

Detailed Bio-Data



1. Name: Dr. Sanjeev Kumar Raghuwanshi
2. Mailing Addresses:

Assistant Professor

Department of Electronics Engineering

Indian School of Mines DHANBAD-82600, JHARKHAND, India

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3. Date of Birth & Gender:

Date of birth: **23-July-1977**

Gender: **Male**

4. Educational Qualifications

Degree/ Exam (with discipline)	University / College / Board	Year of Passing	Percentage of Marks / CPI	Subjects Taken
X Class	Barkatullah University, Bhopal	1992	74.77 %	Science Subjects
XII Class	Barkatullah University, Bhopal	1994	69.50 %	Mathematics +Science
B. Sc. (Part-I)	SGS College, Ganj- Basoda, Distt. Vidisha (MP) (Barkatullah-University Bhopal)	1995	72 %	Mathematics

B. E.	SGS ITS Indore (MP) (An Autonomous Institute)	1999	66.92 %	Electronics and Instrumentation Engineering
M. Tech.	I. I. T. Kharagpur	2002	7.83/10 (CGPA)	Solid-State Technology
Ph. D.	I. I. Sc. Bangalore	2009	6.3/8 (CGPA)	Optical-Fiber Communication

5.

- **Details of professional training and research experience:**

Research experience

Position held	Organization/Institute	Date of Joining	Date of Leaving	Total Period		Last Pay & Scale of Pay/ Pay Band
				Years	Months	
1. Research Engineer	IIT Bombay Powai-400076	Feb. 2002	May 2002	0	3 months	6000/- Rs.
2. Research Scholar (Full Time)	IIT Bombay Powai-400076	July 2002	Dec. 2004	2	5 months	MHRD scholarship Received
3. Research Scholar (Full Time)	IISc Bangalore -560 012	Jan 2005	July 2008	3	6	MHRD scholarship received

Professional Training

Training Programme	Organization/Institute	Date of Joining	Date of Leaving	Total Period		Last Pay & Scale of Pay/ Pay Band
				Years	Months	
1. Pedagogy/Teaching methodology training Programme” under TEQIP Conducted by the Center for personal transformation	Asansol Engineering College, West Bengal, India	23 March 2009	13 April 2009	0	20 days	Not applicable

• Details of Employment

Details of Employment / Work Experience						
Position held	Organization/Institute	Date of Joining	Date of Leaving	Total Period		Last Pay & Scale of Pay/ Pay Band
				Years	Months	
Lecturer	Asansol Engineering College, Sen Raliegh Road, Kanyapur, Asansol (W.B.)	Nov. 2008	May 2009	0	6 months	Rs. 8550/- 13500/- (Gross Salary 20,150/-)
Assistant Professor	SPSU university Bhatwar Udaipur (Rajastan)-313601	June 2009	Nov. 2009	0	6 months	Rs. 20000/- 35000/- (Gross Salary Rs. 49674/-)

Assistant Professor	Mody Institute of Technology and Science, Lakshmangarh, Sikar, Rajasthan-332311 (Deemed University)	Dec. 2009	March 2010	0	4 months	Rs./ 24470/- 39000/- (Gross Salary Rs. 50,155/-)
Assistant Professor	Indian School of Mines Dhanbad-826004 (Jharkhand)	March 2010	Continue	1 years	9 month (Up to Jan. 2012)	Rs. 20990/- 39100/- (Gross Salary Rs. 50,000/-)

- **List of publications**

- **Journal Papers (National/International):**

1. S. K. Raghuwanshi and S. Talabattula, "Analysis of mode cut-off conditions in double clad single mode step index fibers having depressed versus raised inner cladding", *World Journal of Science and Technology*, vol. 1, no. 8, pp. 79-83, 2011.
2. S. K. Raghuwanshi and S. Talabattula, "Dispersion and peak reflectivity analysis in a non-uniform FBG based sensors due to arbitrary refractive index profile", *Progress in Electromagnetic Research B*. Vol. 36, pp. 249-265, 2012.
3. S. K. Raghuwanshi, V. Kumar and R.R. Pandey, "Derivation of Eigen value Equation by using Equivalent Transmission Line method for the case of Symmetric/Asymmetric Planar slab Waveguide Structure", *Journal of International Academy of Physical Sciences*, Vol. 15 No.1, pp. 1-14, 2011
4. S. K. Raghuwanshi, V. Kumar and R.R. Pandey, "Guided and Leaky modes of a multilayer planar slab waveguide," *I-managers J. on Electronics engineering* (in press).
5. S. K. Raghuwanshi, "Ray paths in an Elliptic parabolic refractive index profile fiber ", *World Journal of Science and Technology*, vol. 1, no. 8, pp. 74-78, 2011.

6. S. K. Raghuwanshi and S. Talabattula, "Asymmetric pulse distortion due to pulse walk-off phenomena in wide-band DWDM Raman amplification systems", *International J. of Engg. Research and Industrial Appls. (IJERIA)*, Vol. 1, No. 3, pp. 209-223, 2008.
7. S. K. Raghuwanshi, V. Gupta, V. K. Dinesh and Srinivas Talabattula, "Bidirectional optical fiber transmission scheme through Raman amplification: Effect of pump depletion", *J. Indian Inst. Sci.*, Vol. 86, No. 6, pp. 655-665, Nov.-Dec. 2006.
8. S. K. Raghuwanshi, S. Talabattula and A. Selvarajan, "Fourier decomposition of the transverse field for analyzing optical waveguides using Beam Propagation method", *J. Indian Inst. Sci.*, Vol. 86, No. 6, pp. 667-680, Nov.-Dec. 2006.
9. S. K. Raghuwanshi and S. Talabattula, "Analytical method to estimate the bandwidth of a uniform FBG based instrument", *J. Instrum. Soc. India*, Vol. 37, No. 4, pp. 297-308, 15 Dec. 2007.
10. S. K. Raghuwanshi, P. K. Pattnaik, S. Talabattula and Papannareddy R., "Analysis of pulse propagation through a Nonlinear Directional Coupler", *J. of Optics*, Vol. 35, No. 3, pp. 155-163, July-Sept. 2006.
11. S. K. Raghuwanshi and S. Talabattula, "Applications of degenerate/non-degenerate modes coupling in an optical waveguide", *Indian J. Phys.* Vol. 82, No. 10, pp. 1373-1383, 2008.
12. S. K. Raghuwanshi and S. Talabattula, "Asymmetric dispersion and pulse distortion in a uniform fiber Bragg gratings", *Indian J. Phys.*, Vol. 82, No. 12, pp. 1-7, Dec. 2008.
13. S. K. Raghuwanshi and S. Talabattula, "Analytical approximation solutions for 3-D optical waveguides: Review", *Indian J. Phys.* Vol. 83, No. 2, 2009.
14. S. K. Raghuwanshi, "Comparative study of asymmetric versus symmetric planar slab dielectric optical waveguides" *Indian J of Phys*, Vol. 84, No. 7, pp. 831-846, 2010.
15. S. K. Raghuwanshi, R. R. Pandey and V. Kumar, "Calculation of mode-coupling coefficient using symmetric/asymmetric Waveguide Grating Structures" *I-managers J. on Electronics Engineering*, vol. 1, no. 1, pp. 52-58, Sept-Nov. 2010.
16. S. K. Raghuwanshi, R. R. Pandey and V. Kumar, "Optimization of substrate-radiation/substrate-cove radiation modes in planar slab optical waveguide structure", *International Nano Lett.*, vol. 1, no. 2, pp. 91-96, July 2011.
17. S. K. Raghuwanshi, V. Kumar, Devendra Chack and R. R. Pandey "Dispersion study of even mode thin planar slab dielectric waveguide without computing $\frac{d^2\beta}{dk^2}$ numerically", **Elsevier Procedia-Computer Science Journal** (ISSN: 1877-0509), 2011.

- **Communicated Journal Papers**

18. S. K. Raghuwanshi, V. Kumar and R.R. Pandey, "Step discontinuity analysis in an asymmetric single mode planar slab taper optical waveguide," *I-managers J. on Electronics Engineering (submitted for publication)*.
19. S. K. Raghuwanshi, V. Kumar and D. Chack, "Dispersion Study of an Asymmetric Thin Planar Slab Dielectric Waveguide without Computing $\frac{d^2\beta}{dk^2}$ Numerically" *International Nano Lett (submitted for publication)*.

➤ **Conference Papers (National/International):**

1. S. K. Raghuwanshi, "An algorithm to design the optimal flat gain fiber Raman amplifier", *National Conf. on Microwave and Optoelectronics (NCMO)*, Aurangabad Dec. 2004.
2. S. K. Raghuwanshi, P. Jain and S. Talabattula, "Pulse distortion due to Pulse walk-off in wide band WDM Raman amplification systems", *Proceedings of International conference on Optics & Optoelectronics (ICOL-2005)*, 12-15 Dec. 2005, IRDE, Dehradun, India (PP-FIO-47).
3. P. Jain, S. K. Raghuwanshi and S. Talabattula, "A novel approach to analyze Z-varying integrated optical waveguides", *Proceedings of International conference on Optics & Optoelectronics*, 12-15 Dec. 2005, IRDE, Dehradun, India (PP-FIO-22).
4. S. K. Raghuwanshi and S. Talabattula, "Fiber design to achieve flat gain amplification for fiber Raman amplifier" *Proc. of 3rd National conference on Advances in Electronic Communications (ADELCO-2006)*, pp. 55-60, 6 April 2006, Kovilpatti, Tamilnadu, India.
5. S. K. Raghuwanshi and S. Talabattula, "Low dispersion Management by using Graded index waveguide", *Proc. of National conference on Recent Trends in Electrical, Electronics, Computer Science & IT Engineering (TECHNO FLASH-06)*, pp. 1, 7-8 Sept. 2006, Chennai, India.
6. S. K. Raghuwanshi and S. Talabattula, "Analysis of square shape planar slab waveguide with periodic rectangular strip of dielectric layers for dispersion management in optical fiber communication links" *National conference on Recent Advancements in Microwave Techniques & Applications*, pp. 355-359, 6-8 Oct. 2006, Jaipur, India.
7. S. K. Raghuwanshi, S. Talabattula and A. Selvarajan, "Analysis of hexagonal shape holey optical fiber having arbitrary refractive index profile by using 2-D FEM method" *National conference on*

Recent Advancements in Microwave Techniques & Applications, pp. 140-145, 6-8 Oct. 2006, Jaipur, India.

8. S. K. Raghuwanshi and S. Talabattula, "FDM method to solve nonlinear Schrodinger equation: A Solitions formation", *3rd International conference on Computers and Devices for Communication CODEC-2006*, University of Calcutta, pp. 516-520, Dec. 18-20, 2006, India.
9. S. K. Raghuwanshi, P. K. Pattnaik, B. Bathula, Bh. Vijayaaditya, S. Talabattula and Papannareddy R., "Crank-Nicholson scheme for analysis of pulse propagation problem through a nonlinear Directional Coupler", *Proceedings of Eighth International conference on Optoelectronics, Fiber Optics and Photonics-2006*, UH, INDIA NLO 52.
10. S. K. Raghuwanshi, Raghunath K. and S. Talabattula, "Fiber Bragg grating technology: Applications for telecommunication engineering as a WDM component", *International conference on Advances in Electronics and Communications (icon ADELCO-2007)*, Kovilpatti, Tamilnadu, pp. 179-188, 1-3 Feb. 2007, India.
11. S. K. Raghuwanshi and S. Talabattula, "Contra-directional/co-directional coupling between modes in a fiber Bragg grating" *Proceedings of XXXII Optical Society of India (OSI) Symposium on Contemporary Optics & Applications*, pp. 41-42, 1-3 March 2007, Vadodara, India.
12. S. K. Raghuwanshi and S. Talabattula, "Degenerate/non-degenerate modes coupling in an optical waveguide" *Proceedings of XXXII Optical Society of India (OSI) Symposium on Contemporary Optics & Applications*, pp. 50-51, 1-3 March 2007, Vadodara, India.
13. S. K. Raghuwanshi, M. Mittal and S. Talabattula, "Dispersion in an uniform long period grating: Transmission spectra" *National Conference on Recent Trends in Optoelectronics & Laser technology NCOL-2007*, pp. 50-51, 9-11 April 2007, Thiruvananthapuram, Kerala, India.
14. S. K. Raghuwanshi and S. Talabattula, "Electromagnetic analysis of the planar slab waveguide" *International conference on Microwaves & Optoelectronics (ICMO-2007)*, pp. 3-11, 17-20 Dec. 2007, Aurangabad, India.
15. S. K. Raghuwanshi and S. Talabattula, "Mode identification in step-index circular waveguides", *International conference on Microwaves & Optoelectronics (ICMO-2007)*, pp. 67-74, 17-20 Dec. 2007, Aurangabad, India.
16. S. K. Raghuwanshi and S. Talabattula, "Multilayer thin-film filters" *Proceedings of second Interantional Conference on Resource Utilization & Intelligent Systems (INCRUIS-2008)*, pp. 699-703, 3-5 Jan. 2008, Perundurai, Erode, T.N., India.
17. S. K. Raghuwanshi and S. Talabattula, "Asymmetric group-velocity dispersion due to pulse walk-off effect in wide band WDM Raman amplification systems" *Proceedings of second*

Interantional Conference on Resource Utilization & Intelligent Systems (INCRUIS-2008), pp. 465-469, 3-5 Jan. 2008, Perundurai, Erode, T.N., India.

18. S. K. Raghuwanshi and S. Talabattula, "A numerical technique to generate data points for electric field lines and equipotential lines for arbitrary configuration of point sources" *MCDES-IISc, Centenary Conference on Managing Complexity in a Distributed World*, Paper I.D.-30, 27-30 May 2008.
19. S. K. Raghuwanshi, "Analysis of Integrated Optical Micro-Ring Resonator", *National conference on Information and Communication Technology, NCICT – 2009*, Mumbai.
20. S. K. Raghuwanshi, "Basics of MEMS/MOEMS Technology", *National conference on Information and Communication Technology, NCICT – 2009*, Mumbai.
21. S. K. Raghuwashi, "Study of 1-D photonic crystal fiber by using plane wave expansion method", *National workshop on Quantum confined systems and nano-scale devices*, Kerala, 3-5, Dec. 2009.
22. S. K. Raghuwanshi, "Low dispersion due to square law medium profile", *Annual University Magazine of Sir Padampat Singhania university* 2009.
23. S. K. Raghuwanshi and V. Kumar, "Analysis of Double Clad Single-Mode Step-Index fibers having depressed versus raised inner Cladding", *International conf. in comm., comput. control and nano-tech. (ICN 2010)*, 29-30 Nov. 2010, Bhalki India.
24. S. K. Raghuwanshi, "Ray paths in an Elliptic parabolic refractive index profile fiber", *International conf. in comm., compute. Control. and nano-tech. (ICN 2010)*, 29-30 Nov. 2010, Bhalki India.
25. S. K. Raghuwanshi, A. Tiwari and R. Pandey, "Study of Mode Cut-off Condition of Single Mode Planar Slab Optical Waveguide", *12th International Conference of International Academy of Physical Sciences (CONIAPS XII)*, 22-24 Dec. 2010, Jaipur (Oral-presentation).
26. S. K. Raghuwanshi, V. Kumar and R.R. Pandey, "Performance study of Exponential varying Refractive index Planar Slab Optical waveguide" *Proceeding of IEEE International conference on computer, communication & Electrical technology (ICCCET)*, Tirunelveli, Tamilnadu, India, pp. 16-20, 18 and 19 March 2011
27. R. R. Pandey and S. K. Raghuwanshi, "Analysis of linear tapered dielectric optical waveguides using matrix approach" *13th International Conference of International Academy of Physical Sciences (CONIAPS-XIII)*, June 14-16, 2011, Dehradun, India .

28. S.K. Raghuwanshi, V. Kumar and R. R. Pandey, “Dispersion study of cylindrical dielectric waveguide without computing $\frac{d^2\beta}{dk^2}$ numerically” *13th International Conference of International Academy of Physical Sciences (CONIAPS-XIII)*, June 14-16, 2011, Dehradun, India.
29. S. K. Raghuwanshi, V. Kumar and D. Chack, “Analysis of Step Discontinuity in a Single Mode Planar Slab Taper Optical Waveguide” *Proceeding of IEEE International Conference on Computational Intelligence and Communication Networks (CICN-2011)*, pp. 192-196, 2011, Gwalior India.
30. S. K. Raghuwanshi, Devendra Chack, “Dispersion Study of an In-homogenous Dielectric Planar Slab Optical Waveguide”, and National Seminar on frontiers in Electronics, Communication, Instrumentation and Information Technology (FECIT-2011), pp. 37, paper ID PTS-10, Indian School of Mines Dhanbad, Nov. 3-4, 2011.
31. Santosh Kumar and S. K. Raghuwanshi, “Derivation of Eigen Value equation for Double Clad/Double Core Planar Slab Optical Waveguides”, National Seminar on frontiers in Electronics, Communication, Instrumentation and Information Technology (FECIT-2011), pp. 38, paper ID PTS-11, Indian School of Mines Dhanbad, Nov. 3-4, 2011.

6. Professional recognition, awards, fellowship received

➤ Awards and Recognitions

Research Achievements/ Awards:

- MHRD Scholarship received during M Tech and PhD programs. All India GATE -1999 Rank-93 in Instrumentation paper.
- Nominated: Who's Who in the World published by America since 1899 upcoming 2010 Edition which had been scheduled for publication in November 2009. * <http://www.marquiswhoswho.com> *
- Honorarium award of Rs. 3000 received from **Indian J. Physics** on 12-03-2010 for the review articles on Frontier topics.
- Awarded by “**Shiksha Rattan Puraskar**” and “**certificate of excellence**” by India International Friendship Society New Delhi for the year of 2011.

- **“Best Citizen Award”** for the year 2011 by best citizen publishing house New Delhi.

All India Selection

- Graduate Aptitude Test In Engineering-1999
Percentile 90.93
Instrumentation Engineering Paper
- Graduate Aptitude Test In Engineering-2004
Percentile 91.79
Electronics & Comm. Engineering Paper
 - BSNL (Junior Telecom Officer)-2002
Electronics & Telecommunication Engineering Post
- Graduate Aptitude Test In Engineering-2007
Percentile 92.79
Electronics & Comm. Engineering Paper
- Graduate Aptitude Test In Engineering-2008
Percentile 94.51
Electronics & Comm. Engineering Paper
- UPSC Indian Engineering Services Exam-2000
Written Qualified
Electronics & Comm. Engineering Paper
- UPSC Indian Engineering Services Exam-2008
Written Qualified
Electronics & Comm. Engineering Paper

➤ **Other Academic and Corporate Activities**

- Potential reviewers of manuscript to be published in Journal of Electromagnetic waves and applications (JEMWA) and progress in Electromagnetic research (PIERS) letters being published by Cambridge USA.
- Review of two Books published by **Tata McGraw Hill** on Electromagnetic wave subject.
- Expert panel member of selection committee, interview being conducted by **Central Institute of Mining & Fuel Research** Dhanbad for position of project assistant Level-II under CSIR sponsored project.
- Academic council member of SPSU university Udaipur Rajasthan

- Faculty in charge of Department of Electronics Engineering of **Indian School of Mines** Dhanbad.

- Being organized the short term course and national conference on photonics and integrated optics in Indian School of Mines, Dhanbad.

- Canteen secretary and council member of Hostel-1 of IIT Bombay during 2004-2005.

- Participated as a session chair and advisor committee member of some international conferences including **IEEE**.

- Nominated as a faculty advisor for ECE dept. to monitor the academic activities of all SC/ST students

➤ **Membership/Fellowship of Professional Societies,**

- International Academy of Physical Sciences- **Life member**
- Society of Electronics Engineering- Annual member (Dhanbad Chapter)
- **IEEE** Photonics Society-**Annul**
- **IEEE** Communication Society-**Annul**

7. Three References who are acquainted with my Teaching / Research work.

- (i) **Dr. Srinivas Talabattula**, Associate Professor, Applied Photonics Lab, Electrical & Electronics Communication Engineering Department, Indian Institute of Science, Bangalore-560012.

Email: tsrinu@ece.iisc.ernet.in

Telephone No.: 080-22932852

- (ii) **Prof. V. Kumar**, Professor & HOD, Fiber Optics Lab, Department of Electronics Engineering, Indian School of Mines Dhanbad-826004.

Email: vkumar52@hotmail.com

Telephone No.: 91-326-2235274,

- (iii) **Dr. Bharadwaj Amrutur**, Associate Professor, Microelectronics- Bldg, Electrical & Electronics Communication Engineering Department, Indian Institute of Science, Bangalore-560012.

Email: amrutur@ece.iisc.ernet.in

Telephone No.: +91-80-2293-3172

8. Details of the research funding received in the past and ongoing projects

Presently I am having one project detailed mentioned below:

Ongoing project details

- a. **Ref. no.:** FRS (22)/2010/2011/ECE
- b. **Title:** “Performance Study of some WDM optical network components”
- c. **Duration:** 3 years
- d. **Cost:** 5.75 Lakhs
- e. **Funding Agency:** Indian School of Mines Dhanbad
- f. **Brief Achievements:** This project aims to purchase **Opti-BPM software** supplied by opti-wave system Inc. (Canada). Our students are expected to be benefited with the proposed software. They will be using the software and other facilities outcome from the

project. It builds on the strength of ISM University in optical fiber communication and aims at broadening and deepening its knowledge. The proposed study is very useful for the reliable and efficient operation of WDM optical communication system. The bit rate is highly affected by the dispersion effect in optical communication link. Hence it is feasible to control the bit rate distance product of optical fiber by the proposed study. One can efficiently design the optimum fiber optic link.

9. Any other Information

➤ Publication of Technical Report

My one chapter on topic “**Optical Networking: Current Issue and Review**” has been published in the book title, *Technologies and Protocols for Future Internet Design: Reinventing the Web*”

Book published by

IGI Global

701 E. Chocolate Avenues, Suite 200 • Hershey PA 17033-1240, USA

Tel: 717.533.8845

➤ Detail of Monographs Publication

Title	Numerical Study of Propagation in Optical Waveguides and Devices
Subtitle	Analytical and Numerical Study of Propagation in Optical Waveguides and Devices in Linear and Nonlinear Domain
ISBN	978-3-639-22167-1
Publisher	International VDM publisher Germany
Date of issue	2009-11-27 00:00:00
Monographs Cost (after pre-tax)	68 Euro (100 US)
Author	Sanjeev Kumar Raghuwanshi , (Assistant Prof. ISM Dhanbad)
Co-author	Srinivas Talabattula (Associate Prof. IISc Bangalore)

➤ Detail of Book Publication

Book being published by “AXIOE” Books, India, A Division of Agrawal Publication

Book Details:

Title: **Contemporary Optical Fiber Technology**

Publisher: “AXIOE” Books, India (A division of Agrawal publication)

Author: **Sanjeev Kumar Raghuwanshi**

Date of Publication Book has been published by 6 Jan 2012

Place: Dhanbad

Date: 13/01/2012

(Signature of the applicant)