Dr. Rajesh Kumar
Assistant Professor
Department of Physics
Panjab University, Chandigarh
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91-9023861049 (Mobile)

Visiting Assistant Professor
(Sep 2013-Sep 2014)
Department of Electrical and Computer Engineering
Florida International University,
Miami, Florida, USA

Academic Appointments:

Sep 2013-Sep 2014	Visiting Assistant Professor	Bio-MEMS and Microsystems Laboratory, Florida International University, Miami, Florida, USA
2010 Onwards:	Assistant Professor	Department of Physics, Panjab University, Chandigarh, India.
2009-2010:	Assistant Professor	Department of Physics, Punjabi University, Patiala, India.

Research Interests:

- Nanotechnology
- Fabrication and Characterization of Nanostructured materials
- Hybrid Nanocomposites for sensing applications
- Thin Film deposition by sputtering and evaporation
- Interface modification
- Charge transport studies

Education:

Ph. D.

- Supervisor: **Prof. Neeraj Khare, Department of Physics, Indian Institute of Technology Delhi and National Physical Laboratory, New Delhi, India.** Co-Supervisor: **Prof. G. L. Bhalla, Department of Physics and Astrophysics, University of Delhi.**

- Work Place- **National Physical Laboratory, New Delhi, India.**

M.Sc.

Physics (2003)
Panjab University, Chandigarh

Achievements:

- *Received prestigious **Raman Fellowship** 2013-14 to carry out research in United States of America.*

- Awarded Travel Grant by DST to present a paper in ICMAT 2009 held at Suntec Singapore International Convention and Exhibition Centre, **Singapore.**

- ❖ Awarded Travel grant by UGC for Oral presentation in NANOSMAT held at **Rice University, Houston, Texas, USA.**

- ❖ Received five-year Research Fellowship from CSIR after qualifying the **JRF-CSIR** examination in December 2003.

- ❖ Qualified **GATE** in 2004

- ❖ Qualified Defense Research and development Organization (DRDO) SET in 2004, the examination conducted for recruitment of young scientist in DRDO.

- ❖ Worked as Senior Research Fellowship (SRF) in Council of Scientific and Industrial Research (CSIR) project entitled **"Synthesis ZnO-*Polymer Nanocomposites for novel devices".***

Research Experience

- Worked as **Junior Research Fellow** (August 2004 to July 2006) under the supervision of **Dr. Neeraj Khare,** National Physical Laboratory, India in the area of ZnO thin film deposition. Along with I had also worked on CMR materials.
- Worked as **Senior Research Fellow** (August 2006 to July 2009) under the supervision of **Dr. Neeraj Khare,** National Physical Laboratory, India in the area of "Preparation and Characterization of ZnO-organic thin film interfaces.

- ❖ Worked as **Senior Research Fellowship** (August-September 2009) in Council of Scientific and Industrial Research (CSIR) project entitled **"Synthesis ZnO-*Polymer Nanocomposites for novel devices".***

Research Students Guided/Under Guidance:

Name of Student	Course	Area of work	Status
Sandeep Pundir	Ph. D.	Thermoelectric materials	Awarded
Suman	Ph. D.	Charge transport in oxide-polymer nanocomposites	Registered
Gaganpreet Kaur	Ph. D.	Zirconia based polymer nanocomposites	Registered
Divya Goel	Ph. D.	Metallic Nanoparticles for biosensing	Registered
Amritpal Kaur	Ph. D.	Metallic Nanoparticles for drug delivery	Registered
Ramandeep Kaur	Ph. D.	Interaction of inorganic materials with biomolecules	Registered
Gaganpreet Kaur	M. Phil.	Zirconia Phase stabilization	Awarded
Divya Goel	M. Phil.	Synthesis of Metallic Nanoparticles	Awarded

Journal Publications:

2016

1. Role of anionic and cationic surfactants on the structural and dielectric properties of ZrO_2 nanoparticles
   GK Sidhu, R Kumar
   Applied Surface Science 392 (2017) 598-607.
   Impact Factor-3.15
2. An electrochemical sensor modified with poly (3, 4-ethylenedioxythiophene)-wrapped multi-walled carbon nanotubes for enzyme inhibition-based determination of organophosphates
   N Kaur, H Thakur, R Kumar, N Prabhakar
   Microchim Acta (2016) 183: 2307.
   Impact Factor-4.83
3. Study of ball milled bismuth telluride composites reinforced with MWCNTs for thermoelectric behaviour
   SK Pundir, S Singh, B Sivaiah, R Kumar, A Dhar
   Advanced Material Letters 7 (2016) 549-554.
   Impact Factor-1.8 (as per journal website)
4. Structural and dielectric properties of CTAB modified ZrO_2 nanoparticles
   Gaganpreet Kaur Sidhu, S. K. Tripathi and Rajesh Kumar
   AIP Conf. Proc. 1728, 020589 (2016).

2015

5. Organic-Inorganic Hybrid Nanocomposites Based Gas Sensors for Environmental Monitoring
   Ajeet Kaushik, Rajesh Kumar, Sunil K. Arya, Madhavan Nair, B. D. Malhotra, and Shekhar Bhansali
   Chemical Reviews, **2015**, 115 (11), pp 4571–4606
   Impact Factor-37.3
6. Photoluminescence quenching of Zirconia nanoparticle by surface modification
   GK Sidhu, AK Kaushik, S Rana, S Bhansali, R Kumar,
   Applied Surface Science 334 (2015) 216-221.
   Impact Factor-3.15
7. Fabrication and current–voltage characteristics of NiOx/ZnO based MIIM tunnel diode
   A Singh, R Ratnadurai, R Kumar, S Krishnan, Y Emirov, S Bhansali,
   Applied Surface Science 334 (2015) 197–204.
   Impact Factor-3.15
8. Cerium oxide nanostructures for bio-sensing application
   R Kumar, GK Sidhu, N Goyal, M Nair, A Kaushik
   Science Letters Journal 4 (2015) 161
9. Optical properties of CTAB modified ZrO_2 nanoparticles
   Gaganpreet Kaur Sidhu and Rajesh Kumar
   AIP Conf. Proc. 1675, 030080 (2015)
10. Size and shape approximation of gold nanoparticles using theoretical modelling
    Divya Goyal, Suman, G. S. S. Saini and Rajesh Kumar

AIP Conf. Proc. 1675, 030067 (2015)

11. Structural and electrical study of ZrO_2 nanoparticles modified with surfactants
    Gaganpreet Kaur Sidhu, Rajesh Kumar and S. K. Tripathi
    AIP Conf. Proc. 1665, 050074 (2015)

2014

12. Silica Nanowires: Growth, Integration, and Sensing Applications
    Ajeet Kaushik, Rajesh Kumar, Eric Huey, Shekhar Bhansali, Narayana Nair and Madhavan Nair
    Microchim Acta, 181 (2014) 1759-1780.
    Impact Factor-4.83
13. Sensing of Cortisol: A Recent Update
    Aparajita Singh, Ajeet Kaushik, Rajesh Kumar, Madhavan Nair & Shekhar Bhansali,
    Applied Biochemistry and Biotechnology Part A: Enzyme Engineering and Biotechnology 174 (2014) 1115-1126.
    Impact Factor-1.606
14. Synthesis and Characterization of ZnO/PMMA Nanocomposites
    Suman, D Goyal, A Singh, R Kumar
    Advanced Science Letters 20 (2014), 1321-1324.
    Impact Factor-1.5 (2010)
15. Influence of oblique angle deposition on nanostructured Bi2Te3 thin films and their thermoelectric properties
    Sandeep K. Pundir, Sukhvir Singh, A. K. Srivastava, M. K. Dalai, and Rajesh Kumar
    Advance Science Engineering and Medicine 6 (2014) 1006-1014
16. Synthesis and characterization of PMMA-ZrO2 nanocomposites
    R Kumar, GK Sidhu
    AIP Publishing 1536 (2014), 187-188.

2008-2013

17. Influence of Processing Conditions on Nanostructured Bi2Te3 Thin Films for Their Structural, Electrical, and Thermoelectric Properties
    Sandeep K. Pundir, Sukhvir Singh, A. K. Srivastava, M. K. Dalai, and Rajesh Kumar
    Advanced Science, Engineering and Medicine 5 (2013) 436-442.
18. Fabrication of ZnO/α-NPD:F4-TCNQ based inorganic-organic hybrid junction: effect of doping of organic layer on the diode like characteristics
    Rajesh Kumar, Neeraj khare, Vijay Kumar and M. N. Kamalasanan,
    Thin Solid Films 518 (2010) e61-e64
    Impact Factor-1.76
19. Fabrication and current-voltage characteristics of ZnO/α-NPD based organic-inorganic junction.
    Rajesh Kumar, N. Khare, V. Kumar, G. L. Bhalla, M. N. Kamalasanan, Gayatri Chauhan, R. Srivastava,
    Semicond. Sci. Technol. 24 (2009) 045020

Impact Factor-2.08

20. Study of magnetotransport in double-layered La 1.4 Ca 1.6 Mn 2 O 7 manganite: Presence of nano-ferromagnetic domains in paramagnetic matrix
    AK Gupta, R Kumar, V Kumar, GL Bhalla, N Khare
    Journal of Physics and Chemistry of Solids 70 (2009) 117-121
    Impact Factor-2.05
21. Effect of intrinsic stress on the optical properties of nanostructured ZnO thin films grown by rf magnetron sputtering
    R Kumar, N Khare, V Kumar, GL Bhalla
    Applied Surface Science 254 (2008) 6509-6513
    Impact Factor-3.15
22. Temperature dependence of conduction mechanism of ZnO and Co-doped ZnO thin films
    R Kumar, N Khare
    Thin Solid Films 516 (2008) 1302-1307
    Impact Factor-1.76
23. Current-induced effect on resistivity and magnetoresistance of La 0.67 Ba 0.33 MnO 3 manganite
    R Kumar, AK Gupta, DP Singh, V Kumar, GL Bhalla, N Khare
    Journal of Magnetism and Magnetic Materials 320 (2008), 2741-2745
    Impact Factor-2.36
24. Temperature dependence of electroresistance for La 0.67 Ba 0.33 MnO 3 manganite
    R Kumar, AK Gupta, V Kumar, GL Bhalla, N Khare
    Journal of Physics and Chemistry of Solids 68 (2008) 2394-2397
    Impact Factor-2.05

Book Chapter

1. Advances in Thin Film and 2D Biosensors
   Rajesh Kumar, Divya Goyal, Gaganpreet kaur Sidhu
   Nanobiotechnology for Sensing Apllications, 101-138 (2016)
   CRC Press, Taylor & Francis Group

Full Paper Conference Proceedings

1. Optical properties of gold nanoparticles,
   Divya Goyal, Suman, G S S Saini, Rajesh Kumar
   Advanced nanotechnology and renewable energy, Apr. 28-29, 2014.

2. Study of nanostructured bismuth telluride composites reinforced with MWCNTs for thermoelectric properties
   Sandeep K. Pundir, Sukhvir Singh, B. Siaviah, S K Singhal, A. K. Srivastava, Rajesh Kumar, Ajay Dhar
   17^{th} IWPSD Dec 10-13,2013, Kanpur

3. Effect of processing conditions of Bi_2Te_3 thin films on thermoelectric and electric behaviour

Sandeep Kumar Pundir, Sukhvir Singh, A.K.Srivastava, K.N. Sood and Rajesh Kumar
IWPSD Dec 19-22, 2011,Amity University

4. Microstructural features associated with the glancing angle deposited Bi_2Te_3based thermoelectric thin films
Sandeep K. Pundir, Sukhvir Singh, A. K. Srivastava, Rajesh Kumar
International conference on electron microscopy, July 3-5, 2013, SINP Kolkata

5. PVA-Ag nanocomposite: As glucose sensing material
S Mahendia, AK Tomar, PK Goyal, R Kumar, S Kumar
IEEE conference proceedings 2012, page-365-367