BIODATA OF PROFESSOR A.K. SOOD

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Address : Department of Physics, Indian Institute of Science
Bangalore-560 012, INDIA

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319 , Vigyan Bhawan Annexe , Maulana Azad Road,New Delhi 110011

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asood1951@gmail.com

Education:

M.S. Physics, Punjab University, Chandigarh, India, 1972.

Ph.D. Physics, Indian Institute of Science, Bangalore, India 1982.

Professional Experience:

4/22- Present	Principal Scientific Adviser to the Government of India
5/22-Present	National Science Chair Professor at IISc, Bangalore
8/16 – 7/21	Honorary Professor, Department of Physics, Indian Institute of Science (IISc), Bangalore, India
7/94 - 7/16	Professor, Department of Physics, IISc, Bangalore.
12/98 – 3/08	Divisional Chairman, Division of Physical and Mathematical Sciences, IISc, Bangalore
7/88 - 7/94	Associate Professor, Department of Physics, IISc, Bangalore
1993 - Present	Honorary Professor, Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore
8/73 – 7/88	Scientist, Indira Gandhi Centre for Atomic Research, Kalpakkam, India
5/83 – 5/85	Post-doctoral Max Planck Fellow, Max Planck Institute fur FKF, Stuttgart, Germany

Public Service to the Profession:

1. Principal Scientific Adviser to the Government of India (Apr 2022-present)
2. Chairman, Science, Technology and Innovation Advisory Council to the PM of India (April 2022-present)
3 Chairman, Empowered Technology Group (April 2022 till present)
4. Member, Science, Technology and Innovation Advisory Council to the PM of India (2018- 2022)
5. President, Indian National Science Academy (2017-2019)
6. President, Indian Academy of Sciences (2010-2012)
7. Secretary General, The World Academy of Sciences (2013-2018)
8. Chairman, Governing Council, Raman Research Institute (2016- 2022)
9. Member, Vision Group on Nanotechnology, Government of Karnataka (2014-2022)
10. Chairman, Board of Governers, Indian Institute of Science Education and Research-Bhopal (2020-2022)
11. Chairman, Board of Governers, Indian Institute of Science Education and Research-Mohali (2021-2022)
12. Chairman, DST Committee of VAJRA (2020-2022)
13. Member, Scientific Advisory Council to the Prime Minister of India (2009-2014)
14. Member, Science and Engineering Research Board (SERB), Oversight Committee, Government of India (GOI) (2012-14, 2017-19)
15. Member, Nanomission Council of Dept. of Science and Technology (DST), GOI

16. Chairman, Nano Science Advisory Group, DST, GOI
17. Chair, International Advisory Board, Winton Program, Cambridge University, UK (2015-2019)
18. Member, Physics Sectional Committee of the Royal Society, UK (2016-2018)
19. Member, Board of Governors, Institute of Nano Science and Technology, Mohali (2012-2018)
20. Member, Board of Governors of the Academy of Scientific and Innovative Research (AcSIR)
21. Member, Governing Body and the Society of the CSIR (2013-2016) (2021-present)
22. Member, Governing Council, Centre for Nano and Soft Matter Sciences, Bangalore (2013-2018)
23. Associate Editor, ACS Nano (2018 onwards)
24. Executive Editor, Solid State Communications, Elsevier (Till November 2020)
25. Co-Editor, Europhysics Letters (2012 - 2018)

Honours and Recognitions:

1) "Padma Shri", Fourth highest Civilian Honour by the Government of India (2013)

a) Fellowships of Academies and Positions held

1) Fellow of the Royal Society, London (FRS) (Elected in 2015)
2) Fellow (International Honorary Member), American Academy of Arts and Sciences (2025)
3) Fellow of Indian Academy of Sciences (FASc) (Elected in 1991) and President from 2010-2012
4) Fellow of Indian National Science Academy (FNA) (Elected in 1996) and President from 2017-2019, Vice President (2008-2010)
5) Fellow of The World Academy of Sciences (FTWAS) (Elected in 2002) and Secretary General from 2013-2018
6) Fellow of The National Academy of Sciences, India (FNASc) (Elected in 1995)
7) Member, The Asia-Pacific Academy of Materials (Elected in 2008)
8) Honorary Fellow, Indian Association for Cultivation of Science (Kolkata) (Elected in 2016)

b) Honorary Degrees

1) Doctor of Science, Honoris Causa, IISER, Bhopal, India (2016)
2) Doctor of Science, Honoris Causa, Indian Institute of Technology, Kanpur, India (2017)
3) Doctor of Science, Honoris Causa, Jadavpur University, Kolkata, India (2017)
4) Doctor of Science, Honoris Causa, Cooch Behar Pan. Barma Univ, Cooch Behar. India (2017)
5) Doctor of Science, Honoris Causa, Punjab University, Chandigarh, India (2022)
6) Doctor of Science, Honoris Causa, Punjab Engineering College, Chandigarh, India (2022)
7) Doctor of Science, Honoris Causa, SRM Institute of Science and Technology, Chennai (2022)
8) Doctor of Science, Honoris Causa, The Assam Royal Global University, Guwahati (2022)
9) Doctor of Science, Honoris Causa, Amity University of Science and Technology (2023)
10) Doctor of Science, Honoris Causa, Sri Satya Sai University for Human Excellence, India (2023)
11) Doctor of Science, Honoris Causa, Shiv Nadar Institute of Eminence, India (2023)
12) Doctor of Science, Honoris Causa, University of Ladakh, India (2024)
13) Doctor of Science, Honoris Causa, Sharda University, India (2025)
14) Doctor of Science, Honoris Causa, Kings George Medical University, Lucknow, (2025)
15) Doctor of Science, Honoris Causa, Sri Venkateshwara University, Tirupati, India (2026)

c) Awards

1) Bhatnagar Prize in Physics (1999) (Highest award of Government of India below age of 45yrs).
2) Third World Academy of Sciences (TWAS) Award in Physics (2000)
3) G.D. Birla Science Award (2000) (Given annually to a scientist below the age of 50 yrs)
4) FICCI (Federation of Indian Chambers of Commerce and Industry) (1999-2000)
5) Homi Jehangir Bhabha Medal of Indian National Science Academy (INSA) (2002)
6) Materials Research Society (India) Medal (2000)
7) Millennium Gold Medal of the Indian Science Congress (2000)
8) IISc Alumni Award for Excellence in Research for Science (2003)
9) M.N. Saha Birth Centenary Award (Indian Science Congress) (2003-2004)
10) Sir C.V. Raman Award: Physical Sciences (University Grants Commission) (2003)
11) Goyal Prize in Physics (2003)
12) DAE Raja Ramanna Award of Jawaharlal Nehru Centre for Advanced Scientific Research (2005)
13) National Award in Nanoscience and Nanotechnology (DST, GOI), (2006)
14) Lifetime achievement award of Punjab University, Chandigarh (2006)
15) Bhatnagar Professorship of Council of Scientific & Industrial Research (2007)
16) Vigyan Ratan Award of Punjab University, Chandigarh (2010)
17) H.K. Firodia Award in Science & Technology (2010)
18) Bangalore Nano Award by Government of Karnataka (2010)
19) G.M. Modi Award for Science (2012)
20) MRSI-C.N.R. Rao Prize Lecture in Advanced Materials (2012)
21) Indian Science Congress Award for outstanding contributions to Science (2014)
22) R.D. Birla Award for excellence in Physics-2012 by Indian Physics Association (2014)
23) Distinguished Alumni Award 2016 of IISc jointly with IIScAA (2016)
24) Life-time achievement award by the Optical Society of India (2016)
25) Materials Research Society India Distinguished Materials Scientist of the year award (2017)
26) Vigyan Ratan by Babasaheb Bhimrao Ambedkar University, Lucknow (2017)
27) Hari Om Ashram Senior Scientist Award of Physical Res. Lab, Ahmedabad (2019)
28) 25th SIES Sri. Chandrasekarendra Saraswathi National Eminence Award in the category of Science & Technology (2022)
29) Ashutosh Medal of Indian Science Congress (2023)
30) M.G.K. Menon Memorial Award of the National Academy of Sciences (2023)

e) Award Lectures: (only a few out of many hundreds are mentioned)

1) Platinum Jubilee Lecture of Indian Science Congress (1998)
2) Prof. K. Rangadhama Rao Memorial Award Lecture of INSA (2000)
3) Brahm Prakash Memorial Lecture of Indian Institute of Metals, Kalpakkam Chapter (2003)
4) J.W. McBain Award Lecture of National Chemical Laboratory - Pune (2004)
5) A.V. Rama Rao Award Lecture of Indian Association of Cultivation of Science, Kolkatta (2004)
6) Platinum Jubilee Lecture of Indian Science Congress (2008)
7) Prof. Meghnad Saha Memorial Lecture Award of The National Academy of Sciences, India (2009).
8) DAE-CV Raman Lecturer of Indian Physics Association (2010-11)
9) Erudite Scholar, M.G. University, Kottayam, July 2011

10) D.M. Bose Memorial Lecture, 2016 (Bose Institute, Kolkata)

Patents:

1) Carbon Nanotubes flow sensor and energy conversion device (2001). (Patent with Mr. Shankar Ghosh) – US. Patent No. 6,718, 834 (granted on 13-4-2004).
2) Method for measurements of Gas Flow Velocity, method for energy conversion using gas flow over solid material, and device thereof. (Patent applied with S. Ghosh) US Patent no. 7,302.845B2, (dt. Dec.4, 2007). Patent filed in 7 countries.
3) Accelerometer based on Nanotubes. A. K. Sood, Anindya Das and Shankar Ghosh. Indian patent filed. (Application No. 663/CHE/2005)
4) Vibration Sensor based on Nanotubes. A.K. Sood, Anindya Das and Shankar Ghosh. Indian patent filed. (Application No. 664/CHE/2005)
5) An ultra-sensitive assay for detection and Quantification of a substance. A. K. Sood and Ajay Singh Negi. Indian Patent. (Application No. 1324/CHE/2005). International PCT Application no. PCT/IN 2006/000369.
6) Ge-Te-Si Glasses for phase change random access memory (PC RAM) applications, K.K. Singh, N.M. Krishna, O. Nalamasu, S. Asokan, M. Anbarasu, A.K. Sood and S. Prusty, International PCT filed.
7) Optical biosensors having enhanced sensitivity. K.S. Vasu, Sridevi S, N. Jayaraman, S. Asokan, A.K. Sood. Indian patent filed. (Application No. 719/CHE/2013)
8) Reagent for detection of Analyte and process thereof. (Patent with Mr. G.P. Rai) – Indian Patent (PCT/IN2008/000142). US Patent (8,535,951 B2)

Publications (Total: 500): H-index: 79, Citations: 35004 (as per Google Scholar)

http://www.physics.iisc.ac.in/~asood/

https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=ajay+kumar+sood&btnG=

Research Areas:

I. Quantum Materials: Graphene and other 2D materials, Carbon Nanotubes, Topological Insulators, Dirac semimetals, Weyl Semimetals, Materials under ultrahigh pressure using Diamond anvil cell. Photon Control of ionic motion using femtosecond lasers: squeezed phonons and coherent phonons.

Experimental Probes: Raman Spectroscopy, Ultrafast femtosecond time resolved spectroscopies: Time resolved optical pump-optical probe spectroscopy, Time-resolved terahertz spectroscopy, Time resolved Second Harmonic Generation. Xray diffraction, Electrical transport measurements of nanodevices

II. Soft Condensed Matter: Colloids and surfactant-based systems, Flow behavior, Rheo-Chaos. Active Granular Matter: Cooperative flocking behavior, Stochastic thermodynamics, Mesoscopic Colloidal Heat engines.

Experimental Probes: Light scattering, Rheology, Optical Tweezers, Confocal digital microscopy, Small angle X-ray diffraction.

Teaching Experience

35 years teaching courses for Graduate Physics students.
Ph.D. degree awarded so far**: 50**, Students working towards Ph.D**: 1**

A Few Selected Publications:

1) Paulamee Pandit, Rajat Kumar, Srinivasan Sampath, D.V.S. Muthu and **A.K. Sood**, Dominant Role of Electron-Electron Scattering in the Photoinduced Terahertz Conductivity Spectra of FewLayer $WS_{2(1-x)}Se_{2x}$ Flakes, **ACS Nano** (2026)

2) Niloyendu Roy, Pragya Arora, **A.K. Sood** and Rajesh Ganapathy, A Single-granule stirling heat engine, **Newton 2, 100556** (2026)

3) Aindrila Sinha, Mithun K.P, D.V.S. Muthu and **A.K. Sood**, Giant helicity dependent and second harmonic generation in Type-2 Weyl Semimetal, **Phys.Rev. Letters 136, 106902** (2026)

4) Uttam Tiwari, Pragya Arora, **A.K. Sood**, Sriram Ramaswamy, Rituparno Mandal and Rajesh Ganapathy, Reentrant melting of scarred odd crystals by self-shear, **Nature Communication 17, 1802** (2026)

5) Anish Kumar, Darshit Solanki, Kenji Watanabe, Takashi Taniguchi, **A.K. Sood,** and Anindya Das, Interlayer phonon coupling and enhanced electron-phonon interactions in doubly-aligned hBN/graphene/hBN heterostructures. **ACS Nano 19, 16415-23,** (2025)

6) Krishna Prasad Bera, Darshit Solanki, Shinjan Mandal, Rabindra Biswas, Takashi Taniguchi, Kenji Watanabe, Varun Raghunathan, Manish Jain, **A. K. Sood** and Anindya Das, Twist Angle-Dependent Phonon Hybridization in WSe_2/WSe_2 Homobilayer, **ACS- Nano 18, 24379-24390** (2024)

7) Raushan Kant, Rahul Kumar Gupta, Harsh Soni, **A.K. Sood** and Sriram Ramaswamy, Bulk condensation by an active interface. **Phys. Rev. Lett**. **133, 208301** (2024)

8) Niloyendu Roy, **A.K. Sood** and Rajesh Ganapathy, Harnessing viscoelasticity to suppress irreversibility build-up in a colloidal stirling engine. **Phys. Rev. Lett 131, 238201** (2023)

9) Sudeesh Krishnamurthy, Rajesh Ganapathy and **A.K. Sood**, Overcoming power-efficiency tradeoff in a micro heat engine by engineered system-bath interactions. **Nature Communications 14, 6842** (2023)

10) Navneet Singh, **A.K. Sood** and R. Ganapathy, Observation of two-step melting on a sphere, **PNAS 119, (32) e2206470119** (2022)

11) Hope M. Bretscher, Paolo Andrich, Prachi Telang, Anupam Singh, Luminita Harnaga, **A. K. Sood** and Akshay Rao, Ultrafast melting and recovery of collective order in the excitonic insulator Ta2NiSe5. **Nature Communication 12, 1699** (2021)

12) Niloyendu Roy, Nathan Leroux, **A.K. Sood** and Rajesh Ganapathy, Tuning the performance of a micrometer-sized Stirling engine through reservoir engineering. **Nature Communications, 12, 4927** (2021)

13) Pragya Arora, **A. K. Sood** and Rajesh Ganapathy, Emergent stereoselective interactions and self-recognition in polar chiral active ellipsoids. **Science Advances 7(9), eabd0331** (2021)

14) Paolo Andrich, Hope M. Bretscher, Yuta Murakami, Denis Golez, Benjamin Remez, Prachi Telang, Anupam Singh, Luminita Harnagea, Nigel R. Cooper, Andrew J. Millis, Philipp Werner,

A.K. Sood and Akshay Rao, Imaging the coherent propagation of collective modes in the excitonic insulator candidate Ta2NiSe5 at room temperature. **Science Advances 7, 1-8** (2021)

15) Divya Ganapathi, Dibyashree Chakrabarti, **A.K. Sood** and Rajesh Ganapathy, Structure determines where crystallization occurs in a soft colloidal glass. **Nature Physics 17, 114-120** (2020)

16) P.K. Bera, S. Majumdar, G. Ouillon, D. Sornette and **A.K. Sood,** Quantitative earthquake- like statistical properties of the flow of soft materials below yield stress. **Nature Communications 11:9/DOI:10.1038/s41467-019-13790-2** (2020)

17) Manodeep Mondal, Chandan. K. Mishra, Rajdeep Banerjee, Shobana Narasimhan, A.K. Sood and Rajesh Ganapathy, Cooperative particle rearrangements facilitate the self-organised growth of colloidal crystal arrays on strain-relief patterns, **Science Advances 6, 10** (2020)

18) Divya Ganapathi, Hima K Nagamanasa, **A.K. Sood** and Rajesh Ganapathy, Growing Surface Tension of Amorphous- Amorphous Interfaces on Approaching the Colloidal Glass Transition. **Nature Communications 9, 397** (2018)

19) Srabani Kar, Van Luan Nguyen, Dipti R. Mohapatra, Young Hee Lee and **A.K. Sood,** Ultrafast Spectral-response of Bilayer Graphene: Optical pump-Terahertz Probe Spectroscopy and Theory. **ACS Nano 12, 1785-1792** (2018)

20) Arup Paul, Manabendra Kuiri, Dipankar Saha, Biswanath Chakraborty, Santanu Mahapatra, **A. K. Sood** and Anindya Das, Novel photo-tunable transfer characteristics in $MoTe_2$-MoS_2 vertical hetero-structure. **npj 2D Materials and Applications 1, 17** (2017)

21) Sudeesh Krishnamurthy, Subho Ghosh, Dipankar Chatterji, Rajesh Ganapathy, **A.K. Sood,** A Micrometer-sized Heat Engine Operating Between Bacterial Reservoirs. **Nature Physics** DOI: 10.1038/ NPHYS3870 (2016)

22) Shreyas Gokhale, **A.K. Sood,** Rajesh Ganapathy, Deconstructing the glass transition through critical experiments on colloids. **Advances in Physics** 65, 363-452(2016)

23) Shreyas Gokhale, Rajesh Ganapathy, K. Hima Nagamanasa, **A.K. Sood,** Localized excitations and the morphology of cooperatively reaaranging regions in a colloidal glass-forming liquid. **Phys.Rev. Lett,** 116(6), 0683054 (2016)

24) Biswanath Chakraborty, Satyendra Nath Gupta, Anjali Singh, Manabendra Kuiri, Chandan Kumar, Anindya Das, U.V. Waghmare, **A.K. Sood,** Phonon Renormalization of Doped Monolayer Phosphorene using in-situ Raman spectroscopy of electrochemically top gated device. **2D Materials,** 3(1), 015008(2016)

25) Sunil Kumar and **A.K. Sood**, Ultrafast Response of Plasmonic Nanostructures. **Reviews in Plasmonics 2015, (Ed. Chris D. Geddes)** 131-167 (2016)

26) S. Kar, Yang Su, Rahul Nair, **A.K. Sood**, Probing photoexcited carriers in MoS_2 laminate by time resolved optical pump terahertz probe spectroscopy. **ACS Nano, 9(12), 12004** (2015)

27) Sridevi S, K.S. Vasu, S. Sampath, S. Asokan and **A.K. Sood**, Optical detection of glucose & glycated hemoglobin using etched fiber bragg gratings coated with functionalized reduced graphene oxide, **J. Biophotonics** 1-10 (2015).

28) K. Hima Nagamanasa, Shreyas Gokhale, **A.K. Sood** and Rajesh Ganapathy, Direct measurements of growing amorphous order and non-monotonic dynamic correlations in a

colloidal glass former, **Nature Phys.** DOI: 10.1038/NPHYS3289(2015)

29) Chandan K. Mishra, K. Hima Nagamanasa, Rajesh Ganapathy, **A.K. Sood** and Shreyas Gokhale, Dynamical facilitation governs glassy dynamics in suspensions of colloidal ellipsoids, **Proc. Nat. Acad. Sciences (USA) 111,** 15362 (2014).

30) Nitin Kumar, Harsh Soni, S. Ramaswamy and **A.K. Sood**, Flocking at a distance in active granular matter, **Nature Communications,** 5:4688/ DOI:10.1038/ncomms5688 (3 September, 2014).

31) S. Gokhale, K. Hima Nagamanasa, R. Ganapathy and **A.K. Sood**, Direct experimental evidence of growing dynamical facilitation on approaching the colloidal glass transition, **Nature Communications,** 5:4685/DOI:10.1038/ncomms5685 (14 August, 2014).

32) Vikram Rathee, Rema Krishnaswamy, Antara Pal, V.A Raghunathan, Marianne Imperor, Brigitte Pansu and **A.K. Sood**, A reversible shear-induced crystallization above equilibrium freezing temperature in a lyotropic surfactant system, **Proceedings of National Acad. Sciences (USA) 110,** 14849 (2013).

33) A. Bera, Koushik Pal, D.V.S. Muthu, Somaditya Sen, Prasenjit Guptasarma, U.V. Waghmare and **A.K. Sood**, Sharp Raman anamolies and broken adiabaticity at a pressure induced transition from band to topological insulator in Sb_2Se_3, **Phys. Rev. Lett. 110,** 107401 (2013).

34) Shreyas Gokhale, K. Hima Nagamanasa, V. Santhosh, **A.K. Sood** and R. Ganapathy, Directional grain growth from shear-induced anisotropic kinetic roughening of grain boundaries, **Proc. Nat. Acad. Sc. (USA) 109,** 20314-20319 (2012).

35) G. Chatterjee, P. Singh, S. Ahmed, S. Mondal, Amit D. Lad, V. Narayanan, I. Srivastav, N. Koratkar, **A.K. Sood** and G. Ravindra Kumar, Macroscopic transport of megaampere electron currents in aligned carbon nanotubes, **Phys. Rev. Lett. 108,** 235005 (2012).

36) A.V. Radhakrishnan, S.K. Ghosh, G. Pabst, V.A. Raghunathan and **A.K. Sood**, Tuning DNA-amphiphile condensate architecture with strongly binding counterions, **Proc. National Acad. Sciences (USA) 109,** 6394 (2012).

37) Nitin Kumar, S. Majumdar, Aditya Sood, Rama Govindarajan, Sriram Ramaswamy and **A.K. Sood**, Oscillatory settling in wormlike-micelle suspensions: bursts and a long time scale. **Soft Matter 8**, 4310 - 4313 (2012).

38) S. Majumdar, R. Krishnaswamy and **A.K. Sood**, Shear banding in yield stress bearing Langmuir monolayer, **Soft Matter 7,** 7805 (2011).

39) K. Hima Nagamanasa, Shreyas Gokhale, Rajesh Ganapathy and **A.K. Sood**, Confined glassy dynamics at grain boundaries in colloidal crystals, **Proc. Nat. Acad. Sc. (USA) 108,** 11323-11326 (2011).

40) S. Majumdar, R. Krishnaswamy and **A.K. Sood**, Discontinuous shear thickening confined in dilute Carbon nanotube suspensions, **Proc. Nat. Acad. Sc. (USA) 108**, 8996-9001(2011).

41) Nitin Kumar, S. Ramaswamy and **A.K. Sood**, Symmetry properties of the large deviation function of the velocity of a self-propelled polar particle, **Phys. Rev. Lett. 106,** 118001 (2011).

42) N. Kamaraju, Sunil Kumar and **A.K. Sood**, Temperature-dependent chirped coherent phonon dynamics in Bi_2Te_3 using high intensity femtosecond laser pulses, **EuroPhysics Lett. 92,** 47007-47012 (2010).

43) A. Das, S. Jayanthi, H.S. Vinay Deepak, K.V. Ramanathan, Anil Kumar and **A.K. Sood**, Single file diffusion of confined water inside SWNT: NMR study, **ACS Nano 4,** 1687-1695 (2010).

44) S. Mohan, J. Sinha, S.S. Banerjee, **A.K. Sood**, S. Ramakrishna and A.K. Grover, Large-low frequency fluctuations in the velocity of a driven vortex lattice in a single crystal of 2H-$NbSe_2$ Superconductor, **Phys. Rev. Lett. 103,** 167001(2009).

45) S. Majumdar and **A.K. Sood**; Nonequilibrium fluctuation relation for sheared micellar gels in a jammed state, **Phys.Rev. Lett.** 101, 078301 (2008).

46) A. Das, S. Pisana, B. Piscanec, B. Chakraborty, S. R. Saha, U.V. Waghmare, R. Yiang, H.R. Krishnamurthy, A.K. Geim, A.C. Ferrari and **A.K. Sood**; Electrochemically Top Gated Graphene: Monitoring Dopants by Raman Scattering, **Nature Nanotechnology** 3, 210 - 215 (2008).

47) A. S. Negi and **A.K. Sood**; Electric Field Enhanced Recognition Sensitivity between Grafted Ligands and Receptors, **Clinical Chemistry** 54**,** 366-370 (2008).

48) A. Das, **A. K. Sood**, A. Govindaraj, A. Macro Saitta, Michele Lazzeri, Francesco Mauri and C.N.R. Rao, Doping in Carbon Nanotubes probed by Raman and Transport measurements, **Phys. Rev.Lett**. 99, 136803(2007).

49) R. Ganapathy and **A. K. Sood,** Intermittency route to rheochaos in wormlike micelles with flow-concentration coupling, **Phys. Rev. Lett.** 96**,** 108301 (2006).

50) Pinaki Chaudhuri, Smarajit Karmakar, Chandan Dasgupta, H. R. Krishnamurthy and **A. K. Sood**, Equilibrium glassy phase in polydisperse hard sphere system, **Phys. Rev. Lett.** 95**,** 248301 (2005).

51) **A. K. Sood** and S. Ghosh, Direct generation of voltage and current by gas flow over carbon nanotubes and semiconductors, **Phys. Rev. Lett.** 93**,** 86601-1 to 86601-4 (2004).

52) B. Chakrabarti, M. Das, C. Dasgupta, S. Ramaswamy and **A. K. Sood**, Spatiotemporal rheochaos in nematic hydrodynamics, **Phys. Rev. Lett.** 92, 55501-1 (2004).

53) S. Ghosh, **A. K. Sood** and N. Kumar, Carbon Nanotube Flow Sensors, **Science,** 299, 1042-1044 (2003).

54) U. Peter, D.Roux and **A. K. Sood**, Observation of a topological relaxation mode in random bicontinuous microemulsions, **Phys. Rev. Lett.** 86, 3340-3343 (2001) .

55) R. Bandyopadhyay, G. Basappa and **A. K. Sood,** Observation of Chaotic Dynamics to Dilute Sheared Aqueous Solutions of CTAT, **Phys. Rev. Lett.** 84**,** 2022-2025(2000).

56) J. Wang, **A. K. Sood**, P. Satyam, Y. Feng, X. Wu, Z. Cai, W. Yun and S. K. Sinha, X-ray Fluorescence Correlation Spectroscopy: A Method for Studying Particle Dynamics in Condensed Matter, **Phys. Rev. Lett.** 80, 1110-1113 (1998)

57) G.A. Garrett, A.G. Rojo, **A. K. Sood**, J.F. Whitaker and R. Merlin, Vacuum Squeezing of

Solids: Macroscopic Quantum States Driven by Light Pulses, **Science**, **275**, 1638-1640, (1997).

58) N. Chandrabhas, **A. K. Sood,** D.V.S Muthu, C.S. Sundar, A. Bharathi, Y. Hariharan and C.N.R. Rao, Pressure-induced Amorphization in solid C_{70}: Raman and Photoluminescence Study, **Phys. Rev. Lett.** 73, 3411 - 3414 (1994)

59) S. Sanyal, **A. K. Sood**, S. Ramakumar, S. Ramaswamy and N. Kumar, Novel Polarization Dependence in Diffusive Wave Spectroscopy of Crystallizing Colloidal Suspensions, **Phys. Rev. Lett.** 72, 2963 - 2966 (1994)

60) J. Chakrabarti, H.R. Krishnamurthy and **A. K. Sood**, Density Functional Theory of Laser Induced Freezing of Colloidal Suspensions, **Phys. Rev. Lett.** 73, 2923 - 2926 (1994).

61) **A. K. Sood**, J. Menendez, M. Cardona and K. Ploog, Interface vibrational modes in GaAs-AlAs superlattices, Phys. Rev. Lett. 54, 2115 - 2118 (1985)

62) **A. K. Sood**, J. Menendez, M. Cardona and K. Ploog, Resonance Raman scattering by confined LO- and TO- phonons in GaAs-AlAs superlattices, **Phys. Rev. Lett.** 54, 2111 – 2114 (1985)

Books (Edited)

1. C.N.R. Rao and A.K. Sood(Ed): “Graphene Synthesis, Properties and Phenomena”, Wiley-VCH Verlag GmbH & Co., (2013)

Full List of Publications

(1979 till present)

Papers published in Journals

1979

1. S. Dattagupta and **A. K. Sood**, Model for infrared and Raman studies of molecular rotations in liquids and gases, **Pramana** 13, 423 - 445 (1979)

1981

2. **A. K. Sood**, A.K. Arora, V. Umadevi and G. Venkataraman, Raman study of temperature dependence of lattice modes in calcite, **Pramana** 16, 1 - 16 (1981)

3. **A. K. Sood**, A.K. Arora, S. Dattagupta and G. Venkataraman, Raman study of orientation dynamics of sulphate ions in potash alum, **J. Phys. C** 14, 5215 - 5224 (1981)

4. **A. K. Sood** and S. Dattagupta, Model for vibrational relaxation: Pure dephasing and depopulation. **Pramana** 17, 315 - 326 (1981)

5. S. Dattagupta and **A. K. Sood**, Generalised M-diffusion model of molecular rotations, **Z. Phys. B** 44, 85 - 89 (1981)

1983

6. D. Sahoo and **A. K. Sood**, Comment on "Light Scattering from a fluid in a non- equilibrium steady state", **Phys. Lett.** 95A, 491 - 492 (1983)

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