Expression for relaxation time (A.H.M.Zaheri, Sunita Srivastava and K.Tankeshwar) *Phys.Rev.E* 76 (2007) 041204.
16. Dynamical model for restricted diffusion in nano-channels (with Tankeshwar) *Nanotechnology* 18 (2007) 485714
17. Longitudinal and Bulk viscosity of expanded Rb (with A.H.M.Zaheri and K.Tankeshwar) *J.Phys.Condens.Matter* 15 (2003) .6683.
18. Memory function from its equation of motion,(with Shaminder Singh, C.N.Kumar, K.Tankeshwar) *Phys.Chem.Liq. (UK)***41** (2003) 567
19. Estimation of Bulk viscosity of expanded Rb (with K.Tankeshwar) *Phys.Chem.Liq. (UK)* 37 (4) (1999) 351.
20. Energy eigen values of double well oscillator with mixed cubic and quartic anharmonicities (with Meena Bansal, Mamta and Vishwamittar) *Chem.Phys.Lett.***195** (1992) 505.

21. Free energies of an oscillator with mixed cubic and quartic anharmonicities (with Vishwamittar) *Pramana* **39** (1992) 9.
22. A study of energy eigen values of double well oscillators with mixed quartic and sextic anharmonicities (with Meena Bansal and Vishwamittar) *Phys.Rev.A(Pub:American Physical Society)* **44** (1991) 8012.
23. Determination of free energies of an oscillator with mixed quartic and sextic anharmonicities (with Vishwamittar) *Phys.Rev.A(Pub:American Physical Society)***44** (1991) 8006.
24. On the quantization of linearly damped harmonic oscillator (with Vishwamittar and I.S.Minhas) *J.Math.Phys.***32** (1991) 1510.
25. Energies of oscillators with mixed quartic and sextic anharmonicities (with Vishwamittar) *Mol.Phys.***72** (1991)1285.
26. Renormalised hypervirial pade calculation of energies for $V(x)=m(\frac{1}{2}\omega^2x^2 + \dots)$ (with Vishwamittar) *Chem.Phys.Lett.* **176** (1991) 266.
27. Applications of perturbation theory to damped sextic oscillator (with Vishwamittar) *J.Math.Phys.***30** (1989) 2815.
28. Photon cloud effects on Isomultiplet mass difference of charmed and uncharmed baryons (with R.C.Verma) *Phys.Rev.D***38** (1988) 1623.
29. Analysis of magnetic hysteresis loop data for FeScMn and FeSiAl systems (with Vishwamittar) *J.Magn.Magn.Mat.* **74**(1988)316.
30. Electromagnetic Mass Differences of $1/2^+$ baryons in quark and Skyrme models (with R.C.Verma) *Phys.Rev.D***35** (1987) 965.
31. Revelation of Quantum characteristics in motion of anharmonic oscillator (with Vishwamittar) *Phys.Rev.A(Pub:American Physical Society)* (to be revised).

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32. Effect of second order Doppler shift and Miedema-Vander Woude model coefficients (with Mudita Sud and Vishwamittar) *Ind.J.Pure and Appl. Phys.***27** (1989) 800.

(C) OTHER JOURNALS/PROCEEDINGS

33. Impact of Empirical Shape Factor on the Thermal Conductivity of Nanofluids (Shilpy Bhullar and Sunita Srivastava) 7th Chandigarh Science Congress, Panjab University, CHASCON-2013, Chandigarh (March 1-3, 2013).pp-41,pg. 183.

34. Encapsulation of Gd Atom in C₄₀ Cage (Akshu Pahuja and Sunita Srivastava) 7th Chandigarh Science Congress, Panjab University, CHASCON-2013, Chandigarh (March 1-3, 2013). Pp. 45, pg.184
35. Systematic Analysis of Endohedral Doping of C₃₆ Molecule (Akshu Pahuja and Sunita Srivastava) National Conference on Production and Engineering Material, Deen Bandhu Chotu Ram University, Murthal, (15-17 March, 2013)
36. Effect of Electrically Charged confinement on Diffusion of Ionic Fluid. (Ishu Goyal, Sunita Srivastava and K.Tankeshwar) AIP Conference Proceedings Volume 1393, ICACNM (23-26 Feb.2011), Chandigarh,pp 323-324
37. Self Diffusion of fluid confined in a cylindrical nanotubes of different diameters. (Reena Devi, Sunita Srivastava and K.Tankeshwar) AIP Conference Proceedings Volume 1393, ICACNM (23-26 Feb.2011), Chandigarh,pp 325-326
38. Anomalous behavior of Mori's coefficients for the Gaussian Core fluid (Gaganpreet, Sunita Srivastava and K.Tankeshwar) AIP Conference Proceedings Volume 1393, ICACNM (23-26 Feb.2011), Chandigarh,pp 263-264
39. Nanofluids: Future Industrial Coolants, (Sakshi Arora, Sunita Srivastava and Rajesh Kumari) AIP Conference Proceedings Volume 1393, ICACNM (23-26 Feb.2011), Chandigarh,pp 301-302
40. Molecular dynamic simulations with glue potentials, (Ritu Pasrija and Sunita Srivastava) AIP Conference Proceedings Volume 1393, ICACNM (23-26 Feb.2011), Chandigarh,pp 279-280
41. DFT study of structural and electronic properties of endohedral complexes of group V atoms with C₆₀, (Sunita Srivastava and Akshu Pahuja) AIP Conference Proceedings Volume 1393, ICACNM (23-26 Feb.2011), Chandigarh,pp 327-328
42. Effect of Particle Shape and Interfacial Layer in Thermal Conductivity and Viscosity of Nanofluids (Gaganpreet and Sunita Srivastava) AIP Conf. Proc. 1349, 407 (2011)
43. Thermal Conductivity for a Linear Anharmonic System (Ritu Pasrija, Kanika , and Sunita Srivastava) AIP Conf. Proc. 1349, 1051 (2011).
35. Encapsulation of Sb in C₆₀ cage (Akshu Pahuja and Sunita Srivastava)AIP Conf. Proc. 1349, 877 (2011)

36. Dynamics of Fluid in a Nanotube (Reena Devi, Sunita Srivastava, and K. Tankeshwar) AIP Conf. Proc. 1349, 403 (2011)
37. Collective Dynamics of Liquid Potassium Near Melting Point (Ishu Goyal, Jyoti Sood, Sunita Srivastava, and K. Tankeshwar) AIP Conf. Proc. 1349, 573 (2011)
38. Effect of Exchange-correlations and Temperature on Plasmons in Nano-scale Gold Wire (Renu Bala, R. K. Moudgil, Sunita Srivastava, and K. N. Pathak) AIP Conf. Proc. 1349, 433 (2011)
39. Diffusion in Rectangular nano tube (Reena Devi, Sunita Srivastava, K,Tankeshwar) DAE Symp. (2009)
44. Ground state of anharmonic oscillator using a variational Monte Carlo method, R.Devi and S.Srivastava, 3rd Chandigarh Science Congress, Panjab University, CHASCON-09, Chandigarh (26-28 February,2009).
45. Shape optimization using hyperbolic function, Gaganpreet and S.Srivastava, 3rd Chandigarh Science Congress, Panjab University, CHASCON-09, Chandigarh (26-28 February,2009)
46. Pressure dependence of thermal conductivity of Nanofluids (with Ritu Pasrija and Manuk Zubin Mehta) Pb.Sc.Congress (2007), 129.
47. On the microconvective contribution to thermal conductivity of Nanofluids (with Manuk Zubin Mehta and Ritu Pasrija) Chd.Sc.Congress (2007) 235
48. Prolate shape of Nanoparticles in Nanofluids (with Navneet Virk and Manuk Zubin Mehta) Chd.Sc.Congress (2007) 237
49. Transport Properties of Nanofluids (oral presentation) National Seminar on 'Theoretical and Experimental Techniques in Nanoscience and Nanotechnology', Chandigarh –TETNN-07 (2007) 18
50. Enhancement of viscosity of fluids in nano channels (with Tankeshwar) DAE Symposium 2007, Mysore
51. Complex Impedance property of humidity sensing TEMPOS devices (with M.Saroch and A.Chandra) DAE Symposium 2007, Mysore.
52. Algebraic Relaxation of time correlation function (with C.N.Kumar and K.Tankeshwar) ICTP Report, IC/2004/33 (2004).

53. A new form of memory function (with Shaminder Singh and C.N.Kumar) DAE Solid State Phys.Symp., Chandigarh (2002)
54. Longitudinal and Bulk Viscosity of expanded Rb., Solid State Phys.Symp. (1997).
55. On the model of glass transition (With Rajneesh K.Sharma and K.Tankeshwar) National Seminar on disordered materials, Jaipur (1994)
56. Information theory for the calculation of transport coefficients of classical fluids (with K.Tankeshwar) Solid State Phys.Symp. **36C** Bombay (1993)
57. A glimpse of history of experience based physics (With Meena Bansal and Vishwamittar) Bull IAPT (1992)
58. Free energies of potential used in phase transition modeling (with Vishwamittar) Solid State Phys. Symp.**33** (1991) 336.
59. Medical profession and Physics: A historical perspective (with Meena Bansal and Vishwamittar) Bull.IAPT **1** (1991) 142.
60. The hypervirial Pade calculations of energies of an anharmonic oscillator (with Vishwamittar) , National Seminar on Chemical Physics (1990)
61. Erwin Schroedinger and his wave mechanics (with Vishwamittar) Bull.IAPT **4** (1987) 283.