



## *Curriculum Vitae*

### **Dr. SANTOSH KUMAR**

Associate Professor & Head  
Department of Chemistry,  
Harcourt Butler Technical University,  
Kanpur -208002, UP, India

**Email:** santoshk@hbtu.ac.in; santoshics@gmail.com

**Nationality:** Indian

#### **Area of research interest-**

Synthetic Organic Chemistry / Biomaterials/ Polymeric Functional Material Chemistry/ Nanotechnology/ Nanocomposites and its applications in hydrogen storage, CO<sub>2</sub> capture and conversion (Environment) and drug delivery (Biomedical), water remediation, dyes removal.

#### **Academic Qualification :**

**D. Phil. (2008)** Chemistry from University of Allahabad (Central University), Prayagraj, India

**M. Sc. (2004)** Chemistry with specialization in Organic Chemistry from University of Allahabad (Central University), Prayagraj, India, 1<sup>st</sup> division with 75%

**B. Sc. (2000)** in Chemistry, Botany, Zoology from Ewing Christian College Allahabad; University of Allahabad (Central University), Prayagraj, India

**I. Sc. (1996)** from Uttar Pradesh Board, Allahabad, India, 1<sup>st</sup> division with 71%

**10<sup>th</sup> High School (1994)** from H. N. K. High School, Ara, Bihar School Examination Board, Patna, India, 1<sup>st</sup> division with 78%

#### **Awards/honors/certificates**

- ❖ Received **Research Excellence Award 2024** from the **Hon'ble Governor** of Uttar Pradesh on 27-09-2024.
- ❖ Received a certificate of appreciation for NAAC from **Hon'ble Chancellor & Governor** of Uttar Pradesh and Vice Chancellor, HBTU
- ❖ Awarded InnoCentive Award 2019 (Challenge 9934214 "Seeking thermally stable colorants for orange polyesters") by the Innovation Agency "InnoCentive" USA 17-05-2019.
- ❖ Awarded FCT Postdoctoral Fellowship 2012 (Portugal)
- ❖ Awarded CAS-TWAS Postdoctoral Fellowship 2008 (Italy-China)
- ❖ President, Chemistry Society, Motilal Nehru National Institute of Technology, Allahabad, India (2008-2009).
- ❖ Awarded outstanding contribution in reviewing Elsevier International Journal of Biological Macromolecules 2018

- ❖ Awarded outstanding contribution in reviewing Elsevier Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy 2018
- ❖ Awarded outstanding contribution in reviewing Elsevier Journal of Molecular Graphics and Modelling 2018
- ❖ Awarded outstanding contribution in reviewing Elsevier Journal of Molecular Liquids 2018
- ❖ Awarded contribution in reviewing Elsevier Chemical Engineering Journal 2019
- ❖ Eminent Researcher Award 2024 on the occasion of National Seminar on Role of Agriculture, Wild and Domestic Animals in Environmental protection and rural development on 25-26<sup>th</sup> October 2024 at Mahatma Gandhi Chittrakoot Gramodaya Vishwavidyalaya Chittrakoot Madhya Pradesh
- ❖ Chaired a session with Jerzy P. Lukaszewicz (Poland) in Third International Conference on Natural Polymers (ICNP-2012), October 26-28, **2012**. Kottayam, Kerala, India
- ❖ Chaired a session on 25th January 2022, International Conference on Materials, Machines & Information Technology, Amity University Jharkhand, Ranchi (24-25th January **2022**).
- ❖ Chaired a session in International Conferences on CHEM-TECHNOVA **2024**, 21st – 23rd March, 2024 IChE Student Chapter & Department of Chemical Engineering, HBTU Kanpur UP, India
- ❖ Chaired a session in International seminar on “Prospects, challenges and pathways to achieve sustainable development goals”, 14<sup>th</sup> November **2024**, U.P. Rajarshi Tandon Open University, Prayagraj.
- ❖ Portuguese Language Certificate 2015-2016.

### **Experiences:**

#### **1) Associate Professor**

**2022-present:** Department of Chemistry, Harcourt Butler Technical University Kanpur, India

#### **2) Research Professor/Senior Researcher: 6 Years**

**2017-2022:** Division of Chemical Engineering, Department of Organic and Nano System Engineering, Konkuk University, Seoul, South Korea

#### **3) Post-doctoral Research Experience: 9 years**

**2013-2017:** Postdoctoral Fellow, Department of Chemistry, University of Coimbra, Coimbra, Portugal

**2010-2013:** Brain Pool Professor and Researcher, Department of Textile Engineering, Konkuk University, Seoul, South Korea

**2009-2010:** CAS-TWAS Postdoctoral Fellow Changchun Institute of Applied Chemistry, Chinese Academy of Sciences, Changchun, P. R. China

**2008-2009:** Research Associate (CSIR, New Delhi) Motilal Nehru National Institute of Technology, Allahabad, India

**2007-2008:** SRF-Extended (CSIR, New Delhi) MNNIT, Allahabad, India

#### **4) Research Experience: Two years**

**2004-2006:** Research Fellow UGC, University of Allahabad, Allahabad, India

#### **5) Total Research Experience: 17 years**

**6) Teaching Experience:** UG and PG teaching for 6 years.

**7) Consultant**

1. Consultant, to the research team of R&D Project 2022.03644.PTDC funded by FCT Foundation for Science and Technology, Portugal to the Principal Investigator Seena Sahadevan, University of Coimbra, Coimbra, Portugal, Duration: 01-01-2023 to 30-06-2024, Total budget 49999.97 Euro. Titled “Quantification and impacts of nanoplastics on freshwater ecosystem processes along a metal pollution gradient-RioPlast.

**8) Project (PI/Co-PI)**

**1. Title:** A chitosan biopolymer for carbon-dioxide (CO<sub>2</sub>) capture and conversion. Grant no. (2017-A019-0140) size: \$18000, Duration: May 01, 2017 – March 31, 2018. Completed.

**2. Title:** Development of bionanocomposites materials for removal of dye from industrial Wastewater. Grant (2018-A019-0103) size: \$18000, Duration: May 01, 2018-March 31, 2019. Completed.

**3. Title:** Development of porous structured mixed phase (anatase/brookite) metal oxide loaded TiO<sub>2</sub> nanoparticles for CO<sub>2</sub> capture and conversion. Grant (2018-A019-0588) size: \$18000; Duration: December 01, 2018-November 30, 2019. Completed

**4. Title:** Development of future human resources for solving current issues on chemical engineering, Grant (2019-A019-0560) size: \$6500; Duration: September 01, 2019-December 31, 2019 completed

**5. Title:** Polymerization and characterization of colored polyurethane containing a yellow azo dye moiety, Grant (2019-A019-0484) size: \$6500; Duration: September 1, 2019- February 29, 2020. Completed

**6. Title:** Thermodynamic and kinetic studies in dyeing of PET/PEG copolymer fibers, Grant (2019-A019-0266) size: \$10000; Duration: May 1, 2019- March 31, 2020. Completed

**7. Title:** Development of mesoporous zeolites@chitosan nanocomposites for selective gas (CO<sub>2</sub> and H<sub>2</sub>) storage and catalytic activity. Grant (2019-A019-0112) size: \$22000; Duration: May 1, 2019- April 30, 2020. Completed

**8. Title:** Design and synthesis of high fastness disperse dyes and their application to athleisure wear containing high polyurethane elastic fiber. Grant (S202003S00131) size: \$62500; Duration: March 1, 2020- May 31, 2021. Completed

**9. Title:** Covalent organic framework-based chitosan biopolymer composite: Synthesis, characterization, and an efficient removal of dyes from aqueous solution. Grant (2020-A019-0179) size: \$20000; Duration: May 1, 2020- April 30, 2021. Completed

**10) Patents: 3 (International)**

1. Process for preparing chitosan-zeolite biocomposite, biocomposite prepared thereby and adsorbent comprising the same. **Santosh Kumar**, J. Koh, Application No. 10-2019-0160851. Date: 5-12-2019; Registration No. 1023026940000 Date: 9-9-2021

2. Tetrakis (4-carboxyphenyl) porphyrin graft chitosan and uses thereof. J. Koh, **Santosh Kumar** Application No. 1020220063231. Date: 24-05-2022, Registration No. 1026764000000 Date: 14-06-2024.
3. Biopolymer-based organic dye and a dye-sensitized solar cell comprising the same. J. Koh, **Santosh Kumar**, Application No. 1020220068869. Date: 7-6-2022; Registration No. 1025734040000 Date: 28-8-2023.

**11) Master Thesis guided/co-guided: 9 (Completed) + 3 (Ongoing)**

**12) Ph.D. Thesis supervisor/co-supervisor**

1. **Dr. Shefali Jaiswal**, “Nucleophilic Addition Mediated Chitosan Nanoplatfoms for Gene Transfection and Drug Delivery”. Ph.D. awarded on 22<sup>nd</sup> November **2021**.
2. **Dr. Nazrul Hsan**, “Chitosan based aerogels for carbon dioxide adsorption and fixation.” Ph.D. awarded on 2<sup>nd</sup> December **2022**.
3. **Dr. Nidhi**, “Investigating the regulatory role of Silicon under Phosphorous and Zinc deficiency in Barley”, Ph.D. awarded November **2024**
4. **Miss. Shalinee Singh** “Bionanocomposite materials for food packaging applications.” **2022** (Ph.D. ongoing).
5. **Miss. Ira Singh** “Gene delivery and Drug Delivery applications. **2023** (Ph.D. ongoing)
6. **Mr. Satyendra Singh** Biopolymer based composite for CO<sub>2</sub> and H<sub>2</sub> storage 2024 (Ph.D. ongoing).

**13) Administrative and Other Assignments:**

- Associate Dean, International Student Affairs, HBTU Kanpur.
- Member of R & D Cell of HBTU Kanpur.
- Hostel Warden, HBTU, Kanpur, July 2022 to 12<sup>th</sup> September, 2024.

**Research papers Published: -**

1. **Journal papers: 118**
2. **International Conference/Symposium: 37**
3. **National Conference/Symposium: 24**
4. **Book Chapters: 19**
5. **Books: 05**

**List of Books –**

1. Role of chitosan and chitosan-based nanomaterials in plant sciences” editor **Santosh Kumar**, Sundar Madihally, published by Elsevier. Publication Date: 01-August-**2022**, ISBN: 9780323853910.
2. Nanoparticles and plant-microbe interactions: An environmental perspective” Seena Sahadevan, Akhilesh Rai, **Santosh Kumar**, published by Elsevier. Publication Date: 01-June-**2023**, ISBN: 9780323906197.

3. Advances in Biotic Stress Management of Crop Plants using Nanomaterials" by K.K. Mishra & **Santosh Kumar**, published by CRC Press (Taylor and Francis Group). February **2023**. ISBN:9781032344317.
4. Renewable Energy Development: Technology, Material and Sustainability, **Santosh Kumar**, V. K. Singh to be published by Springer Singapore, **2025**, ISBN: 9789819796250,
5. Biomaterials and Neurodegenerative Disorders, Gaurav Kumar, Sumedha Mukherjee, **Santosh Kumar**, to be published by Springer Nature **2025**, ISBN: 978-9819799589,

#### **Selected List of Publications in Journals:**

1. A facile cellulosic paper-based colorimetric sensor for detection of perchlorate using albumin-conjugated gold nanoparticles, Praveen Kumar, Ashish Kapoor, **Santosh Kumar**, Dan Bahadur Pal, MuthuKumar Raghunathan, *Journal of Molecular Structure*, 1319, Part 1, 139470, **2025**, <https://doi.org/10.1016/j.molstruc.2024.139470>. (IF= 4)
2. Application of Photochromic Spiroindolinonaphthoxazines in Disperse Dyeing of Polyester: Re-evaluating Process Optimization by Analyzing Degradation Behavior and Photochromic Properties, Nahyun Oh, Sarang Oh, Md Morshedur Rahman, Ingi Hong, Yonggyun Cho, Hyunwoo Byun, Yijin Choi, Nazrul Hsan, Minyoung Eom, **Santosh Kumar**, Joonseok Koh, *Fibers and Polymers* **2024** <https://doi.org/10.1007/s12221-024-00796-x>. (IF= 2.347)
3. Piperine analogues as dual inhibitors for antibacterial and antiarthritic properties through impact of ligands optimization, docking and water solvation, Shabbir Muhammad, A. Zaid, S. Bibi, M. Y Alshahrani, **Santosh Kumar**, M.I. Tousif, Abdullah G Al-Sehemi, *Journal of Molecular Liquids*, 415, Part B, 126379, **2024**, <https://doi.org/10.1016/j.molliq.2024.126379>. (IF= 5.3)
4. Metallo-tetraphenylporphyrin-based porous organic polymers: effect of metal components on carbon dioxide adsorption and conversion Yonggyun Cho, Hyunwoo Byun, Yijin Choi, **Santosh Kumar**\*, Nazrul Hsan, Minyoung Eom, Keechul Youm, Joonseok Koh, *Fibers and Polymers* **2024** <https://doi.org/10.1007/s12221-024-00727-w>. (IF= 2.347)
5. Overcoming resistance: Chitosan-modified liposomes as targeted drug carriers in the fight against multidrug resistant bacteria-a review, Ira Singh, **Santosh Kumar**, Shalinee Singh, Mohmmad Younus Wani, *International Journal of Biological Macromolecules*, 278, 135022, **2024**, <https://doi.org/10.1016/j.ijbiomac.2024.135022>. (IF= 8.2)
6. Comparative characterization and dyeing properties of poly (ethylene terephthalate-co-polyethylene glycol) fibers and poly (ethylene terephthalate) fibers, Shekh Md Mamun Kabir, Md Morshedur Rahman, Ingi Hong, Hyunwoo Byun, Yijin Choi, Nazrul Hsan, **Santosh Kumar**, Joonseok Koh, *Polymer*, **2024**, 311, 127488, <https://doi.org/10.1016/j.polymer.2024.127488>. (IF= 4.1)

7. A highly efficient porphyrin-based azo-porous organic polymer for selective CO<sub>2</sub> capture and conversion, Keechul Youm, Y. Choi, Hyunwoo Byun, **Santosh Kumar\***, Yonggyun Cho, N. Hsan, Joonseok Koh *Journal of CO<sub>2</sub> Utilization*, 84, 102854, 2024 <https://doi.org/10.1016/j.jcou.2024.102854>. (IF= 8.321)
8. Carbon nitride nano-biochar exhibit dose-dependent effect on rice growth, Tejasvita Chaudhary, Pallavi Priya, Avani Maurya, Vishakha Sharma, Garima Balyan, Adwithiya Sharma, **Santosh Kumar**, Nidhi Kandhol, and Durgesh Kumar Tripathi, *BIO Web of Conferences* 110, 01007 (2024), ICRAHOR 2024, <https://doi.org/10.1051/bioconf/202411001007>.
9. Carbon nitride nano biochar imparts concentration dependent impact on finger millet growth, Vishakha Sharma, Pallavi Priya, Tejasvita Chaudhary, Avani Maurya, Garima Balyan, Adwithiya Sharma, **Santosh Kumar**, Nidhi Kandhol, and Durgesh Kumar Tripathi, *BIO Web of Conferences* 110, 01008 (2024), ICRAHOR 2024 <https://doi.org/10.1051/bioconf/202411001008>
10. Effects of aromatic linker structures on carbon dioxide adsorption and conversion performance in melamine-based porous organic polymers, Y Choi, H Byun, Y Cho, K Youm, N Hsan, **Santosh Kumar\***, J Koh, *Fibers and Polymers* 2024 (In Press). <https://doi.org/10.1007/s12221-024-00600-w> (IF= 2.347)
11. Silicon regulates phosphate deficiency through involvement of auxin and nitric oxide in barley roots, Nidhi Kandhol, Padmaja Rai, Vipul Mishra, Sangeeta Pandey, **Santosh Kumar**, Rupesh Deshmukh, Shivesh Sharma, Vijay Pratap Singh, Durgesh Kumar Tripathi, *Planta* 259, 144, 2024 <https://doi.org/10.1007/s00425-024-04364-8> (IF= 3.6)
12. Physicochemical and optical activity of chitosan based ternary nanocomposites for food packaging applications, Shalinee Singh, **Santosh Kumar**, Joonseok Koh, *Journal of Molecular Structure*, 138210, 2024, <https://doi.org/10.1016/j.molstruc.2024.138210>. ISSN: 0022-2860 (IF= 4)
13. Band Energy Modulation in an Fe–Mn–ZnO Nanowire–Nanosheet Catalyst for Efficient Overall Water Splitting, Rajneesh Kumar Mishra, Gyu Jin Choi, Jeong Won Ryu, Ranjana Verma, Dhananjay Mishra, **Santosh Kumar**, Jay Singh, Yogendra Kumar Mishra, Jin Seog Gwag, *Energy & Fuels*, 2024, <https://doi.org/10.1021/acs.energyfuels.3c05226> ISSN NO. 0887-0624 (IF= 5.3).
14. MOF magic: Zirconium-based frameworks in theranostic and bio-imaging applications, D. K. Gupta, **Santosh Kumar\***, M. Y. Wani, *Journal of Materials Chemistry B*, 2024, 12, 2691-2710 ISSN NO. 2050-750X (IF= 7.571) DOI: 10.1039/D3TB02562D.
15. Recent progress in gas sensing based on 2D SnS<sub>2</sub> and its heterostructures platforms: A review, Rajneesh Kumar Mishra, Hyeon Jong Choi, Jeong Won Ryu, Gyu Jin Choi, Vipin Kumar, Pushendra Kumar, Jay Singh, **Santosh Kumar**, Jin Seog Gwag, *Sensors and Actuators A: Physical*, 365, 114860, 2024. ISSN: 1873-3069 <https://doi.org/10.1016/j.sna.2023.114860>. (IF= 4.6)
16. Unveiling the transformative potential of SWCNT/In<sub>2</sub>O<sub>3</sub> heterostructures as high-performance catalysts for overall water splitting, Rajneesh Kumar Mishra, Gyu

- Jin Choi, Jeong Won Ryu, Jay Singh, **Santosh Kumar**, Yogendra Kumar Mishra, Seung Hee Lee, Jin Seog Gwag, *Energy & Fuels* **2023**, 37(24), pp. 19785–19800 ISSN NO. 0887-0624 DOI:10.1021/acs.energyfuels.3c03186. (IF= 5.3)
17. Synthesis of chitosan-based perylene dye material for photovoltaic solar-cell application **Santosh Kumar**, Ira Singh, Nazrul Hsan, Bhabani Sankar Swain, Joonseok Koh, *International Journal of Biological Macromolecules*, 253, 126964, **2023**, ISSN NO. 0141-8130 <https://doi.org/10.1016/j.ijbiomac.2023.126964> (IF= 8.2)
  18. Does Surface modification of nanoplastics modulate the cellular and physiological responses of aquatic fungi to metals? Juliana Barros, **Santosh Kumar**, Sahadevan Seena, *Environmental Pollution*, 337, 122549, **2023**. ISSN NO. 1873-6424 (IF= 8.9) <https://doi.org/10.1016/j.envpol.2023.122549>
  19. Chitosan modified multi-walled carbon nanotubes and arginine aerogel for enhanced carbon capture, Nazrul Hsan, **Santosh Kumar\***, P. K. Dutta, J. Koh, *International Journal of Biological Macromolecules*, 252, 126523, **2023**. ISSN NO. 0141-8130 (IF= 8.2). <https://doi.org/10.1016/j.ijbiomac.2023.126523>
  20. A computational study for optical and nonlinear optical properties of distinctive V-shaped cyclopenta dithiophene derivatives, S. Muhammad, F. Sarwar, S. S. Alarfaji, A. G. Al- Sehemi, M. Adnan, **Santosh Kumar**, A. R. Chaudhry, *Optical and Quantum Electronics* 55, 895 **2023**, (IF= 3.0) <https://doi.org/10.1007/s11082-023-05180-2> ISSN No 1572-817X.
  21. Dual experimental and computational approach for study of optical and nonlinear optical properties of naphthalimide derivatives, **Santosh Kumar**, Shabbir Muhammad, Abdullah G. Al-Sehemi, Saleh S. Alarfaji, Jay Singh, H. Algarni, Joonseok Koh, *Chemical Papers*, 1-10, **2023** (IF= 2.2) ISSN No 13369075 <https://doi.org/10.1007/s11696-023-02785-5>
  22. Editorial: Highlights in nano-based drug delivery 2021/22, **Santosh Kumar**, Helena F. Florindo, Gianfranco Pasut, *Frontiers in Medical Technology*, 5, 1130414, 2023. ISSN No 2673-3129, <https://doi.org/10.3389/fmedt.2023.1130414>
  23. Disperse Dyeing of Nylon with Spiroanthoxazines and the Evaluation of the Photochromic Performance Using a Novel Photochromic Assessment Methodology, Sarang Oh, Nahyun Oh, Md Morshedur Rahman, Keechul Youm, Minse Kim, Santosh Kumar, Joonseok Koh, *Fibers and Polymers*, 24(5), 1741-1758, **2023**. ISSN NO. 1229-9197 (IF= 2.347) <https://doi.org/10.1007/s12221-023-00175-y>
  24. Sustainable one-bath natural dyeing of cotton fabric using turmeric root extract and chitosan biomordant, MM Rahman, M Kim, K Youm, **Santosh Kumar**, J Koh, KH Hong, *Journal of Cleaner Production*, 382, 135303, 2023. (IF= 11.1) <https://doi.org/10.1016/j.jclepro.2022.135303>
  25. Chitosan versus carbonaceous-based materials for CO<sub>2</sub> capture and fixation, N. Hasan, P.K. Dutta, **Santosh Kumar**, J. Koh, *Asian Chitin Journal*, 18 (2), 1-26, **2022**. ISSN NO. 0973-3345
  26. Synthesis and spectral properties of fluorescent phthalimidylhydrazone disperse dyes and their dyeing application to poly(ethylene terephthalate), Keechul Youm,

- Santosh Kumar, Joonseok Koh, *Fibers and Polymers*, 23, 2667–2678, **2022**. ISSN NO. 1229-9197 (IF= 2.347) <https://doi.org/10.1007/s12221-022-0150-2>
27. Self-assembled neutral and ionic [2 + 2] metallomacrocycles using a new flexible ditopic Pt (II)–based organometallic tecton bearing a pyrimidine motif: Facile syntheses and enhanced anticancer potency, A. Chakraborty, S. Pandey, R. K. Pandey, K. Singh, Saurabh Kumar, **Santosh Kumar**, T. Rajagopala Rao, Neeladri Das, *Applied Organometallic Chemistry*, In Press, 2022, ISSN No.: 1099-0739, (IF=4.105) <https://doi.org/10.1002/aoc.6917>
  28. Metal-organic hybrids based on [VO<sub>2</sub>(L)]<sup>−</sup> tecton with cations of imidazole and its derivative: Synthesis, single-crystal structures and molecular docking studies, N. Patel, A. K. Patel, M. Travedi, R.J. Butcher, M. Muddassir, **Santosh Kumar**, R. Kapavarapu, *Polyhedron*, 227, 116125, 2022, ISSN No. 0277-5387 (IF=2.6) <https://doi.org/10.1016/j.poly.2022.116125>
  29. Insighting the systematic impact of shape, size and substitution of heteroatoms in quinoidal oligomers to tune their optoelectronic properties, F. Sarwar, S. Muhammad, S. Bibi, A. G Al-Sehemi, H. Algarni, **Santosh Kumar**, *Optical and Quantum Electronics*, 54, 356, **2022**, ISSN NO. 0306-8919 (IF=2.794) <https://doi.org/10.1007/s11082-022-03724-6>
  30. Interaction of pseudohalides copper(II) complexes of hydrazide ligand with DNA: synthesis, spectral characterization, molecular docking simulations and superoxide dismutase activity, Abhay K. Patel, Neetu Patel, R. N. Jadeja, S. K. Patel, R. N. Patel, **Santosh Kumar**, and R. Kapavarapu, *Inorganic and Nano-Metal Chemistry*, 1-16, **2022**. ISSN: 2470-1564 (IF=1.514) <https://doi.org/10.1080/24701556.2022.2050755>
  31. Arginine containing chitosan–graphene oxide aerogels for highly efficient carbon capture and fixation. Nazrul Hsan, P. K. Dutta, **Santosh Kumar\***, J. Koh, *Journal of CO<sub>2</sub> Utilization*, 59, 101958, **2022**. ISSN NO. 2212-9820 (IF= 8.321)
  32. Impacts of low concentrations of nanoplastics on leaf litter decomposition and food quality for detritivores in streams, S. Seena, I. B. Gutiérrez, J. Barros, Cláudia Nunes, João Carlos Marques, **Santosh Kumar**, Ana M.M. Gonçalves, *Journal of Hazardous Materials*, 429, 128320, **2022** ISSN: 0304-3894 (IF= 14.224)
  33. Triazine based nanoarchitectonics of porous organic polymers for CO<sub>2</sub> storage. **Santosh Kumar**; A. Hassan; Neeladri Das; J. Koh, *Materials Letters*, 313, 131757, **2022**. ISSN: 0167-577X (IF= 3.574)
  34. Synthesis, characterization, and application of chitosan-N-(4-hydroxyphenyl)-methacrylamide derivative as a drug and gene carrier, S. Jaiswal, P.K. Dutta, **Santosh Kumar\***, J. Koh, M.C. Lee, J.W. Lim, S. Pandey, P. Garg, *International Journal of Biological Macromolecules* 195, 75-85, **2022**. ISSN NO. 0141-8130 (IF= 8.2).
  35. Copper(II) hydrazone complexes derived from (Z)-N'-{(2-hydroxynaphthalen-1-yl)methylene}acetohydrazide: Synthesis, spectral characterization, electrochemical behaviour, density functional study, in vitro catalytic activity and molecular docking. A. K. Patel, R. N. Jadeja, N. Patel, R. N. Patel, S. K. Patel, R. J. Butcher, **Santosh Kumar**, G. Kumar, *Results in Chemistry* 4, 100244, **2022**. ISSN: 2211-7156



36. Experimental and computational study of naphthalimide derivatives: Synthesis, optical, nonlinear optical and antiviral properties, **Santosh Kumar**, S. Muhammad, S.S. Alarfaji, S. Yoon, M. Kim, K. Youm, M. Khalid, A.R. Chaudhry, J. Koh, *Optik* 246, 167748, 2021. ISSN: 0030-4026 (IF= 2.840) <https://doi.org/10.1016/j.ijleo.2021.167748>
37. Synthesis of antibacterial disulfide derivatives and its computational molecular docking against penicillin binding protein, S. Kumar, M. Choudhary, G. Kumar, R.K. Singh, **Santosh Kumar**, *Analytical Chemistry Letters*, 11, 618-634, 2021 ISSN NO: 2230-7532 <https://doi.org/10.1080/22297928.2021.1948917>
38. Synthesis and application of high-washability 4-amino-4'-fluorosulfonylazobenzene disperse dyes to cellulose diacetate for high color fastness, S. Yoon, H. Kim, N. Oh, S. Kim, **Santosh Kumar**, J. Koh, *Fibers and Polymers*, 22(11), 3075-3081, 2021. ISSN NO. 1229-9197 (IF= 2.347) <https://doi.org/10.1007/s12221-021-0839-7>
39. Synthesis of 2,5-furandicarboxylic acid-enriched-chitosan for anti-inflammatory and metal ion uptake, **Santosh Kumar**, D. K. Mishra, S. Yoon, A. K. Chauhan, J. Koh, *International Journal of Biological Macromolecules*, 179, 500-506, 2021. ISSN NO. 0141-8130 (IF= 8.025). <https://doi.org/10.1016/j.ijbiomac.2021.03.036>
40. Rapid determination of nitrate in brain regions and Cerebrospinal fluid of transient bilateral common carotid artery occlusion rat model by HPLC-UV, G. Kumar, S. Mukherjee, **Santosh Kumar**, Ranjana Patnaik, *Proceedings of the National Academy of Sciences, India Section A: Physical Sciences*, 91, 361-368, 2021 ISSN: 2250-1762. (IF=1.291) <https://doi.org/10.1007/s40010-020-00666-0>
41. Chitosan modified by organo-functionalities as an efficient nanoplatform for anti-cancer drug delivery process, S. Jaiswal, P.K. Dutta, **Santosh Kumar**, Ruchi Chawla, *Journal of Drug Delivery Science and Technology* 62, 02407, 2021. ISSN NO. 1773-2247 (IF= 5.062) <https://doi.org/10.1016/j.jddst.2021.102407>
42. Synthesis, characterization and functional properties of ZnO-based polyurethane nanocomposite for textile applications, **Santosh Kumar**, M.M. Rahman, S. Yoon, S. Kim, K.H. Hong, J. Koh, *Fibers and Polymers*, 22, 2227-2237, 2021. ISSN NO. 1229-9197 (IF= 2.347) <https://doi.org/10.1007/s12221-021-0815-2>
43. Synthesis of copper (II) coordination complex, its molecular docking and computational exploration for novel functional properties: A dual approach, B. Mohan, S. Muhammad, A. G. Al-Sehemi, S. Bharti, **Santosh Kumar**, M. Choudhary, *Chemistry Select*, 6, 738-745, 2021. Online ISSN: 2365-6549 (IF= 2.307) <https://doi.org/10.1002/slct.202003738>
44. COVID-19: Effect on environment and chitosan for environmental research, N. Hasan, **Santosh Kumar**, P.K. Dutta, *Asian Chitin Journal*, 16 (1), 23-30, 2020. ISSN NO. 0973-3345
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  117. Evaluation of optical photoluminescence properties for chitosan derivative film. **Santosh Kumar**, P. K. Dutta. *Asian Chitin Journal*, 4, 67-74, **2008**. ISSN NO. 0973-3345
  118. Preparation of Chitosan-EDTA complex and its Cd<sup>2+</sup> ion uptake capacity. **Santosh Kumar**, J. Dutta, P. K. Dutta. *Asian Chitin Journal*, 3,117-122, **2007** ISSN NO. 0973-3345

#### Book Chapters-



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2. Perspectives for polymer-based antimicrobial films in food packaging applications, A Tiwari, A Tiwari, **Santosh Kumar\***, S Singh, PK Dutta, Nanobiotechnology for Food Processing and Packaging, 323-366, 2024, <https://doi.org/10.1016/B978-0-323-91749-0.00024-1>
3. Mega-challenges of nano-metals on micro-decomposers in freshwaters, Juliana Barros, Akhilesh Rai, **Santosh Kumar**, Sahadevan Seena, Book: Nanoparticles and plant-microbe interactions: An environmental perspective, Edited by S Sahadevan, A Rai, S. Kumar, 321-340, 2023 <https://doi.org/10.1016/B978-0-323-90619-7.00008-4> ISBN: 978-0-323-90619-7
4. Recent advances in environmental nanotechnology, Sneha Lavate, **Santosh Kumar**, Sahadevan Seena, Rohit Srivastava, Book: Nanoparticles and plant-microbe interactions: An environmental perspective, Edited by S Sahadevan, A Rai, S. Kumar, 293-318, 2023 <https://doi.org/10.1016/B978-0-323-90619-7.00004-7> ISBN: 978-0-323-90619-7
5. Nanomaterial as Nano-Pesticides, Devendra Kumar Verma, Rashmi Rameshwari, **Santosh Kumar**, Biotic Stress Management of Crop Plants using Nanomaterials Edited by K.K.Mishra, S. Kumar, Page 21-33, 18-05-2023, CRC Press. ISBN: 9781032344317
6. Natural Biopolymer Nanomaterials in Biotic Stress Management, Seyedeh-Somayyeh Shafiei-Masouleh, Hamed Hassanzadeh, **Santosh Kumar**, Biotic Stress Management of Crop Plants using Nanomaterials Edited by K.K.Mishra, S. Kumar, Page 53-70, 18-05-2023, CRC Press. ISBN: 9781032344317
7. Carbon dioxide conversion into propylene carbonate using meso-substituted free-base and Co(II)metalloporphyrins, Claudia T. Arranja, Carla L.S. Almeida, M.Y. Wani, **Santosh Kumar**, Abilio J.F.N. Sobral CO<sub>2</sub>-philic Polymers, Nanocomposites and Solvents: Capture, Conversion and Industrial Products, Edited by A.K. Nadda, S. Sharma, S. Kalia, Page 369-388, 1-1-2023, Elsevier, 9780323857772
8. Synthesis of chitosan-based nanomaterials, D. K. Verma, R. Srivastava, **Santosh Kumar**, Role of chitosan and chitosan-based nanomaterials in plant sciences. Edited by **Santosh Kumar**, Sundar Madihally, published by Elsevier, 2022. ISBN: 9780323853910
9. Current and future prospects of chitosan-based nanomaterials in plant protection and growth, Tanvi Jain, Kavita Srivastava, **Santosh Kumar**, P.K Dutta, Role of chitosan and chitosan-based nanomaterials in plant sciences. Edited by Santosh Kumar, Sundar Madihally, Elsevier, 2022. ISBN: 9780323853910
10. Role of chitosan and chitosan-based nanoparticles in antioxidant regulation of plants, Anu Singh, H. Kumar, **Santosh Kumar**, P. K. Dutta, Role of chitosan and chitosan-based nanomaterials in plant sciences. Edited by Santosh Kumar, Sundar Madihally, published by Elsevier, 2022. ISBN: 9780323853910

11. Role of chitosan and chitosan-based nanoparticles in pesticide delivery: Avenues and applications, Sushma, **Santosh Kumar**, P K Dutta, Role of chitosan and chitosan-based nanomaterials in plant sciences. Edited by Santosh Kumar, Sundar Madihally, Elsevier, **2022**. ISBN: 9780323853910
12. Chitin- a natural bio-feedstock and its derivatives: Chemistry and properties for biomedical applications, Anu Singh, Shefali Jaiswal, **Santosh Kumar**, P.K. Dutta, Chapter 9, High-Performance Materials from Bio-Based Feedstocks. Ed. Andrew John Hunt Andrew J. Hunt, Nontipa Supanchaiyamat, Kaewta Jetsrisuparb, Jesper T. N. Knijnenburg **2022**, Publisher WILEY Publication, United Kingdom, ISBN 9781119655725.
13. Porphyrins based nanostructured material for the conversion of CO<sub>2</sub> into value added products, **Santosh Kumar**, J. Koh, R. Srivastava, D. K. Gupta, Chapter 3, page 21 Nano-catalyst for Energy Applications, Edited by Rohit Srivastava, Taylor and Francis, CRC Press, Boca Raton, **2021** eBook ISBN 9781003082729
14. Furfuryl alcohol-A promising platform chemical, D.K. Mishra, **Santosh Kumar**, R. Shukla, Chapter X, In S. Saravanamurugan, H. Li, A. Riisager and A. Pandey (Eds.) **Biomass, Biofuels, Biochemicals: Recent advances in development of platform chemicals**, Elsevier, Amsterdam, Chapter 12, page 323-353, **2020**. Page 323-353, ISBN: 9780444643070
15. Stroke induced blood-brain barrier disruption. A. K. Tripathi, N. Dhanesha, **Santosh Kumar**, Springer book entitled "Advancement in the pathophysiology of cerebral stroke" Editors: Patnaik, R., Tripathi, A. K., Dwivedi, A. (Eds.) Publisher Springer, Singapore, pp 23-41, **2019**, 14 May 2019 eBook ISBN 9789811314537.
16. Development of organic-inorganic hybrids and modified alkoxides precursors for functionalized nanomaterials in support of adsorption and catalytic applications: an approach. D. K. Gupta, **Santosh Kumar**, D. K. Sahu, Dimensions of Nanotechnology and Biostatistics Edited by D. K. Gupta, Shruti, P. P. Dubey. LAMBERT, Academic Publishing, Germany, **page 40-44, 2019**. ISBN: 9786200079992
17. Synthesis of nanomaterials involving microemulsion and micellar medium. **Santosh Kumar**, M.Y. Wani, J. Koh, In: Prasad R., Jha A., Prasad K. (eds) Exploring the Realms of Nature for Nanosynthesis. Nanotechnology in the Life Sciences. Springer, Cham, Springer International Publishing Switzerland AG, pp 273-290, **2018** eBook ISBN: 9783319995700.
18. Cyano based chitosan derivative: Nd-YAG laser for second harmonic generation (SHG) study. **Santosh Kumar**, S. P. Singh, L. Mishra, Prasanta K. Datta, Pradip K. Dutta. Emerging Trends in Laser & Spectroscopy and Applications, edited by A. K. Rai, I. M. L. Das, K. N. Uttam, Allied Publishers, New Delhi, India 367-370, **2010**. ISBN: 9788184246261.
19. Synthesis and evaluation of chitosan-EDTA derivative for adsorption study. P. K. Dutta, **Santosh Kumar**. In Advances in chitin science, Volume X, Eds. S. Senel, K. M. Varum, M. M. Sumnu, A. A. Hincal, Alp Offset, Ankara, Turkey pp. 525-529, **2007**. ISBN 9789754912500.

### **Plenary/Keynote/Invited Talk**

1. Chitosan biopolymer: Versatile biomedical applications. **Santosh Kumar**, Third International Conference on Natural Polymers (ICNP-2012), October 26-28, **2012**. Mahatma Gandhi University, Kottayam, Kerala, India
2. Optical study of chitosan biopolymer derivatives for biomedical applications. **Santosh Kumar**, National Seminar on Advances in Laser, Spectroscopy and Nanomaterials (NSALSN-2011), March 5-7, **2011**, Nehru Gram Bharati University, Allahabad.
3. Chitin and chitosan: Versatile biomedical and environmental applications. 12<sup>th</sup> January **2018** at Department of Chemistry, Amity School of Applied Sciences, Amity University Rajasthan, Jaipur.
4. Chitosan a waste-based biopolymer for environmental applications, Keynote speaker 8<sup>th</sup> Bihar Science Conference (An International Conference on Science and Technology) 2019, 4<sup>th</sup> December **2020**. Bihar Brain Society and Patna University, Patna.
5. Novel polymer of chitosan and biomass-derived furandicarboxylic acid for metal ion uptake: Synthesis and characterization, Invited Talk (APM 41) 12<sup>th</sup> March **2021**, 12<sup>th</sup> International conference on advancements in polymeric materials, 9<sup>th</sup> – 13<sup>th</sup> March 2021, Organized by SARP: LARPM, Bhubaneswar, Central Institute of Petrochemicals Engineering & Technology (CIPET) Bhubaneswar, Odisha.
6. Porphyrin: Color of Life, Plenary Talk (ICMMIT-2022), 25<sup>th</sup> January **2022**, International Conference on Materials, Machines & Information Technology, Amity University Jharkhand, Ranchi (24-25<sup>th</sup> January **2022**).
7. Chitosan nanomaterials for sustainable agriculture, National symposium on recent trends in phytopathology to address emerging challenges for achieving food security, 22<sup>nd</sup> February **2022** Organized by ICAR-Vivekananda Parvatiya Krishi Anusandhan Sansthan Almora and Indian Phytopathological Society (IPS) New Delhi (21-22<sup>nd</sup> February **2022**).
8. Porphyrin: A versatile smart materials, Keynote speaker on the occasion of National Science Day 28<sup>th</sup> February **2022**, organized by Institute Innovation Council, Galgotias University, Greater Noida, UP
9. Invited Talk 2<sup>nd</sup> International online conference on “Recent Trends in Chemical Science” (E.T.C.S. 23), March 17-18, **2023**, Department of Chemistry, Organised by HVM College, Haridwar, Uttarakhand.
10. 1<sup>st</sup> International conference on Green Hydrogen for Global Decarbonization, March 17-18, **2023** organized by Department of Petroleum Energy, Pandit Deendayal Energy University, Gandhinagar, Gujrat, India.
11. Porphyrin: A journey of green sustainable chemistry, Five Days Faculty Development Program on Sustainable green chemical Technologies, 21<sup>st</sup> – 25<sup>th</sup> August, **2023**, Department of Chemical Engineering, HBTU Kanpur UP, India.
12. Keynote speaker “Chitosan bionanomaterials for Biomedical applications”, Five Days Online International Faculty Development Program on bridging research & Innovation in Biomedical Science and Engineering, 19<sup>th</sup> -23<sup>rd</sup> February **2024**, School of Biomedical Sciences, Galgotias University, Noida, UP, India

13. Chitosan biopolymer derivatives for CO<sub>2</sub> capture and conversion, 15th International conference on Advancements in Polymeric Materials 2024-Sustainable & Innovative Materials & Design for Global Needs, March 14th-16th, **2024** CIPET, Ahmedabad.

### **International Conference/Symposium /Proceeding of selected List of publication**

1. Synthesis of an Electrospun Composite of Starch, Polyvinyl Alcohol and Graphene Oxide for Biomedical Applications, Nitin Verma, **Santosh Kumar**, Shalinee Singh, International Conference on Recent Innovations in Biomaterials and Tissue Engineering (ICRIBTE-2024), Organized by Department of Chemistry & International Student Affairs, Harcourt Butler Technical University (HBTU), Kanpur, UP, December 6-7, **2024**.
2. Synthesis and Characterization of MoS<sub>2</sub> Nanomaterials for Tissue Engineering Application, Arpita Yadav, Priya Singh, **Santosh Kumar**, International Conference on Recent Innovations in Biomaterials and Tissue Engineering (ICRIBTE-2024), Organized by Department of Chemistry & International Student Affairs, Harcourt Butler Technical University (HBTU), Kanpur, UP, December 6-7, **2024**.
3. Application of Chitosan based Bionanocomposites in Tissue Engineering, Shalinee Singh, **Santosh Kumar**, Gaurav Kumar, International Conference on Recent Innovations in Biomaterials and Tissue Engineering (ICRIBTE-2024), Organized by Department of Chemistry & International Student Affairs, Harcourt Butler Technical University (HBTU), Kanpur, UP, December 6-7, **2024**.
4. Synthesis of High-Performance Supercapacitor Electrode Materials from Agricultural Waste, Shivendra Jaiswal, Nitin Prajapati, Anjali Awasthi, **Santosh Kumar**, Ashish Kapoor, International Conference on Recent Innovations in Biomaterials and Tissue Engineering (ICRIBTE-2024), Organized by Department of Chemistry & International Student Affairs, Harcourt Butler Technical University (HBTU), Kanpur, UP, December 6-7, **2024**.
5. Porphyrin-Integrated Chitosan: Synthesis And Characterization For Advanced Gene And Drug Delivery Applications, Ira Singh, **Santosh Kumar**, International Conference on Recent Innovations in Biomaterials and Tissue Engineering (ICRIBTE-2024), Organized by Department of Chemistry & International Student Affairs, Harcourt Butler Technical University (HBTU), Kanpur, UP, December 6-7, **2024**.
6. Synthesis and characterization of porphyrin-grafted chitosan for gene delivery applications. Ira Singh and **Santosh Kumar**, ICC & ICCS 2023, International conference on Chitosan & 10th Indian Chitin and Chitosan Symposium Page no. 23, ICC&ICCS/2023/O-04 December 08 & 09, **2023** Organized by NIPER, Kolkata.
7. Physicochemical, antioxidant, and antimicrobial properties of chitosan/starch/TiO<sub>2</sub> bionanocomposites for shelf-life protection of green chillies, Shalinee Singh and **Santosh Kumar**, ICC & ICCS 2023, International conference on Chitosan & 10th Indian Chitin and Chitosan Symposium Page no. 64, December 08 & 09, **2023** Organized by NIPER, Kolkata

8. Physicochemical and biological properties of biobased chitosan/PVA loaded GO ternary Nanocomposite films, Shalinee Singh, **Santosh Kumar**, International conference on “Recent Innovations in Biotechnological, Chemical & Environmental Sciences, March 15-16, **2023**, Jaipur.
9. Structural engineering of SnS<sub>2</sub> nanostructure by Mn and Cu doping as binder-free high-performance electrocatalyst for overall water splitting, **Santosh Kumar**, R.K. Mishra et al. 1st International Conferences on Green Hydrogen for global decarbonization March 17-18, **2023** Organised by Department of Petroleum Engineering, Pandit, Deendayal Energy University Gandhinagar, Gujarat, India
10. Porphyrin: Color of Life, **Santosh Kumar** Plenary talk (ICMMIT-2022), 25th January **2022**, International Conference on Materials, Machines & Information Technology, Amity University Jharkhand, Ranchi (24-25th January 2022).
11. Novel polymer of chitosan and biomass-derived furandicarboxylic acid for metal ion uptake: Synthesis and characterization, **Santosh Kumar**, J. Koh Invited Talk (APM 41) 12th March 2021, 12th International conference on advancements in polymeric materials, 9th – 13th March **2021**, Organized by SARP: LARPM, Bhubaneswar, Central Institute of Petrochemicals Engineering & Technology (CIPET) Bhubaneswar, Odisha.
12. Chitosan a waste-based biopolymer for environmental applications, **Santosh Kumar** Keynote speaker 8th Bihar Science Conference (An International Conference on Science and Technology) 2019, 4th December 2020. Bihar Brain Society and Patna University, Patna.
13. Fabrication of ZnO nanoparticle and chitosan-poly(vinyl alcohol) polymer composites with improved thermal and optical properties, **Santosh Kumar**, R. M. Morshedur, J. Koh, International Conference on "Advancements in Polymeric Materials" (APM 2018), was organized by Laboratory for Advanced Research in Polymeric Materials (LARPM), from February 02-04, **2018** at CIPET, Bhubaneswar.
14. Enhanced CO<sub>2</sub> capture of chitosan-zeolite composites for environmental applications. **Santosh Kumar**, J. Koh, R. M. Morshedur, A. J. F. N. Sobral, 24th ISCB International Conference (ISCBC-2018), O26, Page 101, Manipal University, Jaipur, 11-13th Jan. **2018**.
15. High buffering capacity and low viscosity of chitosan derivative for enhanced transfection in cancer cells, Santosh Kumar, International conference on Biological sciences and Biostatistics, School of Science, UPRT Open University, Allahabad, 9-10 March **2017**
16. Synthesis, characterization and photoluminescence study of graphene oxide nanohybrid, **Santosh Kumar**, M. Y. Wani, A. J. F. N. Sobral, International Conference on Advancements in Polymeric Materials, organized by Laboratory for Advanced Research in Polymeric Materials (LARPM), CIPET at Ahmedabad during February 12-14, **2016**, Abstract code: APM 16099 (Accepted 2016).
17. Preparation and characterization of microporous chitosan-SiO<sub>2</sub> nanocomposites for biomedical applications. **Santosh Kumar**, M. Kumari, M. A. Mallick, Abilio J.F.N.

- Sobral. SETCOR International Conference on Smart Materials and Surfaces (SMS Bangkok 2014) 26-28th Aug 2014, Bangkok, Thailand.
18. 2-Acrylamido-2-Methylpropane Sulfonic acid grafted Chitosan for Efficient Transfection in Mammalian cells. P. Garg, **Santosh Kumar**, S. Pandey, Abilio J. F. N. Sobral, J. H. Chung. 5<sup>th</sup> International conference on Advanced Nanomaterials, 2-4 July, **2014**, Aveiro, Portugal, page no. 170, abstract no. 251.
  19. Preparation and characterization of triphenyl amine porous polymer material for carbon dioxide capture in environmental applications. **Santosh Kumar**, J. A. Silva, B. Avula, M. Y. Wani, Carlos M. F. Dias, A. J.F.N. Sobral. International conference on structural and physical properties of solids “Smart materials at nano and micro scale” (SPPS 2013) November 18<sup>th</sup>-20<sup>th</sup>, 2013, Indian Institute of Technology (Indian School of Mines), Dhanbad India.
  20. Eco-friendly synthesis and characterization of fluorescent N-naphthaloyl chitosan for biomedical applications. **Santosh Kumar**, Byunghun Choi, D. Kumar, J. Koh, BIT International Conclave 2013 on ‘Innovations in Engineering & Management’ (ICIEM 2013) 22<sup>nd</sup>-23<sup>rd</sup> February, 2013. BIT Mesra, Patna, India.
  21. Preparation, characterization and biological activity of chitosan derivative, **Santosh Kumar**, Byunghun Choi, J. Koh, Accepted in Polychar 21, Gwangju, South Korea 2013.
  22. Chitosan biopolymer: Versatile biomedical applications. **Santosh Kumar**, Third International conference on natural Polymers (ICNP-2012), IL 2, page 4-5, October 26-28, **2012**. MG University, Kottayam, Kerala, India
  23. Physicochemical and circular dichroism properties of chitosan/methoxycinnamaldehyde. **S. Kumar**, J. Koh. International Conference on Nanomaterials and Nanotechnology, 18-21 Dec., 2011, University of Delhi, Delhi, India PP121, page 791.
  24. Synthesis, optical and biological activity study of cs-chromone derivative. **Santosh Kumar**, H. Kim, Joonseok Koh, 3<sup>rd</sup> International conference on Heterocyclic Chemistry, Dec. 10-13, **2011**, Rajasthan University, Jaipur, India, OL-14.
  25. Preparation, characterization and biological evaluation of a chitosan-chloroquinolaldehyde derivative. **Santosh Kumar**, H. Kim, J. Park, A. Singh, J. Koh, 11<sup>th</sup> Asian Textile conference, Nov. 1-4, **2011**, Daegu, South Korea.
  26. Syntheses of chitosan-thymine conjugate for biomedical applications. **Santosh Kumar**, H. Kim, M. K. Gupta, P. K. Dutta, J. Koh, International Conference on Tissue engineering & regenerative medicine (ICTERM-2011), 27<sup>th</sup> Sept-2<sup>nd</sup> Oct. **2011** NIT, Rourkela, India.
  27. Preparation of CNT-Chitosan biopolymer composites film for optical properties. **Santosh Kumar**, P. K. Dutta, 1<sup>st</sup> International Congress on Advanced Materials **2011**. 13-16 May 2011, Jinan, China. 11018, Page 340
  28. Synthesis and characterization of chitosan-nucleobase conjugates for biomedical applications. **Santosh Kumar**, Hyerim Kim, B. Kumar, Joonseok Koh. 15<sup>th</sup> ISCB International Conference **2011**, 4<sup>th</sup>-7<sup>th</sup> Feb. at University of Saurashtra, Rajkot, India, PP 079, page 225.

29. Environment friendly technique for production of bioactive compounds and their future prospects. Brajesh Kumar, **Santosh Kumar**, Rajkamal, R. N. Pathak, Se Won Park. International Conference on Radiation, Environment and Health (ICREH-2010) 19-21<sup>st</sup> Nov. **2010**.
30. Preparation of chitosan-based silver nanocomposites by a facile method. N. Nigam, **Santosh Kumar**, T. Ghosh, P. K. Dutta, Proceeding of ICOP 2009- International Conference on Optics and Photonics CSIO, Chandigarh, India 30 Oct- 1Nov. **2009**, p-139, page 1-4.
31. Preparation and characterization of azo-based chitosan biopolymer towards investigation of thermal and optical properties. **Santosh Kumar** and P. K. Dutta. International conference on Hi-Tech materials (ICHTM 09) 11<sup>th</sup> -13<sup>th</sup> February **2009**, IIT Kharagpur (India).
32. Synthesis and Evaluation of chitosan-EDTA derivative for adsorption study. P.K.Dutta, **S. Kumar**. 8<sup>th</sup> International conference of the European Chitin Society (EUCHIS 07) Antalya, Turkey. P.113 page 177, 8-11 Sept.**2007**.
33. Physio-chemical studies of Adsorption on chitosan complexes for waste waters. **Santosh Kumar**, Joydeep Dutta and P. K. Dutta. International Conference on Emerging trends in chemical Sciences (ICETCS2007) University of Mumbai, Mumbai, India.OP-34, p66 Jan.23-25, **2007**.
34. Application of Chitosan-EDTA Derivatives for Removal of Toxic metal ions from aqueous solution. P. K. Dutta, J. Dutta and **Santosh Kumar**. 10<sup>th</sup> International chitin & chitosan conference. Montpellier, France, Sept. 6-9, **2006**.

#### **National Conference/Symposium selected List of publication**

1. Synthesis, characterization and application of chitosan-N-(4-hydroxyphenyl)-methacrylamide derivatives for drug delivery system”, Shefali Jaiswal, P. K. Dutta and **Santosh Kumar**; presented poster presentation in the 57th Annual Convention of Chemists (ACC), Indian Chemical Society (ICS) held at Dept. of Chemical Sciences, IISER Kolkata from 26h to 29th December, 2020
2. Quercetin loaded arginine-folate functionalized chitosan/graphene oxide nanocomplexes as an effective antioxidant and antibacterial agent”, Shefali Jaiswal, Prabha Bhartiya, P.K.Dutta & **Santosh Kumar**; selected poster presentation in conference: Polymers: Usefulness & current concerns, Dec.23-24,2018 and student got best Poster Presentation Award.
3. Preparation, characterization and photoluminescence study of chitosan derivative aerogel for biomedical applications, **Santosh Kumar**, J. Koh. National Seminar on “Research in Chemistry: Existing Trends and its Relevance” P. G. Department of chemistry, Gaya College, Gaya.**2012**
4. Optical study of chitosan biopolymer derivatives for biomedical applications. **Santosh Kumar**, J. Koh, P. K. Dutta, National Seminar on Advances in Laser, Spectroscopy and Nanomaterials (NSALSN-2011), IT-019, page 25, March 5-7, **2011**. Nehru Gram Bharati University, Allahabad

5. Preparation, characterization and optical properties of new azo-dye chitosan biopolymer. N. Nigam, **Santosh Kumar**, T. Ghosh, P. K. Dutta. o.p. 14; Proceeding of Ist Indian chitin and chitosan symposium (1<sup>st</sup> ICCS-2010), April, **2010**.
6. Cyano based Chitosan Derivative: Nd-YAG Laser for Second Harmonic Generation (SHG) Study. **Santosh Kumar**, S. P. Singh, L. Mishra, P. K. Datta and P. K. Dutta. Meghnad Saha Memorial Symposium on Emerging Trends in Laser & Spectroscopy and Applications, University of Allahabad, Allahabad. PLS-12, page 123, March 23-25, **2009**.
7. Preparation of N-heterocyclic Chitosan Derivatives for Improving Biological Activity. **Santosh Kumar**, P. K. Dutta National Seminar on POLYMER SCIENCE & TECHNOLOGY-VISION & SCENARIO Faculty of Engineering & Technology, JMI Delhi P015 December 3, **2008**.
8. Preparation of microwave assisted 3-formyl-10H phenothiazine and chitosan based films for possible optical properties. **Santosh Kumar**, Pradip Kumar Dutta and Prasanta Kumar Datta. National Symposium for materials research scholars-MR08, Indian Institute of Technology Bombay, page-113, 17-18 May, **2008**.

#### **International and National Conferences / Seminar / Workshop Attended-**

1. 41<sup>st</sup> Annual Convention of Chemists Indian Chemical Society University of Delhi, Delhi Dec.23-27, **2004**.
2. 9<sup>th</sup> National conference on "Bioactive Heterocycles and Drug Discovery Paradigm" 8-10<sup>th</sup> Jan.**2005** at Saurashtra University, Rajkot, Gujrat (India).
3. International Symposium on Recent Trends in Drug Discovery.8-10, Jan. **2005** at Saurashtra University, Rajkot, Gujrat (India).
4. Vayganik tatha takniki sabdawali ayog, hindi vigyan patrikarita sabdawali karyasala 11-12 April, **2005**. Allahabad.
5. 93<sup>rd</sup> Indian Science Congress. ANGRAU, Hyderabad. Jan.3-7<sup>th</sup>, **2006**.
6. IUPAC Sponsored Second International Symposium on Green / Sustainable Chemistry University of Delhi, Delhi.Jan.10-13, **2006**.
7. 42<sup>nd</sup> Annual Convention of Chemists. Visva-Bharti Santiniketan Feb.9-13, **2006**.
8. 10<sup>th</sup> International Conference of ISCB on Drug Discovery: Perspectives and challenges and International Satellite Symposium on Medicinal plants and Obesity and Cardiovascular Disease at CDRI, Lucknow (India) 24-26 Feb.**2006**.
9. National agricultural chemists' conference xxxvii & xxxix Annual conventions of Indian Society of Agricultural chemists Allahabad, Nov.27-28<sup>th</sup>, **2006**.
10. International Workshop on Frontiers in Nanobiotechnology. Center of Biotechnology, University of Allahabad, Allahabad (India) 1<sup>st</sup> Dec.**2006**.
11. International Seminar on Liquid Crystals: Synthesis and characterization.13<sup>th</sup> Dec.**2006**.University of Allahabad, Allahabad.
12. Expert Lecture on the Theme: Recent Trends in chemical Sciences at MN National Institute of Technology, Allahabad. Dec.14, **2006**.
13. International Conference on Emerging trends in chemical Sciences (ICETCS2007) University of Mumbai, Mumbai, India. Jan.23-25, **2007**.



14. Indo-Polish Workshop on Liquid Crystals: Synthesis, Characterization and Molecular Engineering. 12<sup>th</sup> Dec. **2007**, University of Allahabad, India.
15. National Symposium on recent advances in microbial biofertilizers production & utilization technology. 13-14<sup>th</sup> Dec. **2007**, University of Allahabad, Allahabad, India.
16. Seminar on frontiers of chemistry research at Allahabad University, Jan. 24-25, **2008**.
17. National symposium for materials research scholars MR08, IIT Bombay, India. 17-18<sup>th</sup> May **2008**.
18. International Conference on Hi-Tech Materials (ICHTM-2009), IIT Kharagpur, India. 11-13<sup>th</sup> February **2009**.
19. Meghnad Saha Memorial Symposium on Emerging Trends in Laser & Spectroscopy and Applications (MMSETLSA-2009) March 23-25, **2009**.
20. 15<sup>th</sup> ISCB International Conference **2011**, 4<sup>th</sup>-7<sup>th</sup> Feb. at Rajkot, India.
21. National Seminar on Advances in Laser, Spectroscopy and Nanomaterials (NSALSN-2011), March 5-7, **2011** at Nehru Gram Bharti University, Allahabad, India.
22. 3<sup>rd</sup> International conference on Heterocyclic Chemistry, Dec. 10-13, **2011**, Jaipur, India
23. International Conference on Nanomaterials & Nanotechnology, 18-21 Dec., **2011**, University of Delhi, Delhi, India
24. Third International conference on natural Polymers (ICNP-2012), Mahatma Gandhi University, Kottayam, Kerala, India October 26-28, **2012**.
25. BIT International Conclave 2013 on ‘Innovations in Engineering & Management’ (ICIEM 2013) 22<sup>nd</sup>-23<sup>rd</sup> February, **2013**. BIT, Mesra, Patna
26. MicroCal <sup>TM</sup> VP-ITC & ITC 200 workshop Departamento de Química Universidade de Coimbra, Rua Larga, 3004-535 Coimbra, 30-31 July, **2013**. GE Health Care Life Science.
27. Workshop on NMR Focus 2013: MNova 8 Suite, Processing and Spectral Analysis. 10<sup>th</sup> -11<sup>th</sup> September, **2013**. University of Coimbra, Coimbra, Portugal
28. Superfícies poliméricas e nanopartículas de hidrogéis inteligentes: aplicações específicas Prof. Adley Forti Rubira Universidade Estadual de Maringá, Brasil, 27 de Novembro de **2013**, University of Coimbra, Portugal.
29. Workshop Produtos Naturais: aplicações (bio) tecnológicas. 19<sup>th</sup> February, **2014**. Instituto Politecnico de Coimbra, Portugal.
30. 1st Seminar on Organically Modified Silica Aerogels (Aero-ORMOSIL 2014) 19<sup>th</sup> March, **2014**, Department of Chemical Engineering, University of Coimbra, Portugal.
31. Workshop on NMR Basics, Theory, Processing and Analysis Sept. 30-3<sup>rd</sup> Oct. **2014**. UC NMR Core facility, University of Coimbra, Coimbra, Portugal.
32. Seminar on Novos Desafios em Cromatografia Gasosa, Paralab, Coimbra, 27-05-**2015**.
33. 2015 Summer School in Computational Biology, From Molecules to Tissues, Coimbra, 2<sup>nd</sup> -11<sup>th</sup> September **2015**. Center for Neurosciences and Cell Biology, University of Coimbra, Coimbra, Portugal.

34. One Week National Level Faculty Development Programme, Duration: 19-06-2023 to 26.06.2023 Organized by A.C.T. Academy, TamilNadu
35. Santosh Kumar, DST sponsored 4 weeks technology-based Entrepreneurship development Programme focused on bio- Entrepreneurship held from 5<sup>th</sup> July to 28<sup>th</sup> July 2023 organized by Galgotias University UP India.
- 36.

**Association with scientific bodies and Administrative Assignments:**

- ❖ Editor-in Chief, Journal of Biological Engineering Research and Review (2016-till dt)
- ❖ Associate Editor, Asian Chitin Journal (2013-till date)
- ❖ Guest Associate Editor in Nano-Based Drug Delivery (2022 to present)
- ❖ Guest Associate Editor in Polymeric and Composite Materials (2021 to present)
- ❖ Editorial Board Member, Current Smart Materials (benthamscience.com)
- ❖ Editorial Board Member, Current Applied Polymer Science (benthamscience.com)
- ❖ Editorial Board Member, International Journal of Biomedical Engineering (2013 to till)
- ❖ Editorial Team Member, Green Chemistry & Technology Letter
- ❖ Editorial Board Member, EC Microbiology
- ❖ Editorial Board Member, Journal of Biomedical Engineering and Informatics (JBEI)
- ❖ Editorial Board Member, Advanced Scientific Research (2016)
- ❖ Editorial Board Member, Edelweiss Chemical Science Journal (2018)
- ❖ International Advisory Board Member, Journal of Advanced Pharmaceutical Technology & Research (2010-2012).
- ❖ AEEC Member of The European Energy Centre (EEC) - United Kingdom, 2014
- ❖ Associate Member of The European Chitin Society, ( 2014-00-380)
- ❖ Member of Local Advisory Committee, NSALSN-2011 March 5-7, 2011. N.G.B University, Allahabad, India.
- ❖ Advisory Board Member ICBCES 2014
- ❖ International Advisory Board, International Conference on Biological Sciences and Bio-Statistic (ICBS) 2017
- ❖ Life Member of Indian Chemical Society, India F/6696 (LM) (2006)
- ❖ Member of Indian Science Congress Association, India
- ❖ Member of Gandhi Prathna Samaj Ewing Christian College Allahabad, India
- ❖ Member of UK Carbon Capture and Storage Research Centre (UKCCSRC)
- ❖ Member of **Royal Society of Chemistry, UK** 2015 membership no. 579993
- ❖ Member of European Biotechnology Network 2016
- ❖ Member of Portuguese Chemical Society, Portugal 2016 (membership no. 5668)
- ❖ Member of the International Zeolite Association 2017
- ❖ **Guest Editor** for Special Issue on Recent Advances in Synthesis, Characterization, and Application of Liposomes as Drug Carriers. **Journal of Nanomaterials**, IF 1.980.
- ❖ **Guest Editor:** Polymeric and Composite Materials section; Topic: Next Generation Natural and Synthetic Filler-based Polymer Nanocomposites, M. Goyat , T. K. Gupta , K. Kumar, S. Kumar and **Santosh Kumar**, **Frontiers in Materials**, IF 2.705.

- ❖ **Guest Editor:** [Molecules] Special Issue "Chitin and Chitosan of Molecules: Versatile Ecological, Industrial, and Biomedical Applications. Santosh Kumar, S. Pandey, ISSN: 1420-3049 **Molecules** IF 4.412.
- ❖ **Guest Editor:** [Computers, Materials & Continua] Special issue" Advancement in Biomaterials & Smart Materials for healthcare". Gaurav Kumar, Santosh Kumar, Arvind Kumar ISSN: 1546-2226. Publisher: Tech Science Press (United States). SCI: 2020 Impact Factor 3.772
- ❖ **Topic Editor:** Highlights in Nano-Based Drug Delivery 2021/22 Santosh Kumar, Rajiv Lochan Tiwari, Helena F. Florindo, **Frontiers in Medical Technology**
- ❖ **Guest Editor:** [Catalysts] Special Issue "Methods and Applications for Enhancing the Catalytic Activity of Metal Nanoparticles". B. Kumar, Santosh Kumar, Himanshu Ojha, Alexis Debut, ISSN 2073-4344 **Catalysts** IF 4.146.
- ❖ **Guest Editor:** Plant Nano Biology Special issue "Nanoparticles and polymer-based nanoparticles in plants and microbes"
- ❖ Appointed as member of Research and Development Cell of HBTU, 2022.
- ❖ Appointed as member of University level NAAC Committee at HBTU, Kanpur
- ❖ Appointed as member of University level NBA Committee at HBTU, Kanpur.
- ❖ Member of University Academic Council at HBTU, Kanpur
- ❖ Member of Board of Studies (BOS) Chemistry at HBTU, Kanpur.

**Reviewer:** I have served as reviewer for various National and International journals such as Journal of Material Chemistry B, Biomaterials Science, Analyst, RSC Advances, Nanoscales, Materials Science and Engineering B, International Journal of Biological Macromolecules, Bioorganic & Medicinal Chemistry, Industrial Crops and Products, Chemical Engineering Journal, Process Biochemistry, Chemistry: A European Journal, International Journal of Polymeric Materials, Plant Systematic and Evolution, Cellulose, Biological Trace Element Research, Proc. Nat. Acad. Sci. India Section B: Biological Sciences, Journal of Polymer Research, Ecotoxicology and Environmental Safety, Polymer Environment, Material Chemistry and Physics, Journal of Drug Delivery Science and Technology, Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy, ACS, MDPI, ChemistrySelect etc.