CURRICULUM-VITAE

DR. SANTOSH KUMAR

Associate Professor,
SPIE FELLOW, Senior Member (IEEE, OPTICA, SPIE)
2022 Best Associate Editor of IEEE Sensors Journal
Associate Editor, IEEE Sensors Journal
Associate Editor, IEEE *Access*
Associate Editor, Biomedical Optics Express
Associate Editor, Frontiers in Physics
Associate Editor, IEEE Transactions on NanoBioscience
Chair - Optical Biosensors Optica Technical Group

Liaocheng University, China
School of Physics Science and Information Technology,
Shandong Key Laboratory of Optical Communication Science and Technology,
No. 1, Hunan Road, Liaocheng, Shandong 252059, China
Mob.: +86-13081467610 (China), +91-7060194847 (India)
Email Id: santoshrus@yahoo.com
santosh@lcu.edu.cn
Homepage: https://ofclab.lcu.edu.cn/yjdw/wlzyds/381081.html

| Scopus | ORCID | WoS | Google Scholar | ResearchGate | LinkedIn | Loop | SPIE | IEEE |

ACADEMIC RECORDS

Degree	**Specialization / Discipline**	**College/University/Institute**	**Year of Joining**	**Year of leaving**
10th /Matric	Science	Bihar Secondary Education Board, Patna	2000	2002
12th /Inter	Science	Bihar Intermediate Education Council, Patna	2002	2004
B. E. (Bachelor of Engineering)	Electronics & Comm. Engineering	M.I.T, Aurangabad, Maharashtra, India	2006	2010
Ph. D (Full Time) (Doctor of Philosophy)	**Electronics Engineering**	**Indian Institute of Technology (ISM), Dhanbad, India**	**2011**	**2014**

WORK EXPERIENCE

Details of Employment / Work Experience					
Position held	Organization/Institute	Date of Joining	Date of Leaving	Total Period	
				Years	Months
Assistant Professor	**DIT University, Dehradun, India**	01 July 2014	31 May 2018	03	11
Associate Professor	**Liaocheng University, Liaocheng, China**	25 June 2018	Continued (25 Dec. 2022)	04	06

ABOUT MY Ph.D

Ph.D. Title:	**Study of Optical Waveguides and Switching Devices**
Research area of Ph.D. work:	**Optical Fiber Communication**
Date of Award:	**10 October 2014**
Name of Ph.D Supervisor:	**Dr. Sanjeev Kumar Raghuwanshi** Associate Professor, Department of Electronics Engineering, Indian Institute of Technology (ISM), Dhanbad, Jharkhand, India

LIST OF PUBLICATIONS

Scopus Author ID: 36065677600

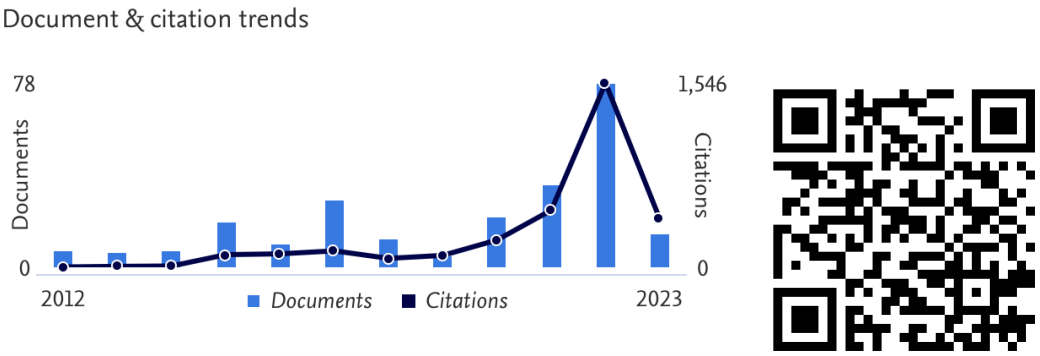
ORCID ID: 0000-0003-4149-0096

Web of Science ResearcherID: J-7408-2013

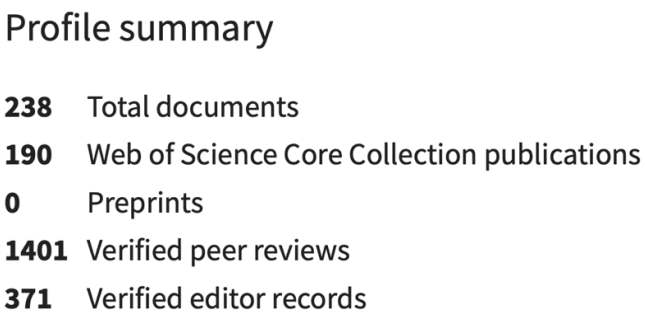
Google Scholar Profile: https://scholar.google.co.in/citations?user=squujsIAAAAJ&hl=en

SPIE Author Profile: https://spie.org/profile/santoshrus-05021987?SSO=1

As per Scopus Preview: https://www.scopus.com/authid/detail.uri?authorId=36065677600



As per Web of Science Preview: https://www.webofscience.com/wos/author/record/609748



Summary of International Journals

IEEE/IEEE Transactions	Optica (Formerly OSA)	Elsevier	Springer	SPIE	Others	Total
52	20	30	30	10	20	162

Summary of International Conferences

IEEE	Optica (Formerly OSA)	SPIE	PIERS	Total
10	18	42	3	73

RECENT HIGH-LEVEL MAJOR PUBLICATIONS

***Corresponding author**

[1]. Ragini Singh, **Santosh Kumar***, Feng-Zhen Liu, Cheng Shuang, Bingyuan Zhang, Rajan Jha, Brajesh Kumar Kaushik, "Etched multicore fiber sensor using copper oxide and gold nanoparticles decorated graphene oxide structure for cancer cells detection," ***Biosensors and Bioelectronics***, Vol. 168, 112557, 26 Aug. 2020, DOI: https://doi.org/10.1016/j.bios.2020.112557 **(Impact Factor: 12.545)**

[2]. Baljinder Kaur, **Santosh Kumar***, B. K. Kaushik, "Recent advancements in optical biosensors for cancer detection," ***Biosensors and Bioelectronics***, Vol. 197, 113805 (15 Nov. 2021) **(Impact Factor: 12.545).** DOI: https://doi.org/10.1016/j.bios.2021.113805

[3]. **Santosh Kumar***, Yu Wang, Muyang Li, Qinglin Wang, S. Malathi, Carlos Marques, Ragini Singh, Bingyuan Zhang, "Plasmon-based Tapered-in-Tapered Fiber Structure for p-Cresol Detection: from Human Healthcare to Aquaculture Application," *IEEE Sensors Journal*, Vol. 22, Issue 19, pp. 18493 - 18500 (25 August 2022) DOI: 10.1109/JSEN.2022.3200055 (Impact Factor: 4.325)

[4]. Baljinder Kaur, **Santosh Kumar***, Brajesh Kumar Kaushik, "(INVITED) Advances in photonic crystal fiber: sensing and supercontinuum generation applications," *Optical Fiber Technology*, Vol. 72, 102982, (16 July 2022) (Impact Factor: 2.8) DOI: https://doi.org/10.1016/j.yofte.2022.102982 **[Invited Paper]**

[5]. **Santosh Kumar***, Guo Zhu, Ragini Singh, Qinglin Wang, Cheng Shuang, Bingyuan Zhang, Feng-Zhen Liu, Carlos Marques, Brajesh Kumar Kaushik, Rajan Jha, "MoS_2 Functionalized Multicore Fiber based on Localized Plasmon for Detection of Shigella Bacteria," ***IEEE/OSA Journal of Lightwave Technology***, Vol. 39, Issue 12, 4069 – 4081, 9 Nov. 2020, DOI: 10.1109/JLT.2020.3036610 **(Impact Factor: 4.288).**

[6]. **Santosh Kumar***, Ragini Singh, Qingshan Yang, Shuang Cheng, Bingyuan Zhang, Brajesh Kumar Kaushik, "Highly sensitive, selective and portable sensor probe using germanium-doped photosensitive optical fiber for ascorbic acid detection," ***IEEE Sensors Journal,*** Vol. 21, Issue 1, pp. 62-70, 12 February 2020, **DOI:** 10.1109/JSEN.2020.2973579 **(Impact Factor: 4.325).**

[7]. **Santosh Kumar***, Ragini Singh, Brajesh Kumar Kaushik, Nan-Kuang Chen, Qing Shan Yang, Xia Zhang, "LSPR based cholesterol biosensor using hollow core fiber structure," ***IEEE Sensors Journal***, Vol. 19, No. 17, 7399-7406, 15 May 2019. **(Impact Factor: 4.325)**

[8]. **Santosh Kumar***, Brajesh Kumar Kaushik, Ragini Singh, Nan-Kuang Chen, Qing Shan Yang, Xia Zhang, Wenjun Wang, Bingyuan Zhang, "LSPR based cholesterol biosensor using tapered optical fiber structure," *Biomedical Optics Express*, Vol. 10, No. 5, pp. 2150-2160, 2 April 2019 **(Impact Factor: 3.921)**

[9]. **Santosh Kumar***, Ragini Singh, Guo Zhu, Qingshan Yang, Xia Zhang, Shuang Cheng, Bingyuan

Zhang, Brajesh Kumar Kaushik, Feng-Zhen Liu, "Development of uric acid biosensor using gold nanoparticles and graphene oxide functionalized micro-ball fiber sensor probe," ***IEEE Transactions on NanoBioscience***, Vol. 19, Issue 2, pp. 173-182, 10 December 2019 **(Impact Factor: 3.206).**

[10]. Niteshkumar Agrawal, Bingyuan Zhang, Chinmoy Saha, Chandrakanta Kumar, Xipeng Pu, **Santosh Kumar***, "Ultra-sensitive cholesterol sensor using gold and zinc-oxide nanoparticles immobilized core mismatch MPM/SPS probe," ***IEEE/OSA Journal of Lightwave Technology,*** Vol. 38, Issue 8, pp. 2523-2529, 18 February 2020 **(Impact Factor: 4.288).**

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[12]. Z. Wang, R. Singh, C. Marques, R. Jha, B. Zhang, and **Santosh Kumar***, "Taper-in-taper fiber structure-based LSPR sensor for alanine aminotransferase detection," ***Optics Express***, Vol. 29, Issue 26, pp. 43793-43810 (14 Dec. 2021) DOI: https://doi.org/10.1364/OE.447202

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[14]. R. Singh, A. Sharma, J. Saji, A. Umapathi, **Santosh Kumar**, H. K. Daima, "Smart nanomaterials for cancer diagnosis and treatment," Nano Convergence, Vol. 9, Article number: 21 (15 May 2022) (Impact Factor: 8.56). DOI: https://doi.org/10.1186/s40580-022-00313-x

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Optics & Laser Technology, vol. 117, pp. 28-37, 2019. (Impact Factor: 4.939)

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[25]. Lokendra Singh, Ragini Singh, Bingyuan Zhang, Brajesh Kumar Kaushik, **Santosh Kumar***, "Localized surface plasmon resonance based hetero-core optical fiber sensor structure for the detection of L-cysteine," ***IEEE Transactions on Nanotechnology***, Vol. 21, pp. 201-208, 26 February 2020 **(Impact Factor: 2.196).**

[26]. Niteshkumar Agrawal, Chinmoy Saha, Chandrakanta Kumar, Ragini Singh, Bingyuan Zhang, Rajan Jha, **Santosh Kumar***, "Detection of L-cysteine using silver nanoparticles and graphene oxide immobilized tapered SMS optical fiber structure," ***IEEE Sensors Journal***, Vol. 20, Issue 19, pp. 11372-11379 (26 May 2020) **(Impact Factor: 4.325)**.

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[28]. Niteshkumar Agrawal, Chinmoy Saha, Chandrakanta Kumar, Ragini Singh, Bingyuan Zhang, **Santosh Kumar***, "Development of uric acid sensor using copper oxide and silver nanoparticles immobilized SMSMS fiber structure-based probe," ***IEEE Transactions on Instrumentation & Measurement,*** Vol. 69, Issue 11, pp. 9097 - 9104 (01 June 2020) **(Impact Factor: 3.658)**.

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[31]. Neha Mishra, Bramha P Pandey, Brijesh Kumar, **Santosh Kumar**, "Enhanced electronic and magnetic properties of N_2O gas adsorbed Mn-doped $MoSe_2$ monolayer," ***IEEE Transactions on Electron Devices***, Vol. 69, Issue 4, 1634 - 1641 (18 Oct. 2021) DOI: 10.1109/TED.2021.3116929 (Impact Factor: 3.221).

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[36]. R. He, C. Teng, **Santosh Kumar**, C. Marques, R. Min, "Polymer optical fiber liquid level sensor: A Review," ***IEEE Sensors Journal,*** Vol. 22, Issue 2, pp. 1081 - 1091 (01 Dec. 2021) 10.1109/JSEN.2021.3132098 **(Impact Factor: 4.325).**

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materials-based Kretschmann configuration for SPR sensors: A Review," ***IEEE Sensors Journal,*** Vol. 22, Issue 2, 1069 – 1080 (06 Dec. 2021) DOI: 10.1109/JSEN.2021.3133007 **(Impact Factor: 4.325).**

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[48]. S. Uniyal, K. Choudhary, S. Sachdev and **Santosh Kumar***, "Recent Advances in K-SPR Sensors for the Detection of Biomolecules and Microorganisms: A Review," *IEEE Sensors Journal*, Vol. 22, Issue 22, pp. 11415 - 11426 (3 May 2022). (Impact Factor: 4.325) DOI: 10.1109/JSEN.2022.3172115

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[51]. P. S. Pandey, S. K. Raghuwanshi , A. Shadab, Md. T. I. Ansari, U. K. Tiwari, and **Santosh Kumar***,

"SPR Based Biosensing Chip for COVID-19 Diagnosis - A Review," *IEEE Sensors Journal*, Vol. 22, Issue 14, pp. 13800 - 13810 (14 June 2022) DOI: 10.1109/JSEN.2022.3181423 (Impact Factor: 4.325)

[52]. V. Kumar, S. K. Raghuwanshi, and **Santosh Kumar***, "Advances in Nanocomposite Thin-Film-based Optical Fiber Sensors for Environmental Health Monitoring - A Review," *IEEE Sensors Journal*, Vol. 22, Issue 15, pp. 14696 - 14707 (27 June 2022) DOI: 10.1109/JSEN.2022.3185004 (Impact Factor: 4.325)

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[58]. Guoru Li, Qing Xu, Ragini Singh; Wen Zhang; Carlos Marques; Yiyan Xie; Bingyuan Zhang, **Santosh Kumar***, "Graphene oxide/multi-walled carbon nanotubes assisted serial quadruple tapered structure-based LSPR sensor for glucose detection," *IEEE Sensors Journal*, Vol. 22, Issue 17, pp. 16904 - 16911 (29 July 2022), DOI: 10.1109/JSEN.2022.3193455 (Impact Factor: 4.325)

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PATENT

Patent: An IoT monitoring system for underground mines using a fiber Bragg grating chemical sensor

Inventors: S. K Raghuwanshi, Y. Singh, P. S. Pandey, M. Singh, **Santosh Kumar**, A. Shadab, R. Kumar, Md T. I. Ansari

Web: https://ipindiaservices.gov.in/PublicSearch/PublicationSearch/ApplicationStatus

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Abstract: The invention discloses a system for monitoring underground mines using a Fiber Bragg Grating (FBG) chemical sensor, said system comprising: a FBG chemical sensor; a processor; a computer readable medium; a display; a user interface; an IOT device; a communication network; and a memory communicatively coupled to the processor. The method of monitoring hazardous toxic chemicals in underground mines comprising: fabricating said Fiber Bragg Grating (FBG) with a suitable Bragg wavelength; depositing a thin metal film of at least one of gold layer or silver layer; coating said FBG over said thin metal film with a reduced Graphene Oxide (rGO); monitoring Surface Plasmon Resonance; identifying said data by setting up a high- resolution tunable fiber ring laser interrogator; and sending said data to the user for real time monitoring of the leakage of hazardous toxic chemical.

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STUDENTS SUPERVISED

M.TECH STUDENTS

#	Name of Student	Thesis Title	University/ Institute	Degree Awarded/ Thesis Submission Date	Role (Main Supervisor/ Co-Supervisor)
1	Mr. Guiwei Zhang	Wearable Optical Fiber Sensors	Liaocheng University, China	Ongoing	Co-Supervisor
2	Mr. Xianzheng Lang	Xanthine detection using U-shape fiber sensors	Liaocheng University, China	Ongoing	Co-Supervisor
3	Mr. Lucan Xiao	Bacterial sensing	Liaocheng University, China	Ongoing	Co-Supervisor
4	Mr. Fei Liu	Bacterial sensing	Liaocheng University, China	Ongoing	Co-Supervisor
5	Mr. Chaofan Gu	Bacterial sensing	Liaocheng University, China	Ongoing	Co-Supervisor
6	Mr. Liu Xuecheng	Core-mismatch fiber based sensors	Liaocheng University, China	Ongoing	Co-Supervisor
7	Ms. Wen Zhang	Multi-tapered based fiber sensors	Liaocheng University, China	Ongoing	Co-Supervisor
8	Mr. Zhi Wang	Novel Taper-in-taper fiber structure-based LSPR sensor for alanine aminotransferase detection	Liaocheng University, China	Ongoing (2023)	Co-Supervisor
9	Mr. Li Muyang	2D Materials assisted core-mismatch based LSPR Sensor for Creatinine Detection	Liaocheng University, China	Ongoing (2023)	Co-Supervisor

10	Ms. Yu Wang	Development of highly sensitive optical fiber biosensor for p-Cresol and Cardiac Troponin I detection	Liaocheng University, China	Awarded (2022)	Co-Supervisor
11	Mr. Guo Zhu	Tapered optical fiber-based LSPR biosensors for ascorbic acid detection	Liaocheng University, China	Awarded (2021)	Co-Supervisor
12	Mr. Qing Shan Yang	Design and Performance of LSPR-based Optical Fiber Biosensor	Liaocheng University, China	Awarded (2020)	Co-Supervisor