Dr. PAWAN KUMAR

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- **Employment Details: Position and Employment (Starting with the most recent employment)**

Sr. No.	Institution/place	Designation	From date	To date
1.	Central University of Jammu, Jammu	Assistant Professor	July 2016	Till Date
2.	IIT, Delhi	Young Scientist	Feb. 2016	July 2016
3.	Hanyang University, Korea	Post Doc. Fellow	July 2014	Jan 2016

- **Awards/Honors Details:**
  - Received Haryana Vigyan Ratan Award -2020 by Department of Science and Technology, Panchkula, Haryana
  - Selected in Stanford University List of Top 2% Scientists Worldwide
  - Life Membership (L37408) of The Indian Science Congress Association, Kolkata, INDIA
  - Member of American Association for Advancement of Science (2018-19)
  - Life member of Indian Carbon Society
  - Best Publication Award (2016-17) from Central University of Jammu, Jammu.
  - 'Young Scientist' Project (YSS/2015/001440) Award from SERB-Dept of Science and Technology, New Delhi.
  - CAS President's International Fellowship Initiative (PIFI) award (2016) by Chinese Academy of Sciences President's International Fellowship Initiative (PIFI) at Hefei National Lab for Physical Sciences at the Microscale, University of Science and Technology of China (USTC) Hefei, Anhui 230026, P. R. China.
  - Post-Doctoral Fellowship Award (July 2014 to Jan 2016) at Hanyang University, Seoul, South Korea.

- Post-Doctoral Fellowship Award (offered 2016) by Indian Institute of Technology, Kanpur
- Nominated for Nehru-Fulbright Fellowship-2013 and Robert S. McNamara Fellowships (RSM)-2013 in Michigan Technological University Houghton, MI 49931, USA.

- Details of ongoing/completed projects.

Sr. No.	Project title	Amount/Funding Agency	Principal Investigator	Status/ Time Period
1.	**Development of a Sensing Technologies for Explosives involving highly Water Stable and Polymer-Dispersible Metal Organic Framework**	**DRD0**	**Dr. Pawan Kumar**	**Ongoing/3 Yrs. (Going to Complete Dec 2023)**
2.	Development of a novel sensing technique for organic pesticides in various media based on nanocrystal metal organic frameworks (NMOF) using parallel analysis with thermal desorption-gas chromatography-mass spectrometry	Rs. 50.28 Lacs/ SERB, New Delhi	Dr. Pawan Kumar	Completed/4 Yrs.
3.	Application of water-stable metal organic frameworks (WMOF) for the detection of odorants and emerging pollutants/pesticides in wastewater	Rs. 52 Lacs/ SERB, New Delhi	Dr. Pawan Kumar	Completed//3 Yrs.
4.	Development of Novel NMOF Based Sensors for Volatile Organic Compounds for practical applications	Rs. 24.51 Lacs/ SERB, New Delhi	Dr. Pawan Kumar	Completed/Withdraw due to regular appointment at CUJ .

5.	Novel practical sensing technique for VOCs in various real media using nanocrystal metal organic frameworks	Rs. 10 Lacs/ UGC, New Delhi	Dr. Pawan Kumar	Completed//2Yrs.

4. Patents/Publications

A. Patents

- Novel synthesis approach for cello-MOFs preparation using waste papers for air purification application, C.B.R/Ref No.- 48734, Indian Patent Filed, 2022.
- Novel Methodology for Isolation Of Metal From Mobile Battery Waste And Conversion Of The Same Into ZIF-67, Ref No. 201911016830, Indian Patent Filed, 2019 (Under Examination)

B. Publications

84. Gagandeep Kaur, Pawan Kumar (2023) COF-LZU-1 [(TFB)2(PDA)3] imine carrier for pH-controlled drug delivery, Chemical Papers (SCI- Impact Factor - 2.1)

83. Nikhar, S., Chakraborty, M., & Kumar, P. (2023). Relative capability analysis on carboxylate and imidazole based MOFs for PVP and PSS photo catalytic degradation in water. Inorganic Chemistry Communications, 156, 111132 (SCI-Impact Factor - 3.5)

82. R. Sikka, P. Kumar, Optical detection of nitroaromatic compounds using MAPbBr3 at room temperature, Journal of Chemical Sciences 135.3 (2023): 1-6. (SCI- Impact Factor - 1.7)

81. S. Nikhar, R. Sikka , M. Chakraborty , P. Kumar, comparison study on MIL-53 (Al) and (NH2)-MIL-53 (Al) MOF for optical sensing application at room temperature, Bulletin of Materials Science (SCI- Impact Factor - 2.14)

80. Rajit Sikka, Pawan Kumar, Optical detection of nitroaromatic compounds using MAPbBr3 at room temperature, Journal of Chemical Sciences, 2023 , (SCI- Impact Factor - 2.14)

79. Gagandeep Kaur, Pawan Kumar (2023) Imine linked AntiBSA@NUS-15 for molecular sensing applications. Journal of Chemical Sciences, 135, (SCI- Impact Factor - 2.14)

78. Sikka, R., & Kumar, P. (2023). Optical Sensing Capability Evaluation for Methylammonium Based Perovskites for Explosive. Journal of Fluorescence, 1-6. (SCI-Impact Factor - 2.27)

79. Gaurav Awasthi, Pawan Kumar (2022) Imine linked AntiBSA@NUS-15 for molecular sensing applications. Journal of Chemical Sciences, Just Accepted , (SCI-Impact Factor - 2.14)

78. Sikka, R., & Kumar, P. (2023). Optical Sensing Capability Evaluation for Methylammonium Based Perovskites for Explosive. Journal of Fluorescence, 1-6. (SCI-Impact Factor - 2.27)

77. Kaur, G., Kumar, D., Sundarrajan, S., Ramakrishna, S., & Kumar, P. (2022). Recent Trends in the Design, Synthesis and Biomedical Applications of Covalent Organic Frameworks.Polymers, 15(1), 139 (SCI-Impact Factor - 4.9)

76. Gaurav Awasthi, Pawan Kumar (2022) Effect of temperature on water solubility and absorption capacity in BTC-MOFs: a fundamental study for biomedical applications. Chemical Papers, Article DOI: 10.1007/s11696-022-02619-w, (SCI-Impact Factor - 2.14)

75. Gaurav Awasthi, Sahil Shivgotra, Shibyendu Nikhar, Sundarrajan Subramanian, Seeram Ramakrishna, Pawan Kumar,Progressive trends on the biomedical applications of Metal organic frameworks, Polymers 14, no. 21: 4710.https://doi.org/10.3390/polym14214710 (SCI-Impact Factor - 4.9)

74. Awasthi, Gaurav, Ritika Sharma, Subramanian Sundarrajan, Seeram Ramakrishna, and Pawan Kumar. 2022, Progressive Trends in Hybrid Material- Based Chemiresistive Sensors for Nitroaromatic Compounds" Polymers 14, no. 21: 4643. SCI-Impact Factor - 4.9)

73. Kaur, G., & Kumar, P. (2022). Ibuprofen tagged Imine RT-COF1 as customisable vehicle for controlled drug delivery application. Inorganic Chemistry Communications, 110043 (SCI-Impact Factor - 3.5)

71. Gaurav Awasthi, Pawan Kumar, Relative capability demonstration of luminescent Al-MOFs for ideal nitroaromatic explosive detection, Analytical Methods, Just Accepted, July 2022

70. T. Singh, S. Rarotra, P. Kumar, R. Sharma, V. Sridharan, C. Sonne (2022). Current Perspectives on the environmental applications using conductive metal-organic frameworks (CMOFs) Journal of Porous Materials, 2022 (R.No.- 623a0e0a-808b-4cfb-aa1c-aaac437aa9c1) (In Press) (SCI-Impact Factor - 2.49)

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68. Sharma, A., Kuthiala, T., Thakur, K., Thatai, K. S., Singh, G., Kumar, P., & Arya, S. K. (2022). Kitchen waste: sustainable bioconversion to value-added product and economic challenges, Biomass Conversion and Biorefinery, 1-22 (SCI-Impact Factor - 4.98)

67. P. Kumar, Rajit Sikka, Jechan Lee, Christian Sonne (2022), Aqueous-phase biofunctionalized NH2-MIL53(Al) MOF for biosensing applications, Journal of Porous Materials, 2022 DOI: 10.1007/s10934-021-01192-z (In Press) (SCI-Impact Factor - 2.49),

66. S. Rarotra, P. Kumar, S. Satyabrata, P. Kumar, K H Kim (2022), Transformation of recovered cobalt from lithium-ion batteries into zeolitic imidazolate framework-67, Journal of Material Cycles and Waste Management, In Press 2022 (SCI-Impact Factor - 2.85).

65. R. Chaudhary, M. Garg, G. Singh, S. Rarotra, S K Arya, P. Kumar, Current status of Xylanase for biofuel production: a review on classification & characterization, Biomass Conversion and Biorefinery In Press (2021) (SCI-Impact Factor - 4.9)

64. Nikhar S. Sahu P., Rarotra S., Kumar P., (2021) Biological metal organic framework for

detection of voltaic organic compounds (VOC's), Inorganic Chemistry Communications, 130, 2021, 108711(Impact Factor: 1.9)

63. Rarotra S., Sahu S., Kumar P., Kim K.-H.,, Lisak G. (2020) Progress and Challenges on Battery Waste Management: A Critical Review. ChemistrySelect. In Press. JR

62. Kumar P., Kim K.-H., Lee J., Shang J., Khazi M.I., Kumar N., Lisak G. (2020) Metal-organic framework for sorptive/catalytic removal and sensing applications against nitroaromatic compounds. Journal of Industrial and Engineering Chemistry, 84, 87-95 (SCI-Impact Factor - 4.9).

61. Bansal V., Hashemi B., Raza N., Kim K.-H., Raza W., Kumar P., Brown R.J.C. (2020) Review of the analytical methods for and clinical impact of additives and flavors used in electronic cigarettes, Exposure and Health,DOI: https://doi.org/10.1007/s12403-019-00331-x In Press (SCI-Impact Factor - 4.5)

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59. Kumar P., Vejerano E., Khan A., Lisak G., Ahn J. H., Kim K. H. (2019) Metal organic frameworks (MOFs) : Currents trends and challenges in control and management of air quality applications, Korean Journal of Chemical Engineering 36(11), 1839-53. (Invited Paper)

58. Kumar P., Anand B., Tsang Y. F., Kim K.H., Khullar S., Wang B. (2019), Regeneration, Degradation, and Toxicity Effect of MOFs: Opportunities and Challenges. Environmental Research.176, 108488 (SCI-Impact Factor - 4.73)

57. Kumar P.,Kim K.-H., Mehta P.K., Ge L., Lisak G. (2019) ,lProgress and challenges in electrochemical sensing of volatile organic compounds using metal organic frameworks, Critical Reviews of Environmental Science & Technology. 1-33 (SCI-Impact Factor -7.68)

56. Azzouz A., Kailasa S. K., Kumar P., Ballesteros E., Kim K.-H. (2019), Advances in functional nanomaterial-based electrochemical techniques for screening of endocrine disrupting chemicals in various sample matrices, Trends in Analytical Chemistry. 113, 256 -279 (SCI-Impact Factor: 7.04)

55. Azzouz A., Kailasa S. K., Kumar P., Ballesteros E., Kim K.-H. (2019), Advances in functional nanomaterial-based electrochemical techniques for screening of endocrine disrupting chemicals in various sample matrices. Trends in Analytical Chemistry. In Press. (SCI-Impact Factor: 7.04)

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53. Singh J., Dutta T., Kim K.-H., Rawat M., Samddar P., Kumar P. (2019)‘Green’ synthesis of metals and their oxide nanoparticles: Applications for environmental remediation. Journal of Nanobiotechnology 16, 84 (SCI-Impact Factor: 5.29)

52. Kumar P., Kim K.-H., Saneja A., Wang B., Kukkar M. (2018) Biological hierarchically structured porous materials (Bio-HSPMs) for biomedical applications, Journal of Porous Materials. In Press (Impact Factor: 1.85)

51. Kumar Vanish, Pawan Kumar, Anastasia Pournara, Kowsalya Vellingiri, and Ki-Hyun Kim (2018) Nanomaterials for the sensing of narcotics: challenges and opportunities TrAC Trends in Analytical Chemistry, 106, 84-115 (Impact Factor: 7.034)

50. Sang-Hee Jo , Min-Hee Lee , Ki-Hyun Kima, Pawan Kumar, Characterization and flux assessment of airborne phthalates released from polyvinyl chloride consumer goods, Environmental Research 165 (2018) 81–90 (Impact Factor: 3.83)

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46. Kumar P., Kim K.-H., Kowsalya V., Samaddar P., Kumar P. Deep A., Kumar N. (2018) Hybrid porous thin films: Opportunities and Challenges for sensing application, Biosensors and Bioelectronics, In Press (Impact Factor: 8.3).

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35. Y Kim, Eilhann Kwon, Ki-Hyun Kim, P Kumar (2017), Metal-organic frameworks as superior media for thermal desorption-gas chromatography application: A critical assessment of MOF-5 for the quantitation of airborne formaldehyde. Microchemical Journal, 132, 219-226 (Impact Factor - 3..03)

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K.-H. (2016) Atmospheric Pollution Research xxx, 1-5 (Impact Factor- 1.40)

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21. Practical utilization of nanocrystal metal organic framework biosensor for parathion specific recognition, Kumar P., Kim H.K., Bansal V., Paul K. A., Deep A., Microchemical Journal, 2016 (Impact Factor: 3.88).

20. Identification of nitrogen dioxide and ozone source regions for an urban area in Korea using back trajectory analysis. Vellingiri K., Kim H. K., Lim M. J., Lee H. J, Ma J. C., Jeon H. B., Sohn R. J., Kumar P., Kang H. C., Atmospheric Research 176-177 (2016) 212-221 (Impact Factor: 2.88).

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18. Progress in the biosensing techniques for trace-level heavy metals, Mehta J. , Bhardwaj K S.., Bhardwaj N., Paul K. A., Kumar P.,. Kim H. K., Deep A. (2016). Biotechnology Advances. 34 (2016) 47-60 (Impact Factor: 9.01).

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1. Akash Deep, Parveen Kumar, Pawan Kumar, Amit L Sharma, Bina Gupta, Lalit M Bharadwaj, Recovery of Pure ZnO Nanoparticles from Spent Zn-MnO2 Alkaline Batteries, Environmental sciences & Technology (ACS) 2011, 45 (24), 10551–10556 (Impact Factor: 5.3).

Published Books/Chapters

- Gagandeep Kaur, Pooja Upadhyay, Karan Basve, Pawan Kumar, Covalent Organic Framework: An Introduction (2022)
- eBook ISBN -9781003206507 (Covalent Organic Framework: | 1 | An Introduction | Gagandeep Kaur, Po (taylorfrancis.com))
- Ambika Devi, Prism Bhardwaj, Pawan Kumar, MOF-derived Smart Sensors, Challenges and Future Perspectives (2022)
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- Amita Chaudhary, Baijnath, Prism Bharadwaj, Pawan Kumar vand Ashok Bhaskarwar, Bimetallics and Mixture of Metal (Core-Shell
- Microspheres), Encyclopedia of Sensors and Biosensors: : CH 00034, Elsevier 2021 (Bimetallics and Mixture of Metal (Core-Shell Microspheres) - ScienceDirect)
- Rajit Sikka, Suresh Kumar, Saptak Rarotra, Pawan Kumar, Carbon-Based Materials for Photo electrochemical Water Splitting, Nanostructured Materials For Photoelectrochemical Water Splitting, IOP, 2021 (Carbon-based materials for photo electrochemical water splitting - Book chapter - IOPscience)
- Kumar P., Bansal V, Kim H.K., Metal Semiconductor Core-shell Nanostructures for Solar Energy and Environmental Applications, Elsevier Ltd. 2016 (Invited Author) (Metal Semiconductor Core-Shell Nanostructures for Energy and Environmental Applications | ScienceDirect)
- Pawan Kumar, Ki- Hyun Kim, Vasudha Bansal, Naresh Kumar, A. N. Bhaskarwar, Core–shell nanostructures as a platform for sensing applications" from your book "Metal Semiconductor Core-shell Nanostructures for Energy and Environmental Applications, DOI: http;//dx.doi.org/10.1016/B978-0-323-44922-9.00008-9, Copyright@2017 Elsevier Inc.
- Vasudha Bansal, Pawan Kumar, Satish K. Tuteja • Mohammed Wasim Siddiqui • Kamlesh Prasad, Plant Secondary Metabolites: Volume 3 Their Roles in Stress Ecophysiology, Volume 3, Publisher: Appe Academic Press, USA, Editor: Mohammed Wasim Siddiqui, Vasudha Bansal, ISBN: 9781771883