CURRICULUM VITAE

DR. ARUN KUMAR SINGH

Professor
Department of Pure & Applied Physics,
Guru Ghasidas Vishwavidyalaya (A Central University),
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EXPERIENCES

- **Professor** (from January 2025 to Continue) Department of Pure & Applied Physics, ***Guru Ghasidas Vishwavidyalaya,*** Bilaspur (C.G), India
- **Associate Professor** (from November 2019 to Dec. 2024) Department of Pure & Applied Physics, ***Guru Ghasidas Vishwavidyalaya,*** Bilaspur (C.G), India
- **Assistant Professor** (DST INSPIRE Faculty) (Dec.2013 to Nov.2019) ***Motilal Nehru National Institute of Technology Allahabad***, Prayagraj, India.
- **Post Doctoral Fellow** (Sept. 2011 to Nov. 2013) Mesoscopic Physics Laboratory and ***Graphene Research Institute, Sejong University, Seoul*** 143-747, South Korea.
- **Senior Research Fellow** (July 2010 to April 2011) - School of Materials Science and Technology, ***Indian Institute of Technology (BHU)***, Varanasi, India

EDUCATIONAL QUALIFICATIONS

- **Ph.D.** in **Physics** (2010) School of Materials Science and Technology, *Indian Institute of Technology (BHU),* Varanasi, India.

  Thesis Title : Studies of Conducting Polymers and their Nanocomposites for Schottky devices

  **Advisor : ** Prof. Rajiv Prakash
- **GATE** Examination-2005 (AIR-385) & (2006 –AIR- 370).
- **Join Entrance Screening Test (JEST)**Examination-2006 with AIR-166
- **M.Sc. (Physics)** (2004), Passed with first division. Banaras Hindu University, Varanasi, India
- **B.Sc.(Phys, Maths,Chem)** (2002) Passed with first division, Udai Pratap Autonomous College, Varanasi (Affiliated to V.B.S. Purvanchal University, Jaunpur, India)

Administrative Responsibilities

- Member, Academic Council, Guru Ghasidas Vishwavidyalaya (Central University), Bilaspur, (from 2021- 2024).
- Member, NEP 2020 Implementation Task Force Committee, GGV Since Oct. 2021
- Coordinator MOOCs (from Oct 2021 to May 2022).

- Coordinator (Departmental) Criterion IV NAAC Since Dec. 2019.
- Member, Board of Studies of Department, since August 2021.
- Member, Departmental Research Committee (DRC), since May 2023.
- Coordinator, Annual Report (English and Hindi) of the department from Dec. 2020 onwards.
- Presiding Officers, the Students' Council Election 2019
- Member of University Proctor Board (From 2020 to 2022)
- Member of Faculty Recruitment Scrutiny Committee 2020 and 2022
- Discipline committee member of the Department

AWARDS AND FELLOWSHIPS

- **VIRA Young Scientist Award** In Materials Science 2017
- Financial Assistance of Rs 50000/ from **Department of Atomic Energy**, BRNS, Government of India for organizing a National conference on Advanced Nanomaterials and their Application (ANA-2018).
- Financial Assistance of Rs 40000/ from **CSIR**, Government of India for organizing a National conference on Advanced Nanomaterials and their Application (ANA-2018).
- **International Travel Grant Award** from Department of Science and Technology (**DST)** to attend International conference *"Fifth Molecular Meeting @ Singapore" Singapore* during August 3-5, 2015.
- **DST INSPIRE Faculty Award**- from Department of Science and Technology, in July2013.
- **Dr. D. S. Kothari Postdoctoral Fellowship**-University Grant commission **(UGC)** India in 2011.
- **Senior Research Fellowship** (from April-2011 to August 2011) **(SRF-Extended)** from Council of Scientific & Industrial Research **(CSIR),** Human Resource Development Group, India
- **International Travel Grant Award** from Department of Science and Technology (**DST)** to attend International conference *"Fifth International conference on Molecular Electronics and Bioelectronics"* **(M&BE5)** *Miyazaki, Japan* during March 15-18, 2009
- **Senior Research Fellowship (SRF)** from Council of Scientific & Industrial Research **(CSIR),** Human Resource Development Group, India
- **Junior & Senior Research Fellowship (**From August 2006–March 2009)from UGC India.

RESEARCH EXPERIENCE

- **DST-INSPIRE Faculty:** (December 2013 November 2019) -Motilal Nehru National Institute of Technology Allahabad, Prayagraj, India.
  Here my works are based on *Electronic properties of organic semiconductors and Nanomaterials.*
- **Post Doctoral Fellow:** (September 2011 to November 2013) – Graphene Research

Institute, Sejong University, Seoul 143-747, South Korea.
My research work was focused on *charge transport in 2D nanomaterials based devices and also the modulation of graphene/MoS_2 properties by doping under the Advisor* **Prof. Jonghwa Eom**

- **Senior Research Fellow:** (from July-2010 to April 2011) - School of Materials Science and Technology, Indian Institute of Technology (BHU), Varanasi.
  worked on *Graphene-conducting polymer composite for electronic devices.*
- **Ph.D:** (August 2006 - June 2010) - Ph.D degree awarded on topic *"Studies of Conducting Polymers and their Nanocomposites for Schottky devices"* under the supervision of **Prof. Rajiv Prakash.**

Collaborative work in JAPAN:

A three month research work on characterization of conducting polymers and their applications in Schottky diode and field effect Transistor (OFET**)** during October 2007-December 2007 under the supervision of **Prof. Keiichi KANETO,** LSSE, **Kyushu Institute of Technology, JAPAN.**

A 10 days research work on *Organic Schottky diode* and *Organic field effect Transistor (OFET)* during March-15, 2008 to March-26, 2008 under the supervision of **Prof. Keiichi KANETO,** LSSE, **Kyushu Institute of Technology, JAPAN.**

TEACHING EXPERIENCE

- **From November 2019 to Continue:** Guru Ghasidas Vishwavidyalaya (GGV), Bilaspur (C.G), India Teaching for UG & PG students
- **From December 2013 to November 2019**) - Motilal Nehru National Institute of Technology Allahabad, Prayagraj, India.Lectures, Tutorial and Lab classes of B.Tech.

PH.D SUPERVISION

- Supervised TWO Ph.D. Students (Dr. Vivek Chaudhary & Dr.Anand Kumar Singh).
- FIVE students are currently working- Ms. Kiran Gupta (SRF- DST INSPIRE), Ms. Mitu Chauhan (JRF- SERB), Mr.Visheshvar Verma (JRF- UGC DAE CSR), Ms. Riteshwari , Mr. Manish Khare (Working Professional).

RESEARCH INTEREST

- Electronic and Optoelectronic Properties of Materials
- Energy Materials
- Charge transport in Nanomaterials and Organic Semiconductors
- Applications of Materials in Electronic Devices
- Metal-Semiconductor Interfaces and Physics of Electronic Devices
- Conducting Polymers
- Organic/Molecular electronics
- Mesoscopic Physics

SKILLS

Experimental Techniques:

- Transfer of exfoliated graphene on pattern electrode(0.2μm)
- Transfer of CVD graphene on any desired substrates.
- Electron beam Lithography and Photolithography.
- Chemical and Electrochemical Synthesis of Conducting polymers and its Nanocomposites.
- X-Ray Diffraction.

- Atomic Force Microscope.
- Semiconductor Parameter Analyzer
- Scanning Electron Microscope.
- Raman and U.V. Visible Spectrophotometer.
- Vacuum Coating Unit.
- C H Instrument.

MEMBERSHIP

- Life Member of **Materials Research Society, India**.
- Life Member of **Indian Science congress Association, India**
- Life Member of **Electron Microscope Society of India**
- Life Member of **Indian Association of Physics Teachers, India**
- Life Member of **Indian Physics Association, India**.
- Annual Member of **American Chemical Society, USA**

PROJECTS

- UGC-DAE CSR Sponsored project Status-Ongoing from April. 2022
- SERB Sponsored Project**,** Amount-33 Lakhs, Status-Ongoing from Jan. 2022.
- DSTSponsored Project**,** Amount-35 Lakhs,Status-Completed(Dec.2013-Dec. 2019).

CONFERENCE ORGANIZED

- ***CONVERNER*** *of One Day National Seminar-cum -Workshop on* ***Nanoscience, Nanotechnology and Advanced Materials*** *@GGV Bilaspur*, held on Sept, 21,2021.

- ***CONVENER*** of National conférence on *"**Advanced Nanomaterials and their Applications (ANA-2018)"*** @MNNIT Allahabad, held during December, 21-23, 2018.

RESEARCH PUBLICATIONS

International Journals = **61,** Paper presented in conferences = **50** papers
Total Citations=2045, ***h-index = 25*** ***i-10 Index=45***
(Scientific Report, Advanced Functional Materials, Journal of Materials Chemistry, ACS Applied Materials and Interfaces, IEEE Electron Devices letters, JAP, JPCM, Jpn. JAP,JPC- C, RSC Advances, Sensor and Actuators-B……..Many more.)

REVIEWERS

Scientific Reports, Advanced Materials, Advanced Functional Materials, Advanced Electronic Materials, Organic Electronics, Nano Micro letters, ACS Applied Nanomaterials Interfaces, Journal of Applied Polymer Science, Materials Science and Engineering-B, New Journal of Chemistry, Journal of Applied Physics, Superlattices and Microstructures … etc

COLLABORATORS

- **Prof. Rajiv Prakash,** Professor
  School of Materials Science and Technology,
  Indian Institute of Technology (BHU),
  Varanasi - 221005, India.
  Email**:** rprakash.mst@iitbhu.ac.in
  Phone No: (Mobile) 91-9935033011, (Off.) 91(0542)-2307047
  Fax: 91(0542)- 2368707
- **Prof. Jonghwa Eom,** Professor
  Mesoscopic Physics Laboratory, Graphene Research Institute,
  Deparment of Physics, Sejong University,
  Seoul-143-747,South Korea
  Email: eom@sejong.ac.kr, Phone +82-10-4037-3794

FULL LIST OF PUBLICATIONS

Total Citations= *2250*, h-index = 26, i-10 Index=46, Highest I.F.= 19.8

PUBLICATIONS IN REFEREED JOURNAL

1) Mitu Chauhan, Rajiv Prakash and **Arun Kumar Singh** "Role of Liquid Substrate on Self-Assembly and Charge Transport of 2D Organic Semiconductor" ***Journal of Materials Chemistry C,*** Accepted 2025.(**I.F.=5.3**) DOI: https://doi.org/10.1039/D5TC02069G
2) P. S. Nanda , A. Gautam b, Arun Kumar Singh, R. S. Singh "Recent advances in rare earth doped metal oxide based nanomaterials for supercapacitors" *Journal of Energy Storage*, 131,117431,2025. **(I.F.=9.8**)
3) V. Verma, R. S. Singh, M. Gupta, and A. K. Singh[1]* "Fermi-Level Tuning in Graphene via Green Synthesized h-MoO3: Enhanced Supercapacitor Performance of h-MoO3 Doped Graphene" *Journal of Alloys and Compounds 1018, 179225,* 2025. **(I.F.=6.8**).
4) M. Chauhan, A K. Singh, V. Chaudhary, R. K. Pandey and **Arun Kumar Singh*** "Gigantic Enhancement of Optoelectrical Properties in Polythiophene Thin Films via MoS_2 Nanosheets Induced Aggregation and Ordering" *Material Advances* 6, 1822, 2025.**(I.F.=5.2**).
5) K. Gupta, N. Singh, R.S. Singh, U. P. Azad, **Arun Kumar Singh*** "Solution-processable PEDOT:PSS /WS2 nanocomposite electrodes for high-performance supercapacitors"*Journal of Energy Storage*, 103, 114348, 2024. **(I.F.=9.8**)
6) M Chauhan, RS Singh, **Arun Kumar Singh*** "Aggregation induced strong photoluminescence at room temperature in large-area C8BTBT thin films" Synthetic Metals 306,117624, 2024. **(I.F.=4.6)**
7) AK Singh, S Andleeb, **Arun Kumar Singh*** "Tuning of electrical properties of CVD grown graphene by surface doping with organic molecules" AIP Advances 9,13, 2023.**(I.F.=1.6)**
8) A. K. Singh, R. S. Singh, **Arun Kumar Singh*** "Recent Developments in Chemical Doping of Graphene using Experimental Approaches and Its Applications"Adv. Engg. Mater. 24 (11), 2200259 2022. **(I.F.=4.2)**
9) RS Singh, RD Patidar, **Arun Kumar Singh**, K Deshmukh, K Thakur, A Gautam "Simple Thermal Annealing-Assisted Direct Synthesis and Optical Property Study of CuO Nanoparticles Incorporated Polyvinyl Alcohol Films" Physica Status Solidi (a) 220 (17), 2300328, 2023. **(I.F.=2)**
10) RS Singh, AK Singh, A Gautam, V Rai, MK Jha "Modeling and Simulation of Thin Film InP/GaAs Dual Junction Solar Cells" Iranian Journal of Chemistry and Chemical Engineering,
11) A. Verma, P. K. Sahu, V. Chaudhary, **Arun Kumar Singh**, VN Mishra, R. Prakash "Fabrication and Characterization of P3HT/MoS_2 Thin-Film Based Ammonia Sensor Operated at Room Temperature"

IEEE Sensors Journal, 22,11, 10361-10369, 2022. (**I.F.= 4.3**)

12) R. K Pandey, **Arun Kumar Singh**, N. K. Singh, M. Rabelo, M. Ju, Eun-Chel Cho, R. Prakash, Junsin Yi "Synergistic enhancement in optoelectrical anisotropy of polymer film at the air-liquid interface: An insight into molecular weight distribution dependent polymer alignment" Applied Surface Science 593, 153413, 2022. (**I.F.= 7.3**)
13) Anand Kumar Singh, **Arun Kumar Singh*** and SRP Sinha "Fermi-Level Modulation of Chemical Vapor Deposition-Grown Monolayer Graphene via Nanoparticles to Macromolecular Dopants" ACS Omega, 7, 744-751, 2022.(**I.F.= 3.5**)
14) V. Chaudhary, R. K. Pandey, R. Prakash**,** N. Kumar and **Arun Kumar Singh*** "Unfolding Photophysical Properties of Poly(3-hexylthiophene)-MoS_2 Organic-Inorganic Hybrid Materials: An Application to Self-Powered Photodetectors" **Nanotechnology,** 32, 385201, 2021. (**I.F.= 3.9**)
15) Shubham Dadhich, A. D. D. Dwivedi, and **Arun Kumar Singh*** "Fabrication, characterization, numerical simulation and compact modeling of P3HT based organic thin film transistors**" Journal of Semiconductors,** Vol. 42,7**,** 2021. (**I.F.= 2**)
16) Ram Sevak Singh, Aseem Rasheed, Anurag Gautam, **Arun Kumar Singh**, and Varun Rai "Enhanced Optical and Electrical Properties of Graphene Oxide-Silver Nanoparticles Nanocomposite Film by Thermal Annealing in the Air" **Russian Journal of Applied Chemistry**, Vol. 94, No. 3, pp. 399–406, 2021. (**I.F.= 0.85**)
17) Anand Kumar Singh, Vivek Chaudhary, **Arun Kumar Singh*** and SRP Sinha "Investigation of electronic properties of chemical vapor deposition grown single layer graphene via doping of thin transparent conductive films" **RSC Advances**, Vol 11, 3096, 2021. (**I.F.= 3.1**)
18) Anand Kumar Singh, Vivek Chaudhary, **Arun Kumar Singh*** and SRP Sinha "Tuning of electronic properties of chemical vapor deposition grown graphene via self-assembled monolayer doping" **Materials Today: Proceedings, Vol 26,** 2919-2924, 2021. 2020. ISSN 2214-7853
19) R. K. Pandey, H. Bisht, S. K. Yadav, **Arun Kumar Singh**, R. Prakash, H.Mishra "Surface driven nano-morphology of poly 3-hexylthiophene film, and their photophysical, spectral and electronic traits" **Materials Science & Engineering B,** 260, 114622,2020 **(I.F=4.8**)
20) Anand Kumar Singh, Vivek Chaudhary, **Arun Kumar Singh*** and SRP Sinha "Tailoring of electrical properties of TiO_2 decorated CVD grown single-layer graphene by HNO_3 molecular doping". **Synthetic Metals** 264, 116389, 2020. **(I.F.= 3.3)** ISSN/ISBN No 0379-6779
21) V. Chaudhary, R. K. Pandey, P. K Shahu, R. Prakash**,** N. Kumar and **Arun Kumar Singh***"MoS_2 assisted self-assembled poly(3-hexylthiophene) thin films at an air/liquid interface for high-performance Field-Effect Transistors under ambient conditions" **J. Phys. Chem. C,** 124, 8101−8109, 2020.**(I.F.= 4.1)** ISSN/ISBN No. 1932-7447

22) Vivek Chaudhary, Rajiv K. Pandey, Rajiv Prakash**,** Naresh Kumar and **Arun Kumar Singh*** "Highly aligned and crystalline poly(3-hexylthiophene) thin films by off center spin coating for high performance organic field-effect transistors". **Synthetic Metals** *258,* 116221, 2019. **(I.F.= 3.3)** ISSN/ISBN No 0379-6779

23) Anand Kumar Singh, Vivek Chaudhary, **Arun Kumar Singh** and SRP Sinha "Effect of TiO_2 nanoparticles on electrical properties of chemical vapor deposition grown single layer graphene". **Synthetic Metals** 256, 1-6, 2019. **(I.F.= 3.3)** ISSN/ISBN No 0379-6779

24) Vivek Chaudhary, Naresh Kumar and **Arun Kumar Singh "**Solubility dependent trap density in poly(3-hexylthiophene) organic Schottky diodes at room temperature" **Synthetic Metals** 250, 88–93, 2019. **(I.F.= 3.3)** ISSN/ISBN No 0379-6779

25) **Arun Kumar Singh** P. Kumar, D. J. Late, Ashok Kumar, S. Patel, Jai Singh "2D Layered Transition Metal Dichalcogenides (MoS_2): Synthesis, Applications &Theoretical Aspects**" Applied Materials Today**, **(I.F.= 8.3)** Vol, 13, pp-242-270, 2018. ISSN: 2352-9407

26) **Arun Kumar Singh,** Rajiv K. Pandey, Rajiv Prakash and Jonghwa Eom "Tailoring the charge carrier in few layers MoS_2 field-effect transistors by Au metal adsorbate" **Applied Surface Science.** Vol, 437, pp-70-74, 2018. **(I.F.=6.2) ISSN= 01694332**

27) Vivek Chaudhary, Rajiv K. Pandey, Rajiv Prakash and **Arun Kumar Singh "**Self-assembled H aggregation induced high performance poly (3-hexylthiophene) Schottky diode**" Journal of Applied Physics** Vol. 122, pp.225501, 2017. **(**Selected for **Editor's picks** of Journal) **(I.F.=2.3)**

28) Shaista Andleeb, Jonghwa Eom, Nabila Rauf Naz, **Arun Kumar Singh "**MoS_2 field effect transistor with graphene contacts." **Journal of Materials Chemistry C** Vol.5, pp. 8308 2017.**(I.F.=7.1)** ISSN /ISBN No. 2050-7526

29) **Arun Kumar Singh**, Chanyong Hwang and Jonghwa Eom "Low-Voltage and High Performance Multilayer MoS_2 Field-effect Transistors with Graphene Electrodes." **ACS Applied Materials & Interfaces**, *8* (50), pp 34699–34705, 2016. (**I.F=8.8**) ISSN/ISBN No. 1944-8244

30) S. Hussain, J. Singh, D. Vikraman, **Arun Kumar Singh**, M. F. Khan, P. Kumar, D. Choi, W. Song, K An, J. Eom, W.Gyu Lee, and J. Jung "Large-area, continuous and high electrical performances of bilayer to few layers MoS_2 fabricated by RF sputtering via post-deposition annealing method". **Scientific Report** *(Nature Publishing Group)* Vol.6, pp- 30791, 2016. (**I.F.=5.5**). ISSN/ISBN No. 2045-2322

31) S. Tiwari, **Arun Kumar Singh**, S. K. Balasubramanian, W. Takashima, R. Prakash "Poly-3- hexyl thiophene (P3HT)/Graphene Nanocomposite Field-Effect-Transistor as Ammonia Detector". **Journal of Nanoscience and Nanotechnology,** 16, pp. 9634-9641, 2016. **(I.F.= 1.4)** ISSN No.1533-4899

32) **Arun Kumar Singh**, Shaista Andleeb, Jai Singh and Jonghwa Eom "Tailoring the electrical

properties of multilayer MoS_2 transistors using ultraviolet light irradiation". **RSC Advances**, Vol.5, pp.77014–77018, 2015. **(I. F.=3.3)** ISSN/ISBN No. 20462069

33) Shaista Andleeb, **Arun Kumar Singh** and Jonghwa Eom "Chemical doping of MoS_2 multilayer-by p-toluene sulfonic acid" **Science & Tech Advanced Materials**.Vol.16, pp. 035009, 2015**(I.F.= 3.5)** ISSN/ISBN No. 1878-5514

34) Rajiv K. Pandey, **Arun Kumar Singh**, and Rajiv Prakash "Directed Self Assembly of Poly (3, 3‴-dialkylquaterthiophene) Polymer Thin Film: Effect of Annealing Temperature"**J. Phys. Chem. C** Vol. 118, pp.22943−22951, 2014**.(I.F.= 4.1)** ISSN/ISBN No. 1932-7447

35) R. K. Pandey, **Arun Kumar Singh**, C. Upadhyay, and R. Prakash "Molecular Self Ordering and charge Transport in Layer by Layer Deposited Poly(3,3‴- dialkylquaterthiophene) Films by Langmuir - Schaefer Technique" **J. Appl. Phys.** Vol.116, pp.094311, 2014. **(I.F.= 2.3)**ISSN/ISBN No. 0021-8979

36) **Arun Kumar Singh**, Shaista Andleeb, Jai Singh, Hoang Tien Dung, Yongho Seo and Jonghwa Eom "Ultra Violet Light Induced Reversible and Stable Carrier Modulation in MoS_2 Field Effect Transistors" **Advanced Functional Materials** Vol. 24, Issue 45, pp. 7125–7132, 2014**. (I.F.=18.8)** ISSN/ISBN No. 1616-3028

37) B. Gupta, **Arun Kumar Singh** and Rajiv Prakash "Influence of monomer concentration on polycarbazole &polyindole (PCz&PIn) copolymer properties: Application in Schottky diode" **Solid State Sciences** Vol. 35, pp.56-61, 2014. **(I.F.=2.4)** ISSN/ISBN No. 1293-2558.

38) Shashi Tiwari, **Arun Kumar Singh**, and Rajiv Prakash "Poly (3-hexyl-thiophene) (P3HT) /Graphene nanocomposite based Hybrid Organic Field Effect Transistor"**Journal of Nanoscience and Nanotechnology**Vol.14,pp. 2823–2828,2014.**(I.F.=1.4)**ISSN/ISBNNo.1533-4899

39) **Arun Kumar Singh** and Jonghwa Eom "Negative Magnetoresistance in Vertical Single Layer Graphene Spin Valve at Room Temperature" **ACS Applied Materials & Interfaces** Vol. 6, pp. 2493−2496**,** 2014**.(I.F.= 9.2)** ISSN/ISBN No. 1944-8244

40) V. K. Singh, **Arun Kumar Singh**, Muhammad W Iqbal, Jonghwa Eom, Ju-Rang Yeon, Koo Shin "Direct Synthesis of Multilayer Sheets of Reduced Graphene Oxide Over Cu-Foil" **Graphene,** Vol.1, pp.69-77, 2013. ISSN/ISBN No. 2167-275X

41) Rajiv K. Pandey, **Arun Kumar Singh** and Rajiv Prakash "Enhancement in performance of polycarbazole-graphene nanocomposite Schottky diode"**AIPAdvances** Vol.3,122120,2013. (**I.F= 1.65)** ISSN/ISBN No. 2158-3226

42) **Arun Kumar Singh**, Muneer Ahmad, Vivek Kumar Singh, Koo Shin, Yongho Seo and Jonghwa Eom "Tailoring of electronic properties of exfoliated graphene layer by molecular doping" **ACS Applied Materials & Interfaces** Vol.5, pp.5276-5281, 2013. **(I.F.= 9.2)** ISSN/ISBN No. 1944-8244

43) Pushpendra Kumar, **Arun Kumar Singh**, Jonghwa Eom, Jai Singh "Graphene: Synthesis, properties and application in Transparent Electronic Devices" **Reviews in Advanced Sciences and Engineering ,**Vol. 2, pp. 238–258, 2013. ISSN/ISBN No. 2157-9121

44) M.W. Iqbal, **Arun Kumar Singh**, M. Z. Iqbal and Jonghwa Eom "Raman fingerprint of doping due to metal adsorbates on graphene"**Journal of Physics:Condense Matter** Vol. 24,335301, 2012. **(I.F.= 2.7)** ISSN/ISBN No. 0953-8984

45) **Arun Kumar Singh**, Muhammad Waqas Iqbal, Vivek Kumar Singh, Muhammad Zahir Iqbal, Jae Hong Lee, Seung-Hyun Chun, Koo Shin and Jonghwa Eom **"**Molecular n-doping of chemical vapor deposition grown graphene" **Journal of Materials Chemistry** Vol.22, pp. 15168-15174, 2012. **(I.F.= 6.6)** ISSN/ISBN No. 1364-5501

46) S. Tiwari, **Arun Kumar Singh**, L. Joshi, T. Morita, P. Chakrabarti, K. Kaneto and R. Prakash " Poly-3-hexylthiophene based organic field-effect transistor: Detection of low concentration of ammonia". **Sensors and Actuators-B** 171–172, pp. 962–968, 2012. **(I.F.= 7.1)** ISSN No.0925-4005

47) Leela Joshi, **Arun Kumar Singh** and Rajiv Prakash "Polyindole/ carboxylated-multiwall carbon nanotube composites produced by in-situ and interfacial polymerization" **Materials Chemistry and Physics,** Vol-135, pp.80-87, 2012. **(I.F.= 3.4)** ISSN/ISBN No. 0254-0584

48) **Arun Kumar Singh** and Rajiv "Organic Schottky diode based on conducting polymer-nanoclay composite". **RSC Advances** Vol. 2,pp.5277-5283, 2012.**(I.F.= 3.3)**ISSN 2046-2069

49) M. Z. Iqbal, **Arun Kumar Singh**, M. W. Iqbal, S. Seo and Jonghwa Eom "Effect of e-beam irradiation on graphene layer grown by chemical vapor deposition"**J. Appl. Phys.** Vol. 111, pp. 084307- 084311,2012. **(I.F.= 2.2)** ISSN/ISBN No. 021-8979

50) **Arun Kumar Singh** and Rajiv Prakash "Synthesis of Carbon Nanotube and Nanoclay Composites of Polyanthranilic Acid and their Effects on Electronic Properties" **J. Biomedical Nanotechnology**. Vol.7 Issue 1,pp.154-155, 2011. **(I.F.= 4.4)** ISSN/ISBN No.154-155

51) **Arun Kumar Singh,** P. Chakrabarti and Rajiv Prakash "Electronic Properties and Enhance Photoresponse of Electrochemically Polymerized Polycarbazole MWNTs nanocomposite/Aluminum Schottky Contact" **IEEE Electron Device Letter**s Vol.32, no-5, pp. 593-595, 2011**. (I.F.=4.2)** ISSN/ISBN No.0741-3106

52) **Arun Kumar Singh**, Leela Joshi, Bhavana Gupta and Rajiv Prakash "Electronic Properties of Soluble Functionalized Polyaniline (PolyanthranilicAcid)-Multiwalled Carbon Nanotubes Nanocomposite: Influence of Synthesis methods" **Synthetic Metals** Vol. 161, Issue 5, pp. 481-488, 2011**. (I.F.= 3.3)** ISSN/ISBN No 0379-6779.

53) Bhavana Gupta, **Arun Kumar Singh** and Rajiv Prakash "Electrolyte Effects on Various Properties of Polycarbazole" **Thin Solid Films** Vol. 519**,** Issue 3, pp.449-454, 2010. **(I.F.= 2.03)** ISSN/ISBN

No. 0040-6090**.**

54) A.D. D. Dwivedi, **Arun Kumar Singh**, Rajiv Prakash and P. Chakrabarti "A Proposed Organic Schottky Barrier Photodetector for application in the Visible Region" **Curr. Appl. Phys.** Vol. 10, Issue 3, pp. 900-903, 2010. (Recently Highlighted by Nature Publishing Group in *Nature India* Magazine.) **(I.F.= 2.3)** ISSN/ISBN No. 1567-1739

55) **Arun Kumar Singh**, Leela Joshi, Rajiv Prakash and Keiichi Kaneto "Influence of Synthesis Conditions on Electronic and Junction Properties of Polyanthranilic Acid - Clay Nanocomposites with Aluminum" **Jpn. J. Appl. Phys.** Vol.49, No. 1, pp. 01AD06-1-6, 2010. **(I.F.=1.4)** ISSN/ISBN No. 1347-4065

56) **Arun Kumar Singh**, A. D. D. Dwivedi, P. Chakrabarti and Rajiv Prakash "Electronic and Optical Properties Electrochemically Polymerized Polycarbazole/Aluminum Schottky Contact" **J. Appl. Phys.** Vol.105, no.1 pp.114506, 2009. **(I.F.=2.2)** ISSN/ISBN No. 0021-8979

57) **Arun Kumar Singh**, Rajiv Prakash, A. D. D. Dwivedi and P. Chakrabarti "Electronic Properties and Junction Behaviour of Micro and Nanometer Sized Polyanthranilic Acid / Metal Contacts." **Synthetic Metals** Vol.158, Issues 21-24, pp. 939-945, 2008. **(I.F.= 3.3)** ISSN/ISBN No 0379-6779.

58) **Arun Kumar Singh**, Rajiv Prakash, A. D. D. Dwivedi and P. Chakrabarti, "Electronic Properties and Junction Behaviour of Polyanthranilic Acid / Metal Contacts." **IEEE Electron Device Letters** Vol. 29, no.6, pp. 571-574, 2008. **(I.F.=4.2)** ISSN/ISBN No.0741-3106

BOOKs as Editor

- **Arun Kumar Singh**, R. S. Singh, A. Singh ***"Emerging Two Dimensional Materials and Applications"*** https://doi.org/10.1201/9781003247890 ISBN 9781032162874 book by CRC Press 2022.
- **Arun Kumar Singh** "***Carrier Modulation in Graphene and its Applications"*** book by Jenny Stanford Publishing November 30, 2021. ISBN:9789814877602

BOOK CHAPTERS

- R. K. Pandey, **Arun Kumar Singh** and R. Prakash "**Introduction and Properties of Graphene Nanosheets"** book chapter in book: *Carrier Modulation in Graphene and its Applications* by Jenny Stanford Publishing November 30, 2021. ISBN:9789814877602
- S. Andleeb & **Arun Kumar Singh* "Potential Applications of Graphene"** book chapter in book: *Carrier Modulation in Graphene and its Applications* by Jenny Stanford Publishing November 30, 2021. ISBN:9789814877602
- S. Andleeb & **Arun Kumar Singh* "Carrier Modulation in Graphene"** book chapter in book: *Carrier Modulation in Graphene and its Applications* by Jenny Stanford Publishing November 30, 2021. ISBN:9789814877602

- S. Andleeb & **Arun Kumar Singh* "Applications of Doped Graphene"** book chapter in book: *Carrier Modulation in Graphene and its Applications* by Jenny Stanford Publishing November 30, 2021. ISBN:9789814877602
- R. S. Singh, V. Rai, Arun Kumar Singh* "**2D Dichalcogenides"** book chapter in book: 2D Functional Nanomaterials. https://doi.org/10.1002/9783527823963.ch18 Wiley-VCH GmbH 08October 2021. ISBN:9783527823963
- Arun Kumar Singh , R. S. Singh, A. Singh **"Overview of 2D Materials"** book chapter in book: "Emerging Two Dimensional Materials and Applications" CRC Press 2022.

FULL PAPERS IN CONFERENCE PROCEEDINGS

1) **Arun Kumar Singh**, Bhavana Gupta and Rajiv Prakash "Enhancement of Specific Capacitance of Polyaniline by Secondary Metal Ion Doping" International Conference on *"Emerging Trends in Electronics and Photonics Devices & System* **(ELECTRO-2009)***"* Department of Electronics Engineering, Institute of Technology, Banaras Hindu University, Varanasi, India during December 22-24, 2009. Citation= 1
2) **Arun Kumar Singh**, Rajiv Prakash, "Conduction Mechanism in Electronic Polymers: Effect of Morphology" **IEEE** sponsored 2nd National Workshop on *Advanced Optoelectronic Materials and Devices* **(AOMD-2008)** Varanasi, India during December 22-24, 2008. Citation= 3
3) Arun Dev Dhar Dwivedi, **Arun Kumar Singh**, Rajiv Prakash & P. Chakrabarti "A Comparative Study of Polyanthranilic Acid (PANA)/Metal and Polycarbarzale (PCz)/Metal Contacts for Electronic and Optoelectronic Applications" **IEEE sponsored 2nd** National Workshop on **Advanced Optoelectronic Materials and Devices** (**AOMD-2008)** Varanasi, India during December 22-24, 2008. Citation= 2
4) **Arun Kumar Singh**, Rajiv Prakash, A. D. D. Dwivedi and P. Chakrabarti, "Ultra Low Noise Polyanthranilic Acid (PANA) /metal (Al, Ti) Schottky Contacts for UV Detection." Proceedings of *Advanced Optoelectronic Materials and Devices* **(AOMD-2007)** Varanasi, India during December 27-29, 2007.

PAPERS PRESENTED IN CONFERENCES, SEMINARS, WORKSHOPS, SYMPOSIA

1) **Arun Kumar Singh** Invited lecture in Refresher Course in Physical Sciences "Emerging Materials for Energy Applications" during 15.07.2025 to 31.07.2025 at Pt. Ravishankar Shukla University, Raipur-492 010 (Chhattisgarh)
2) **Arun Kumar Singh** Invited lecture in "Global Conference on Material Science and Nanotechnology" Iris Scientific Group Conferences, Hong Kong on 28 April, 2025.
3) **Arun Kumar Singh** "Organic–Inorganic Hybrid Material for High Performance Photodetectors" International Conference on Advanced Functional Materials November 18-19, 2024 | Dubai, UAE. **(Invited Speaker)**
4) **Arun Kumar Singh** "Electronic Tuning of Single Layer Graphene with Thin Transparent Conductive Polymeric Films" Global Meet on Graphene and Carbon Nanostructures (GMGCN2024) July 18, 2024. **(Invited Speaker)**

5) **Arun Kumar Singh** "Fermi-Level Tuning of Graphene via Nanoparticles toMacromolecular Dopants" at Global Meet on Condensed Matter Physics (GMCMP2024) held during April 18, 2024. **(Invited Speaker)**

6) **Arun Kumar Singh** **"**Poly(3-Hexylthiophene)-MoS2 Organic–Inorganic hybrid material for high Performance Self-powered Photodetectors" **Materials science conference- 2024. (Invited Speaker)**

7) **Arun Kumar Singh** "Two-dimensional Nanomaterials Based High Performance Field Effect Transistors"at Global Meet on 2DMaterials and Graphene(GM2DMAT2023) held during May 22, 2023 **(Invited Speaker)**

8) **Arun Kumar Singh** "Two-dimensional Nanomaterials Based Field Effect Transistors"34 AGM of MRSI and Materials conclave held during 12-15 Dec. 2023 at IIT (BHU) **(Invited Speaker)**

9) **Arun Kumar Singh** "Two-dimensional Nanomaterials for Electronic Devices" 2nd International Meet on Electronics and Electrical Engineering (EEEMEET2023) Webinar held on August 14, 2023, Canada. **(Invited Speaker)**

10) **Arun Kumar Singh** "Two-dimensional Nanomaterials Based High Performance Field Effect Transistors"at Global Meet on 2DMaterials and Graphene(GM2DMAT2023) held during May 22, 2023 **(Invited Speaker)**

11) **Arun Kumar Singh "**Macroscopically Aligned Conjugated Polymers for High Performance Electronics Devices" 2nd National conference on Advanced nanomaterials and Applications (ANA-2023) held during March, 20-22, 2023 at CUSB, Gaya Bihar, India. **(Invited Speaker)**

12) **Arun Kumar Singh** "Modification in the Electronic Properties of CVD Grown SLG by Deposition of Thin Transparent Conducting Polymer" 3rd Edition of International Conference on Materials Science and Engineering", held during March 13-15, 2023 Singapore. **(Invited Speaker)**

13) **Arun Kumar Singh** "4th National conference on "Recent Advancement in Physical Sciences"held during December 19-20, 2022" at NIT Utrakahand : **Session the Chair**

14) **Arun Kumar Singh** 7 Days Workshop on "Material Characterization Techniques" under STUTI program funded by DST, India held during November1-7, 2022, GGV Bilaspur. **Resource Person**

15) **Arun Kumar Singh** "Molecular alignment of conjugated polymer films for high performance organic field effect transistors" The 11th global conference on materials Science and Engineering (CMSE-2022) held during September 16-19, 2022 China. **(Invited Speaker)**

16) **Arun Kumar Singh** "The 11th global conference on materials Science and Engineering (CMSE-2022)" held during September 16-19, 2022 China. **Session the Chair**

17) **Arun Kumar Singh** "Field Effect Transistors based on Two-dimensional Materials" *4th edition of World Nanotechnology Conference"Online Conference USA April 25-27, 2022***(Invited Speaker)**

18) **Arun Kumar Singh** "Impact of Molecular Ordering and Alignment of Conjugated Polymer on Charge Transport" 2nd Edition of International Conference on Materials Science and Engineering", held during March 28-30, 2022 Singapore. **(Invited Speaker)**

19) **Arun Kumar Singh** workshop on "MOOCs Online Courses & Open Educational Resources" held during 14/3/2022 to on 21/03/ 2022 organized by UGC India.

20) **Arun Kumar Singh** "One Day workshop on Multiple Entry/Exit for professional Courses as AStep Towards NEP Implementation" held on 18/12/ 2022 organized by Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.) 495009.

21) **Arun Kumar Singh** "3rd National conference on "Recent Advancement in Physical Sciences"held during December 19-20, 2021" at NIT Utrakahand : **Session the Chair**

22) **Arun Kumar Singh** "Revised Framework of NAAC accreditation: an awareness program" held on 26/11/ 2021 organized by Internal Quality Assurance Cell, Guru Ghasidas Vishwavidyalaya Koni- Bilaspur (C.G.) 495009.

23) **Arun Kumar Singh "**Tuning of charge densities in 2D nanosheets" Material Science World Forum-2021, held during November 04-06, 2021 in Edinburgh, Scotland. **(Invited Speaker)**

24) **Arun Kumar Singh** "Tuning of the charge density in few layers MoS_2 by metal adsorbate" 6th **International Conference on Nanoscience and nanotechnology (ICONN-21)"** held on 01-03 February-2021 at SRM University, Kattankulathur, India.

25) **Arun Kumar Singh** "2D Nanomaterials for Future Electronics" **National Conference on Materials and Devices (NCMD-2020)** held on 18-19 December-2020 at T. M. University, Moradabad, India. (Oral Presentation)

26) **Arun Kumar Singh** "Electronic and Optical Properties of Poly(3,3‴- Dialkylquarterthiophene)- MoS2 nanocomposite" **International Conference on Electron Microscopy and Allied Analytical Techniques (EMAAT2019)** held @ Himanchal Pradesh University, Shimla, Himanchal Pradesh, India during June 7-9, 2019.

27) **Arun Kumar Singh** participated in QIP short term programme on **"Materials Characterizations for Engineering"** held @ IIT (BHU),Varanasi during December 24-29, 2018.

28) **Arun Kumar Singh** "Graphene as transparent electrodes for high performance MoS_2 Transistors" **Second International Conference on Nano Science and Engineering Applications (ICONSEA-2018)** during October 4-6, 2018 @ JNTU, Hyderabad, Telangana.

29) **Arun Kumar Singh** attended an International Winter Course GIAN -2017on **"X ray Absorption Spectroscopy and its Applications to Nanomaterials"** during December 21- December 28, 2017 @ MNNIT, Allahabad.

30) **Arun Kumar Singh** attended an International Winter Course GIAN -2017on **"Experimental Techniques for Nanomagnetic Materials–(ETNM 2017)"** during October 30-November 04, 2017 @ MNNIT, Allahabad.

31) **Arun Kumar Singh "**Tuning of Charge Carrier in Two dimensional Nanomaterials (Graphene and MoS_2)" **International conference on Advanced Engineering Functional Materials(ICAEFM-17)** held @Bhubaneswar, India during September 21-23,2017. **(Invited Speaker)**

32) **Arun Kumar Singh,** Rajiv K. Pandey, Rajiv Prakash "Effect of Annealing Temperature on Molecular Ordering of Poly(3,3‴-dialkylquarterthiophene) Polymer Thin Film" **International conference on Advanced Materials Development and Performance (AMDP2017)** held @Pune, India during July11-15,2017. **(Invited Speaker)**

33) **Arun Kumar Singh** short term course on **"Laser and its Applications (LAP-2017)"** @ MNNIT, Allahabad, India during March 27-31, 2017.

34) **Arun Kumar Singh** National Workshop on "**Teaching –Learning-Assessment: Techniques and Practices (TLA:TP-2017)"** @ MNNIT, Allahabad, India during March 24-25, 2017.

35) **Arun Kumar Singh** "Charge Carrier Modulation in Graphene Nanosheets by Doping" **ABSMSNW-17** @IIT(BHU),Varanasi, India during 19-23 February, 2017. (Oral Presentation) ISBN-978-93-86256-45-4

36) **Arun Kumar Singh** "Electronic and optoelectronic properties of organic semiconductors on 2D nanomaterials (Graphene, MoS_2 and WS_2)" **Interaction meet of Inspire faculties'** @Mohali, Panjab, during Feb. 10-11, 2017.

37) **Arun Kumar Singh** "Tuning the Threshold Voltage in MoS_2 Field-Effect Transistors"**International Conference on Technologycally Advanced Materials & Asian Meeting on Ferroelectricity (ICTAM-AMF10)**, University of Delhi, Delhi, India, during 07–11th November, 2016. (Poster presentation)

38) **Arun Kumar Singh "**Light Driven Carrier Modulation in MoS2 Field-Effect Transistors" **International Conference on Materials Science & Technology**, University of Delhi, Delhi, India, during 01–04th March, 2016. (Oral presentation)

39) **Arun Kumar Singh** attended "**National Workshop on Electron Microscopy and Allied Techniques"** at Delhi University during December 21-23, 2015.

40) **Arun Kumar Singh** "MoS_2 a Two Dimensional Nanomaterial for High Performance Thin Film Field Effect Transistors" **International Conference on Multifunctional Materials for Future Applications (ICMFA-2015),** IIT(BHU), Varanasi, during October 27-29, 2015. (Oral presentation)

41) **Arun Kumar Singh**, Shaista Andleeb, Jai Singh and Jonghwa Eom "Enhanced the Performance of Multilayer MoS_2 Transistors by Ultraviolet Light Irradiation" **5th Molecular Materials Meeting @ Singapore**, held in Singapore during August 3-5, 2015. (Poster presentation)

42) **Arun Kumar Singh** and Rajiv Prakash "Electronic Properties of Organic Schottky Diode based on Polycarbazole Nanocomposites" **International Conference on Soft Materials (ICSM-14),** held in Jaipur, India, during Oct 6 – 10, 2014. (Poster presentation)

43) **Arun Kumar Singh** and Rajiv Prakash "Electronic and Optical Properties of Organic Schottky Diode based on Polycarbazole-Multiwalled Carbon Nanotube Nanocomposite" **International Conference on Electron Microscopy and XXXV Annual Meeting of the Electron Microscope Society of India,** held in New Delhi, India, during July 9 – 11, 2014. (Poster presentation)

44) **Arun Kumar Singh**, and Jonghwa Eom "High performance MoS_2 Nanoflakes Thin Film Transistors" **International conference on Advance Materials and Applications (ICAMA-2014),** Allahabad, India during March 24-26, 2014. (Oral presentation)

45) **Arun Kumar Singh** workshop on "Scientific contributions of Acharya Jagadish Chandra Bose & Acharya Prafulla Chandra Ray" MNNIT-Allahabad, during Dec 23-24, 2013.

46) **Arun Kumar Singh**, and Jonghwa Eom "Vertical Spin Valve with Single Layer Graphene at Room Temperature"*The 11th* ***NANO KOREA Symposium***, Seoul, South Korea during July 10-12, 2013. (Oral presentation)

47) Jai Singh, Sajjad Hussain, **Arun Kumar Singh** "Synthesis of bi-layer graphene films on nano nickel Catalyst / SiO2/Si by chemical vapor deposition" The 16th International Symposium on Physics of Semiconductor and Applications(ISPSA-XVI) Jeju, Korea, during July 2-5, 2013.

48) **Arun Kumar Singh**, and Jonghwa Eom "Modification of Electronic Properties of Transparent Chemical Vapor Deposition Graphene by Molecular Doping" *The 10th* ***NANO KOREA Symposium***, Seoul, South Korea during August 16-18, 2012.

49) Jae Suk Yu, **Arun Kumar Singh**, and Jonghwa Eom "Spin transport in graphene nanodevices" "*The 7th International Conference on Advanced Materials and Devices* **(ICAMD-2011)"** Jeju, Korea, during December 7–9, 2011

50) *Workshop on Electronic and Ionic Materials and Devices* (**WEIMD-2011**) Under UGC Networking Programme) organized by Department of Physics, Banaras Hindu University, Varanasi, India during March 25-27, 2011.

51) Arun Kumar Singh *2nd Nation seminar on Novel Materials*, Organized by School of Materials Science and Technology, IT, BHU under UGC-SAP Program,14-15 March 2011.(Oral Presentation)

52) Arun Kumar Singh and Rajiv Prakash "Synthesis of Carbon Nanotube and Nanoclay Composites of Polyanthranilic Acid and their Effects on Electronic Properties" *International Symposium on The Safe Use of Nanomaterials & Workshop on Nanomaterial Safety: Status, Procedures, Policy & Ethical Concerns* **(SUN-2011),** Indian Institute of Toxicology Research, Lucknow, India during 1-3 February 2011. (Poster presentation)

53) Arun Kumar Singh One day interaction workshop on Novel Materials, Organized by School of Materials Science and Technology, IT, BHU under UGC-SAP Program,27th March 2010.(Oral Presentation)

54) Arun Kumar Singh and Rajiv Prakash **"**Effect of Nano Fillers on Electronic and Junction Properties of Polyanthranilic Acid/Aluminum Schottky Diodes" *International conference on Nano Science and Technology* **(ICONSAT-2010),** Indian Institute Technology Bombay, India during February 17-20, 2010. (Poster presentation)

55) Arun Kumar Singh, Bhavana Gupta and Rajiv Prakash "Enhancement of Specific Capacitance of Polyaniline by Secondary Metal Ion Doping" International Conference on *"Emerging Trends in Electronics and Photonics Devices & System* **(ELECTRO-2009)***"* Department of Electronics Engineering, Institute of Technology, Banaras Hindu University, Varanasi, India during December 22-24, 2009. (Oral presentation)

56) Arun Kumar Singh, Leela Joshi, Rajiv Prakash and Keiichi Kaneto "Influence of Synthesis Conditions on Electronic and Junction Properties of Polyanthranilic Acid - Clay Nanocomposites with Aluminum" *Fifth International conference on Molecular Electronics and Bioelectronics* **(M&BE5)** *Miyazaki, Japan* during March 15-18, 2009. (Poster presentation)

57) Arun Kumar Singh, Rajiv Prakash, "Conduction Mechanism in Electronic Polymers: Effect of Morphology" **IEEE** sponsored 2nd National Workshop on *Advanced Optoelectronic Materials and Devices* **(AOMD-2008)** Varanasi, India during December 22-24, 2008. (Oral presentation)

58) Arun Dev Dhar Dwivedi, **Arun Kumar Singh**, Rajiv Prakash & P. Chakrabarti "A Comparative Study of Polyanthranilic Acid (PANA)/Metal and Polycarbarzale (PCz)/Metal Contacts for Electronic and Optoelectronic Applications" **IEEE sponsored 2nd** National Workshop on **Advanced Optoelectronic Materials and Devices** (**AOMD-2008)** Varanasi, India during December 22-24, 2008.

59) Arun Kumar Singh, Rajiv Prakash, A. D. D. Dwivedi and P. Chakrabarti, "Ultra Low Noise Polyanthranilic Acid (PANA) /metal (Al, Ti) Schottky Contacts for UV Detection."Proceedings of *Advanced Optoelectronic Materials and Devices* **(AOMD-2007)** Varanasi, India during December 27-29, 2007. (Poster presentation)