Resume

1. **Name** : **Dr. Rakesh Kumar Pandey**
2. **Designation** : **Assistant Professor**
3. **Department** : **Pure and Applied Physics**
4. **Institute** : **Instityute of Technology,**
Guru Ghasidas Central
University, Bilaspur-495009 (C.G),
(Mobile):+91-9826560597, 7909988117
Email: rkpandey_ggu@yahoo.com, rkpandeyggv@gmail.com
5. **Sex** : Male
6. **Date of Birth** : 01, June 1972
7. **Qualification** : M.Sc., Ph. D. (Physics)

Certificate / Degree	Institution / Board / University	Year of Passing	Subjects Taken	% of Marks
10th	A.P.N.H.S.S, Jabalpur/ Bhopal -(MP), INDIA	1988	General Subjects	**72%**
12th	A.P.N.H.S.S, Jabalpur/ Bhopal -(MP), INDIA	1990	Phys., Chem.& Maths.	**70%**
B.Sc.	Govt. Science College, Jabalpur, R. D. University, Jabalpur-(MP), INDIA	1993	Physics, Geology and Mathematics	**55%**
M. Sc. (Physics)	Dept. of Physics & Electronics, Jabalpur, R. D. Univ., Jabalpur-MP), INDIA	1995	Physics. with specialization in Materials Science	**65%**
Speciali-zation in M.Sc. (Phys.)	Dept. of Physics & Electronics, Rani Durgawati University, Jabalpur- (MP) INDIA	1997	Digital Electronics & Microprocessors	**67.5%**
Ph.D. (Physics)	Dept. of Phy. & Elect., , Rani Durgawati University, Jabalpur- (MP) INDIA	2000	Physics (Material Science)	Degree awarded
Title of the Thesis: "Studies on the Electrodeposited $CuInSe_2$-Based Photoelectrochemical Solar Cells"				

8. **Address** **Office** : Dept. of Pure and Applied Physics, Institute of Technology, Guru Ghasidas Vishwavidalaya, Koni, Bilaspur-495009 (C.G.)

Residence : Dr. R.K. Pandey, Flat No. 210, J.P. Height, Balani Nurshing Home Street, Subham Vihar, Bilaspur-495001 (C.G)

9. Teaching and Research Experience of Principal Investigator

a. Teaching experience : 15 Years
b. Research experience : 15 Years
c. Year of award of Doctoral degree : 2000
d. Title of thesis for doctoral degree : Studies on the Electrodeposited $CuInSe_2$-Based Photoelectrochemical Solar Cells

e. Publication:

i. Papers Published : 09 **Accepted :**01 **Communicated :** 01

10. List of Significant Publications

(a) National & International Journals:

1. **R.K. Pandey**, L.S. Patil, J.P. Bange, D.R. Patil, A.M. Mahajan, D.S. Patil and D.K. Gautam; "Growth and Characterization of SiON Thin Films by Using Thermal CVD Machine"; **J. of Optical Materials; 25 (2004) 1-7**

2. **R.K. Pandey,** L.S. Patil, J.P. Bange, and D.K. Gautam; "Growth and Characterization of Silicon Nitride Thin Films by Using Thermal CVD Machine"; **J. of Optical Materials**; **27, issue 2 (2004) 139-146**

3. L.S. Patil, **R.K. Pandey**, J.P. Bange, S.A. Gaikwad, and D.K. Gautam; "Effect of Deposition Temperature on the Chemical Properties of Thermally Deposited Silicon Nitride Films"; **J. of Optical Materials 27 No. 4** (2005) 663-670

4. **R.K. Pandey,** D.P. Bisen S. Bhatt and B.P. Chandra; **"**Mechano-luminescence Produced During Impulsive Deformation of X-Irradiated Tetraborate Glasses"; **Indian Journal of Physics**; **Vol. 74A(2) (2000)179-182**

5. **R.K. Pandey,** Shikha Mishra, Sanjay Tiwari, P. Sahu and B.P. Chandra; "Comparative Study of Performance of CdTe, CdSe and CdS Thin Film Based Photoelectrochemical Cells"; **Solar Energy Materials & Solar Cells; Vol.60 (2000) 59-72**

6. B. P. Chandra **R.K. Pandey**, and Rashmi Jain; "Photoplastic Effect in Coloured Alkali Halide Crystals"; **Indian J. of Physics**; (In Press)

7. Archana Mishra, **R.K. Pandey**, D.P. Bisen and B.P. Chandra; **"**Anti-Stokes' Luminescence in $Yb^{3+}$and Er^{3+}Doped YOCl Phosphors"; **Indian Journal of Physics; Vol. 74A(4) (2000) 423-428**

8. Archana Mishra, **R.K. Pandey**, D.P. Bisen, M.P. Mishra and B.P. Chandra; "Sensizer Dependence of the Anti-Stokes' Luminescence in the YOCl :Yb, Er Systems"; **Indian Journal of Physics;, Vol. 38 (2000) 515-519**

9. Archana Mishra, **R.K. Pandey**, D.P. Bisen and B.P. Chandra; "Effect of Temperature on the Intensity of Anti-Stokes' Luminescence in Er^{3+} and Yb^{3+} Doped YOCl Phosphors"; **Indian Journal of Physics**; (In Press)

10. R.K. Pandey, Koushik Ghosh, Swati Mishra, Jaspal P. Bange, P.K. Bajpai and D.K. Gautam, Effect of film thickness on structural and optical properties of sol-gel spin coated aluminum doped zinc oxide (Al:ZnO) thin films. Mater. Res. Express.5(8)(2018) 086408. DOI: 10.1088/2053-1591/aad3a8.

11. Koushik Ghosh, and R. K. Pandey, Fractal and multifractal analysis of In-doped ZnO thin films deposited on glass, ITO, and silicon substrates, Appl. Phys. A 125 (2019) 98. DOI: 10.1007/s00339-019-2398-y.

12. Koushik Ghosh, and **R. K. Pandey**, Assessment of fractal and multifractal features of sol-gel spin coated ZnO thin film surface, Mater. Res. Express 6 (2019) 086454. DOI: 10.1088/2053-1591/ab25d7.

13. Koushik Ghosh, and **R. K. Pandey**, Fractal assessment of ZnO thin films using Higuchi's algorithm, AIP Conf. Proc. 2115 (2019) 030280. DOI: 10.1063/1.5113119.

14. Koushik Ghosh, and **R. K. Pandey**, Power spectral density-based fractal analysis of annealing effect in low cost solution-processed Al-doped ZnO thin films, Phys. Scr. 94 (2019) 115704. DOI: 10.1088/1402-4896/ab292c.

15. Koushik Ghosh, **R.K. Pandey**, Shiv P. Patel, T. Trivedi, and P.K. Bajpai, Comparable nuclear and electronic energy loss effect of Au^{2+} irradiation on structural, surface morphological, optical and phonon properties of Al:ZnO thin films, Nucl. Instrum. Methods Phys. Res. B459 (2019) 22-28. DOI: 10.1016/j.nimb.2019.08.014.

(b) International Conferences:

1. **R.K. Pandey, H.S. Tiwari and D.K. Gautam,** "Deposition And Characterization Of SiO_2 Films Using PECVD System" Proceedings of International Conference on Nanoscience Engineering and Advance Computer (ICNEAC-2011) , held Swarna Andhra College of Engg. And Technology, Vishakahapatanam from 8-10 July 2011.

2. **R.K. Pandey,** Dewani Patil, N.K. Gautam, Snehal Yeole, L.S. Patil, J.P. Bange, and D.K. Gautam; "FTIR Studies of Silicon Nitride Films Deposited by Using Thermal- CVD System"; Proceedings of International Conference on Optoelectronics Technology **(ICOT-**

2004); held at Dept. of Electronics, North Maharashtra University, Jalgaon; (pp 526-536, 2004, edited by D.K. Gautam)

3. **R.K. Pandey**, N.K. Gautam, Dewani Patil, Nitin Patil, L.S. Patil, J.P. Bange, and D.K. Gautam; "Effect of Deposition Temperature on the Chemical Properties of Silico Oxynitride Films for Optoelectronics Applications" Proceedings of International Conference on Optoelectronics Technology **(ICOT-2004) held at Dept. of Electronics, North Maharashtra University, Jalgaon; (pp 526-536, 2004, edited by D.K. Gautam)**

4. **R.K. Pandey,** Sanjay Bhatt, Archana Mishra and B.P. Chandra; "Thermo-luminescence of γ-Irradiated Impurity Doped $Li_2B_4O_7$ Glasses and Powder Phosphors", **International Conference on Defects and Impurity Materials (ICDIM-2000),** held at Dept. of Physics, University of the Witwatersrale, **Johannesburg, South AFRICA**, 3-7 April 2000**; (**In Press **of** " **Radiation Effects and Defects in Solids", JAPAN**)

5. **R.K. Pandey**, Archana Mishra and B.P. Chandra; " Electro deposition of $CuInSe_2$ Thin Film For Their In Photoelectrochemical Solar Cells"; 7th International Conference on Thin Film Physics and Applications (TFPA-2000)"; held at **Shanghai, CHINA**, May 8-11, 2000; (In Press of **Society of Photo-Optical Instrumentation Engineers (SPIE)**

6. **R.K. Pandey**, Archana Mishra, Meera Ramrakhiani and B.P. Chandra; "Optical Properties of Electrodeposited $CuInSe_2$ –Based Thin Film Solar Cells"; A part of (SPIE) Conference on **"Combinatorial and Composition Spread Techniques in Materials and Device Development II"**, 20-26 Jan. 2001, at San Jose Convention Center, San Jose, **California, USA** (Accepted, In Press of SPIE)

7. **R.K. Pandey**, C.S. Tiwari, Archana Mishra, and B.P. Chandra; " Effect of Temperature On Mechanoluminescence of γ- Irradiated Impurity Doped $CaSO_4$**:**Dy Crystals"; "**International Conference on Luminescence And Its Applications" (LSI-2000),** 7-10 Feb. 2000, held at M.S. University, Varodadra, **Baroda, INDIA**

8. Archana Mishra, **R.K. Pandey** and B.P. Chandra; " Use of Er^{3+} and Yb^{3+} Doped YOCl Phosphors For Their Use in Laser Beam Intensity Measurement"; **1st International Conference on Laser Optics –2000 for Young Scientists (LOYS-2000),** held at **Moscow, RUSSIA**

9. **R. K. Pandey**, Koushik Ghosh, Swati Mishra, Ranajit Dey, M. P. Sharma and P. K. Bajpai,Effect of Irradiation on the Properties of Al:ZnO Thin Films Deposited by Sol-gel Spin Coating Method. 19th International Conference of international Academy of Physical Sciences (**CONIAPS-XIX**) & Symposium on Fixed Point Theory and Dynamical Systems organised by Department of Mathematics and Department of Computer Science, D S B Campus, Kumaun University, Nainital during October 17-19, 2016, PS-38, page no- 129.

10. Koushik Ghosh, R.K. Pandey, P.K. Bajpai, Synergistic energy loss effect of Au^{2+} irradiation on the structural, morphological and optical properties of Al doped ZnO thin films. Presented in XX- National Seminar on Ferroelectric & Dielectrics (**NSFD-2018**), December 14-16, 2018, organized by Department of Pure and Applied Physics, Guru Ghasidas Vishwavidyalaya, Bilaspur 495009, India. Page. 130 (PP-48).

11. Koushik Ghosh, R.K. Pandey, Fractal assessment of ZnO thin films using Higuchi's algorithm, Presented in **63rd DAE Solid State Physics Symposium**, December 18-22, 2018, Organized by Bhabha Atomic Research Center, Mumbai, page. 182, Manuscript no. f0014.

12. Koushik Ghosh, R. K. Pandey, Annealing Time Induced Rougheningin ZnO Thin Films: A Fractal and Multifractal Assessment, **5th International Conference on Nanoscience and Nanotechnology**, 28 – 30 January 2019, Organized by Department of Physics and Nanotechnology SRM Institute of Science and Technology, Kattankulathur, India. Proceedings page no: 385.

(c) National Conferences:

1. **R.K. Pandey**, "Effect of Deposition Chamber Pressure on the Properties of SiO_2 Films Using PECVD System" Proceedings of **National Seminar on Current Trends on Nanoscience and Nanotechnology**; June 25-26, (2011) held at RCE &T, Bhilai PP. 33-37
2. **S.K. Ghosal, H.S. Tiwari, R.K. Pandey**, **M.R. Sahar and M.S. Rohani;** "Nanophotonics for 21st Century and Beyond" Proceedings of **National Seminar on Current Trends on Nanoscience and Nanotechnology**; June 25-26,(2011) held at RCE &T, Bhilai PP. 06-10
3. L.S. Patil, **R.K. Pandey** and D.K. Gautam; "Optical and Surface properties of SiO_2 films deposited by Plasma Enhanced Chemical Vapour Deposition (PECVD) System; Proceedings of National seminar on Science and Technology of Thin Films (NSSTTF-2004); held at Rajarshi Sahu Mahavidyalaya, Latur (MS); **(pp 125-131, 2004, Edited by E.U. Masumdar & C.S. Mali.**
4. R.S. Dubey, S.A. Gaikwad **R.K. Pandey,** and D.K. Gautam; "Analysis of Optical Properties in One-Dimensional Photonic crystals; Proceedings of National Conference on Microwaves and Optoelectronics (NCMO-2004); held at Dept. of Physics, Dr. Babasaheb Ambedkar Marathwada University, Aurangabad; **(pp 298-302, 2004, Edited by M.D. shirsat et. al., Anamaya Publisher, New Delhi, India)**
5. **R.K. Pandey,** L.S. Patil, Jaspal P. Bange, R.S. Dubey, S.A. Gaikwad and D.K. Gautam; "Effect of Deposition Temperature on the Properties of Silicon Nitride Films Grown by Thermal CVD-System; Proceedings of National Conference on Microwaves and Optoelectronics (NCMO-2004); held at Dept. of Physics, Dr. Babasaheb Ambedkar

Marathwada University, Aurangabad; **(pp 290-297, 2004, Edited by M.D. Shirsat et al Anamaya Publisher, New Delhi, India)**

6. A.M. Mahajan, L.S. Patil, J.P. Bange, **R.K. Pandey,** and D.K. Gautam; "Effect of Variation in substrate Temperature On the Growth Rate of SiO_2 Films Deposited By PECVD System"; Proceeding of Conference on Optics and Photonics in Engineering (COPE-03), organized by Optical Society of India (OSI) and Netaji Subhas Institute of Technology (NSIT), Dwarka, New Delhi, India, January 6-8 **(2003) P. 78-81**

7. B.P. Chandra, M.H. Ansari, D.P. Bisen, and **R.K. Pandey**; " The Life-Time of Electrons in The Dislocation Band of Alkali Halide Crystals"; Proceeding of DAE Solid State Physics Symposium, held at B.A.R.C Mumbai, Vol. **39** (1996)

8. B.P. Chandra, **R.K. Pandey**, and Mamta Shirvastava; " Luminescence Produced During Loading and Unloading of γ- Irradiated KBr Crystals", Proceeding of **LSI (1997)** (ed. Shashi Bhusan and P.K. Dewangan, Allied Publisher, New Delhi, P. 381-385)

9. B.P. Chandra, **R.K. Pandey**, G. Chaturvedi and Indu Vaidya; "Spectroscopy of Mechano, Electro and Photoluminescence of ZnS: Ag,Ce Phosphors", Proceeding of **LSI (1997)** (ed. Shashi Bhusan and P.K. Dewangan, Allied Publisher, New Delhi, P.386-389)

10. H.L. Vishwakarma, **R. K. Pandey**, and B.P. Chandra; "Deformation Bleaching Technique of Determining the Radius of Interaction of Dislocation with Colour centers", Proceeding of DAE Solid State Physics Symposium, held at the Cochin University of Science & Technology, Cochi, Kerla, Vol. **40C** (1998)

11. R. K. Pandey, S. Bhatt, V.G. Liju, M.H. Ansari and B.P. Chandra; "Mechanoluminescence Produced During Impulsive Deformation of γ-Irradiated NaCl, NaCl:Cu and NaCl: Ag Crystals"; Luminescence Society of India (LSI -1998) held at Manipur University, Manipur.

12. R.K. Pandey, D.P. Bisen, Mamta Shirvastava and B.P. Chandra,; "Effect of Post γ-Irradiated Deformation on the Thermoluminescence of KCl Crystals"; Luminescence Society of India (LSI-1998) held at Manipur University, Manipur,

13. **R.K. Pandey**, R.K. Kuraria, V.G. Liju, M.H. Ansari and B.P. Chandra,; "Effect of Impulsive Deformation on the NaCl:Ag+ Crystals"; **Luminescence Society of India (LSI-1998)** held at Manipur University, Manipur.

14. H. L. Vishwakarma, **R. K. Pandey**, D. P. Bisen and B. P. Chandra; "Deformation Induced Thermal Excitation of Electrons in Semiconductors"; K. S. Krishnan Conference on Condensed Matter Physics, University of Allahabad, Allahabad, **4-7 Dec. (1998)**

15. R.K. Pandey, Shikha Mishra, Sanjay Tiwari, S. Bhatt and B.P. Chandra; "Chemical Bath Deposition of CdS Thin Films For Their Use in Photoelectrochemical Solar Cells"; Proceeding of K.S. Krishnan Conference on Condenced Matter Physics, (ed. B.K. Agrawal, **Narosa Pub. House, New Delhi, (1998) P. 231-235),**

16. **R.K. Pandey,** S. Mishra, H.L. Vishwakarma, S. Bhatt and B.P. Chandra; "Electrodeposition of CdTe and CdSe Thin Films For Their Use in Photoelectrochemical Solar Cells"; Proceeding of DAE Solid State Physics Symposium, held at Dept. of Physics, Kurukshetra, University, Kurukshetra, **Vol.41 (1998) P. 526-527**

ii. Books Published :

i. Worked as a member of Editorial Board for the Publication of Proceedings of the International Conferences namely **BBOFCT-2001** and **ICOT-2004** organized by Dept. of Electronics, School of Physical Sciences, North Maharashtra University, Jalgaon.

ii. Contributed two articles in a book entitled **"Microwave and Optoelectronics"** published by **Anamaya Publisher**, New Delhi, at the occasion of NCMO-2004.

Research Experiences:

Si. No.	Name of Post	Department	Period From to
1.	**Research Associate**	Dept. of Electronics, North Maharashtra University, Jalgaon	19th Aug. 2000 to 31st July 2002
2.	**Research Scientist**	Dept. of Electronics, North Maharashtra University, Jalgaon	24th June 2003 to 30th Aug. 2004
3.	**Assistant professor**	Dept. of Applied Physics, Guru Ghasidas University, Bilaspur	08th Nov. 2004 to Continue

Area of Interest: Thin Film Technology, Crystal Growth, Advance Optoelectronic devices, Photoluminescence, Electronic Devices, low Dimensional devices