



Centre/School/Special Centre: **Physical Sciences**

Department: **Pure & Applied Physics**

Phone: **9454060837**

Email: **arunsingh.itbhu@gmail.com**

Personal Webpage Link: <https://scholar.google.co.in/citations?user=5RggwvqAAAAJ&hl=en>

Dr Arun Kumar Singh

Qualifications

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

Area of Interest/Specialization:

Broad Area: **Materials Science, Experimental Condensed Matter Physics, Organic Electronics & Nanomaterials**

- Electronic and Optoelectronic Properties of 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
- Energy Materials

Experiences

- **Associate Professor** (from November 2019 to Continue) 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

Awards and Honors

- **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 July 2013.
- **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 to March 2009) from UGC India.

Research Projects

- UGC-DAE CSR Sponsored project Status-Ongoing from April. 2022
- SERB Sponsored Project, Amount-33 Lakhs, Status-Ongoing from Jan. 2022.
- DST Sponsored Project, Amount-35 Lakhs, Status-Completed in Dec 2020.

International Collaboration/Consultancy

🇰🇷 Graphene Research Institute, Sejong University, Seoul 143-747, South Korea.

Best Peer Reviewed Publication (up-to 10)

Published Scopus/WOS Journals = 51 Invited Talks/ Conferences =42

Highest I.F. = 18.8 Total Citations= 1330, h-index = 21, i-10 Index=35,

- ❖ V. Chaudhary, R. K. Pandey, R. Prakash, N. Kumar and **Arun Kumar Singh*** "Unfolding Photophysical Properties of Poly(3-hexylthiophene)-MoS₂ Organic-Inorganic Hybrid Materials: An Application to Self-Powered Photodetectors" **Nanotechnology**, 32, 385201, 2021. (I.F.= 3.9)
- ❖ A. K. Singh, V. 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)
- ❖ V. Chaudhary, R. K. Pandey, P. K Shahu, R. Prakash, N. Kumar and **Arun Kumar Singh*** "MoS₂ 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
- ❖ **Arun Kumar Singh** P. Kumar, D. J. Late, A. Kumar, S. Patel, J. Singh "2D Layered Transition Metal Dichalcogenides (MoS₂): Synthesis, Applications & Theoretical Aspects" **Applied Materials Today**, (I.F.= 10.04) Vol, 13, pp-242-270, 2018. ISSN: 2352-9407

- ❖ **Arun Kumar Singh**, Rajiv K. Pandey, Rajiv Prakash and Jonghwa Eom "Tailoring the charge carrier in few layers MoS₂ field-effect transistors by Au metal adsorbate" **Applied Surface Science**. Vol, 437, pp-70-74, 2018. **(I.F.=6.7) ISSN= 01694332**
- ❖ V. Chaudhary, R. K. Pandey, R. Prakash, **Arun Kumar Singh** "Self-assembled H-aggregation induced high performance poly (3-hexylthiophene) Schottky diode" **Journal of Applied Physics** Vol. 122,225501, 2017.(Selected for **Editor's picks** of Journal) **(I.F.=2.3)**
- ❖ S. Andleeb, J. Eom, N. R. Naz, **Arun Kumar Singh** "MoS₂ 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**
- ❖ **Arun Kumar Singh**, C. Hwang and J. Eom "Low-Voltage and High Performance Multilayer MoS₂ Field-effect Transistors with Graphene Electrodes." **ACS Applied Materials & Interfaces**, 8, pp 34699634705, 2016. **(I.F=9.2) ISSN/ISBN No. 1944-8244**
- ❖ **Arun Kumar Singh**, S. Andleeb, J. Singh, H. T. Dung, Y. Seo and J. Eom "Ultra Violet Light Induced Reversible and Stable Carrier Modulation in MoS₂ Field Effect Transistors" **Advanced Functional Materials** Vol. 24, Issue 45, pp. 712567132, 2014. **(I.F.=18.8) ISSN/ISBN No. 1616-3028**
- ❖ **Arun Kumar Singh** and J. 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**
- ❖ **Arun Kumar Singh**, M. Ahmad, V. K. Singh, K. Shin, Y. Seo and J. Eom "Tailoring of electronic properties of exfoliated graphene layer by molecular doping" **ACS Applied Materials & Interfaces** 5, pp.5276-5281, 2013. **(I.F.= 9.2) ISSN/ISBN No. 1944-8244**
- ❖ **Arun Kumar Singh**, M. W. Iqbal, V. K. Singh, M. Z. Iqbal, J. H. Lee, Seung-Hyun Chun, K. Shin and J. 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**

Recent Books/Book Chapters/Monographs etc.

Books

- Arun Kumar Singh “Carrier Modulation in Graphene and its Applications” book by Jenny Stanford Publishing November 30, 2021. ISBN:9789814877602
- Arun Kumar Singh, R. S. Singh, A. Singh “Emerging Two Dimensional Materials and Applications” CRC Press (Accepted) 2022.

Book Chapters

- 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 08 October 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 (Accepted) 2022.

Research Supervision

S. No	Research Topic	Name of Student	Status
1	Studies on Self-Assembly of Poly(3-hexylthiophene) and its MoS ₂ Nanocomposites for Electronic Devices	Vivek Chaudhary	Awarded 2020
2	Tailoring the Electronic Properties of Chemical Vapor Deposition Grown Single layer Graphene by Doping	Anand Kumar Singh	Awarded 2021

Administrative Responsibilities

- ✚ Member, Academic council, Guru Ghasidas Vishwavidyalaya, India.
- ✚ Coordinator, MOOCs, Guru Ghasidas Vishwavidyalaya, India.
- ✚ Member, Proctorial Board Guru Ghasidas Vishwavidyalaya, India.
- ✚ Member, NEP-2020- implementation committee, Guru Ghasidas Vishwavidyalaya, India.
- ✚ Member, Board of Studies, Department of Pure and Applied Physics, Guru Ghasidas Vishwavidyalaya, India.

- ✚ Member, right off process committee, Guru Ghasidas Vishwavidyalaya, India.
- ✚ Coordinator, Annual Report, Department of Pure and Applied Physics, Guru Ghasidas Vishwavidyalaya, India.
- ✚ Presiding officer, GGV Student Council, 2020

Additional Information

❖ 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.

❖ REVIEWERS

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

❖ PROFESSIONAL MEMBERSHIP

- Annual Member of **American Chemical Society, USA.**
- 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**