

# Pramod Kumar

PhD Scholar, IIT Roorkee

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Researchgate Profile Link



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Young researcher currently involved in the field of 2D materials, functional inks, Supercapacitor, wearable sensors, flexible/printable electronics, RF-based Energy harvesting & device fabrication

## EDUCATION/RESEARCH EXPERIENCE

- 07/2021 – Present** **PhD Scholar, IIT Roorkee**
- Design and development of 2D nanomaterial based energy storage devices.
- 01/2020 – 06/2020** **CeNSE, IISc, Bangalore (Project Assistant)**
- Design and development of electrochemical sensors for application in point of care diagnostics
  - Completed the Cleanroom Safety & Working training at NNFC
- 01/2019 - 11/2019** **Design Innovation Center, IIT Roorkee (DIC Ph.D. Fellow)**
- Design and fabrication of sensors for on-the-spot soil sensors.
  - Organizing committee member for various workshops, summit, and awareness programs.
  - Qualcomm Innovation Fellowship Finalist-2019
- 07/2018 - 12/2018** **UIET, Kurukshetra University (Volunteer Work)**
- Project: "Akshay Urja: Utilization of Wasted RF Energy Using Graphene-Based Antenna for Rectenna system."*
- Successfully simulated and fabricated dual-band rectenna for energy harvesting.
  - Investigation of graphene as a material for antenna fabrication.
- 08/2016 - 06/2018** **M.Tech (Electronics & Communication Engineering)(MHRD Scholarship)**
- UIET, Kurukshetra University
- Thesis: Formulation of Graphene Conductive Ink for Application in Printable Electronics
- Obtained the M.Tech degree with CGPA 7.83
- 08/2012 - 06/2016** **B.Tech (Electronics & Communication Engineering)**
- UIET, Kurukshetra University
- Graduated with first class degree (67.99%).
  - Major Project: Comparison of OLED Electrodes

## MAJOR PUBLICATIONS

- Kalkal A<sup>†</sup>, Kumar S<sup>†</sup>, **Kumar P<sup>†</sup>**, Pradhan R, Willander M, Packirisamy G, Kumar S, Malhotra BD. Recent advances in 3D printing technologies for wearable (bio)sensors. Additive Manufacturing 46 (2021) 102088 († equal contribution)
- Pradhan R<sup>†</sup>, Raisa SA<sup>†</sup>, **Kumar P<sup>†</sup>**, Kalkal A, Kumar N, Packirisamy G, Manhas S. Optimization, Fabrication, and Characterization of Four Electrode-Based Sensors for Blood Impedance Measurement. Biomedical Microdevices 2021;23(1):9. († equal contribution)
- Kumar S, **Kumar P**, Bhatt K, Shrivastva S, Kumar A, Singh R, et al. Impact of Triple Roll Milling Processing Parameters on Fluidic/Rheological and Electrical Properties of Aqueous Graphene Ink. Advanced Engineering Materials 2020;22(4):1901187
- Bhatt K, Kumar S, **Kumar P**, Tripathi CC. Highly Efficient 2.4 and 5.8 GHz Dual-Band Rectenna for Energy Harvesting Applications. IEEE Antennas and Wireless Propagation Letters 2019;18(12):2637-41.
- Kumar S, Bhatt K, **Kumar P**, Sharma S, Kumar A, Tripathi CC. Laser patterned, high-power graphene paper resistor with dual temperature coefficient of resistance. RSC Advances 2019;9(15):8262-70.

## TECHNICAL SKILLS/EQUIPMENT

**Fabrication/Formulation** Physical Vapour Deposition, Screen Printing, Spin Coating, Bar Coating, Langmuir Blodgett (LB) Film Deposition Method, Lithography, Photo Plotter (Photolithography Mask Generation), Triple Roll

## Device Characterization

### Data Analysis

### Simulation Tools

### Others

Mill, Film Compression, MITS Automated PCB Design Machine, microfluidic channel. Autolab (CV & IV), SEM, XRD, Keithley 2450, Vector Network Analyzer (VNA), Four Probe, Low-Temperature Cryogenic Characterization, UV Visual Spectroscopy, Digital Microscope. Origin, Multipak, Xpert High Score, Microsoft office.  
HFSS, ADS, Design Pro.  
Clean Room and Chemistry-Room operation and maintenance, Safety Protocols, Laboratory and Research Documentation.

## TRAININGS/SHORT TERM COURSES/WORKSHOPS

Technical seminar on 'Optimization and limits of Wet Grinding Processes' by NETZSCH, New Delhi, 2018.  
Hands-on workshop on 'Device Fabrication, Characterization and Clean Room Practices' at University Institute of Engineering and Technology, Kurukshetra University, Kurukshetra, 2017.  
Short-term course on 'Advances in Photonics and Hybrid Nanomaterials' at Department of Physics, National Institute of Technology, Kurukshetra in the year 2018.  
Short-term course on 'Printable Electronics' at University Institute of Engineering and Technology, Kurukshetra University in the year 2017.  
Summer training on 'Photolithography in Microelectronics' from University Institute of Engineering and Technology, Kurukshetra University in the year 2015.

## ACHIEVEMENTS/EXTRACURRICULAR ACTIVITIES

- Cleared IELTS with 7.0 overall score
- Qualcomm Innovation Fellowship Finalist (QIF-2019)
- GATE (2016 & 2017) and NET (LS) qualified
- Assisted seniors (Ph.D. Scholars & faculties) to setup class 10,000 & 1,00,000 cleanroom.
- Assisted seniors in upgradation of traditional equipments.
- Training & Placement Cell student coordinator
- Organizing committee member in various short-term courses, workshops and events during the UG & PG course.

## ORGANISATIONS/ASSOCIATIONS

### Institute of Electrical & Electronics Engineers

12/2016 – till date

Student member

### Electron Device Society (EDC, IEEE)

12/2018- 12/2021

Student Member

## INTERESTS

Music, Reading, Cycling

## PERSONAL INFORMATION

Date of Birth : 23/04/1994

Marital Status : Unmarried

Languages English

Hindi

Gender : Male

Citizenship : Indian



## REFERENCES

### Prof. C.C. Tripathi

Director,  
UIET, Kurukshetra University,  
Kurukshetra,  
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### Prof. Ramesh Chandra

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