PAWAN KUMAR

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Short Biography

Dr. Pawan Kumar obtained his Ph.D. (Engineering) from the Academy of Scientific and Innovative Research - *Central Scientific Instruments Organization* (AcSIR-CSIO), Chandigarh (India). He was a post-doctoral fellow at Hanyang University Seoul form 2014 to 2016 and then joins as Young Scientist (SERB-DST) at Department of Chemical Engineering, Indian Institute of Technology (IIT), New Delhi, India from April 01, 2016 to July 21, 2016. Recently, he joined as an Assistant Professor at Department of Nano Sciences and Materials, Central University of Jammu, Jammu. Apart from this, he is involved in the different collaborative tasks such as development of novel electrode materials for heavy energy storage devices, sensors, porous materials based environmental and clinical applications at IIT, Delhi, Hanyang University, Seoul, South, University of Ioannina, Greece, and CAS - University of Science and Technology of China (USTC) Hefei, P. R. China. He was awarded Young Scientist by Dept. of Science of Technology, New Delhi, India and 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. He has published over 29 scholarly articles in SCI journals.

Working History

- Currently working as **Assistant Professor, Dept. of Nano Science and Materials Central University of Jammu, Jammu.**
- Worked (**April 01, 2015 to July 19, 2016**) as Young Scientist (SERB-DST) at Department of Chemical Engineering, **Indian Institute of Technology (IIT), New Delhi, India.**
- Worked (**July 2014 to Jan 2016**) as Post-Doctoral Fellow,Dept. of Civil and Environmental Engineering, **Hanyang University, Seoul, South Korea.**
- Senior Research Fellow (SRF) from **Council of Scientific and Industrial Research (CSIR), New Delhi, India** from Feb.01, 2011 to July 2014.
- Junior Research Fellow (JRF) from **Council of Scientific and Industrial Research (CSIR), New Delhi, India** from Feb.01, 2010 to Jan. 31, 2011.

Professional/Scientific Recognition

- Editorial Member of **International journal of Nanoscience and technology (Peer-Review).**
- **Reviewer of many SCI journals.**
- Lifetime membership of **Indian Carbon Society (ICS), India.**
- Membership (Lifetime) of **Haryana State Pharmacy Council (HPSC), Panchkula.**
- Membership (Annual) of **American Chemical Society (ACS), USA.**
- Membership (Annual) of **International Association of Computer Application and Information Technology (IACSIT), Singapore.**
- Membership (Annual) of **Indian Science Congress Association (INSA), Kolkata.**

Academic Qualification

- 2014- **PhD (Engineering)**, Nanotechnology Lab, **Academy of Scientific & Innovative Research (AcSIR-CSIO), Chandigarh (INDIA).**
- 2010- **M. Tech.** (Nanotechnology), **Kurukshetra University, Kurukshetra (INDIA).**
- 2008 - **B. Pharmacy**, **Kurukshetra University, Kurukshetra (INDIA).**

Fellowship & Awards:

- '**Young Scientis**t' 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** (July 2014 to Jan 2016) **by Hanyang University, Seoul, South Korea.**
- **Post-Doctoral Fellowship** (2015-16) **by IIT, Kanpur.**
- **Five Year Post-Doctoral Fellowship for SC/ST (**2015-2020) **by UGC, NEW Delhi**
- **Senior Research Fellowship (SRF)** from **Council of Scientific and Industrial Research (CSIR), New Delhi, India** from Feb.01, 2011 to July 2014.
- **Nominated for** *Nehru-Fulbright Fellowship-2013 and Robert S. McNamara Fellowships (RSM)-2013* in **Michigan Technological University Houghton, MI 49931, USA.**

- **DST travel grant** for oral presentation and attending the **International Conference in Key Engineering Materials (ICKEM-2012), Singapore.**
- **Junior Research Fellowship (JRF)** from **Council of Scientific and Industrial Research (CSIR), New Delhi, India** from Feb.01, 2010 to Jan. 31, 2011.
- **JRF (GATE) CSIR award** on the basic of **GATE-2008** Conducted by **Indian institute of sciences (IISC), Bangalore**
- **GATE 2010** (Biotechnology) & **GATE 2008** (Pharmaceutical Sciences) Qualified conducted by **Indian institute of sciences (IISC), Bangalore & Indian Institute of Technology (IIT), Guwahati.**
- **1st prize** winner in **inter collage science quiz-2004** conducted by **MD University, Rohtak (INDIA).**

List of SCI Publications (31)

Total SCI Impact Factor: 189.90 & Total Citations: 160

31. **Kumar P.,** Kim K.-H., Bansal V., Kumar S., Dilbaghi N., Kim Y.-H. (2017) Modern progress and future challenges in nanocarriers for probe applications. Trends in Analytical Chemistry. In Press (Impact Factor- 7.4)

30. Nguyen H.T., Kwon E.E., Kim K.-H., Pandey S.K., Chambers S., **Kumar P.,** Kang C.- H., Cho S.-J., Oh J.-M., Brown R.J.C. (2017) Factors regulating the distribution of O3 and NOx at two mountainous sites in Seoul, Korea. Atmospheric Pollution Research. In Press. **(Impact Factor- 1.40)**

29. Advanced polymeric materials: Synthesis and analytical application of ion imprinted polymers as selective sorbents for solid phase extraction of metal ions, Shakerian F., Kim K.-H., Kwon E., Szulejko J.E., **Kumar P.**, Dadfarnia S., Shabani A.M.S. (2016) Trends in Analytical Chenistry. 83, 55-69 (Impact Factor- 7.48)

28. .Coordination polymers: Challenges and future scenario for capture and degradation of volatile organic compounds, Vellingiri K., **Kumar P.,** Kim K.H. (2016). Nano Research In Press **(Impact Factor- 8.893)**

27. A review of metal organic resins for environmental applications, **Kumar P.,** Kim H. K., Kim H. Y., Szulejko E. J., C. J.R. Brown (2016) Journal of Hazardous Materials 320, 234-240 **(Impact Factor- 4.83)**

26. Global warming projections to 2100 using simple CO_2greenhouse gas modeling and comments on CO_2 climate sensiti vity factor, Szulejko J.E., **Kumar P**., Deep A., Kim K.-H. (2016) Atmospheric Pollution Research xxx, 1-5 **(Impact Factor- 1.40)**

*25.*Dutta, Tanushree; Kim, KiHyun; Uchimiya, Minori; **Kumar, Pawan;** Das, Subhasish; Bhattacharya, Satya Sundar; Szulejko, Jan The micro-environmental impact of volatile organic compound emissions from large-scale assemblies of people in a confined space, Environmental Research, vol. 151, pp. 304-312 (**Impact Factor: 3.0)**

24. Metal organic frameworks as sorption media for volatile and semi-volatile organic compounds at ambient conditions, Vellingiri K, Szulejko E. J., **Kumar P.**, Kwon E.E., Kim H. K., W. D. Boukhvalov, Brown J. C. R.. Nature Scientific Reports, 2016, In Press **(Impact Factor: 5.578).**

23. Measurements of major VOCs released into the closed cabin environment of different automobiles under various engine and ventilation scenarios, K.-H. Kim, J.E. Szulejko, H.-J. Jo, M-H. Lee, Y.-H. Kim, E. Kwon, C.-J. Ma, **P. Kumar,**. Environmental Pollution, 2016, In Press **(Impact Factor: 4.10).**

22. Recent progress and innovation in carbon capture and storage using bioinspired materials, **Kumar P.**, Kim H.K., Applied Energy, 172 (2016) 383-397 **(Impact Factor: 5.88).**

*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).**

19. Biological applications of zinc imidazole framework through protein encapsulation, **Kumar P.**, Bansal V., Paul K. A., Bharadwaj M. L., Deep A., Kim H.K., Applied Nanoscience, (2016) 1-7 **(Impact Factor: Counting).**

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**).

17. *Metal organic frameworks for the control and management of air quality: Advances and future direction***, Kumar P.**, Kim H. K.,. **Journal of Material Chemistry A**, 4 (2016) 345-361**(Impact Factor: 7.44)**
16. *Immunosensing of atrazine with antibody-functionalized Cu-MOF conducting thin films,* **Kumar P.**, Kim H. K.., Deep A., **ACS Applied Materials and Interface** *7* (47) (2016) 26124–26130 **(Impact Factor: 6.72)**
15. *Review of the quantification techniques for polycyclic aromatic hydrocarbons (PAHs) in food products,* Bansal V, **Kumar P.**, Kwon E., Kim H. K., **Critical Reviews in Food Science and Nutrition** (2016) **DOI:** 10.1080/10408398.2015.1116970 **(Impact Factor: 5.1)**
14. *Metal Organic Frameworks for Sensing Applications* **Kumar P.**, Deep A., Kim H. K., **Trends in Analytical Chemistry** 73 (2015) 39-53 **(Impact Factor: 6.6).**
13. *Recent advancements in sensing techniques based on functional materials for organophosphate pesticides,* **Kumar P.**, Deep A., Kim H. K., **Biosensors and Bioelectronics** 70 (2015) 469–481 **(Impact Factor: 6.4).**
12. *Coordination polymers: Opportunities and challenges for monitoring volatile organic compounds***, Kumar P.**, Deep A., Kim H. K., Brown C. J. R., , **Progress in Polymer Science** 45 (2015) 102–118, **(Impact Factor: 26.8).**
11. *Surface Assembly of Nano Metal Organic Framework on an Amine Functionalized Screen Printed Electrode for Impedimetric Sensing of Parathion,* **Kumar P.**, Deep A., Kim H. K., Kim H. K **Biosensors & Bioelectronics**, 03(2015), 65:226-231. **(Impact Factor: 6.4).**

10. *Synthesis and energy applications of Metal Organic Frameworks,* ,**Kumar P.**, Deep A., Kim H. K., **Journal of Porous materials** 22 (2015) 413–424, **(Impact Factor: 1.3).**
9. *Assembly of europium organic framework–gold nanoparticle composite thin films on silicon Substrate,* Deep A., Kaur R., Kumar P., Kumar P., Paul K. A., **Thin Solid Films** 565 (2014) 7–10 **(Impact Factor: 1.3).**
8. *Sensitive Chemosensing of Nitro Group Containing Organophosphate Pesticides with MOF-5***, Kumar P.,** Paul K. A., Deep A., **Mesoporous and Microporous Material** (2014) 195, 60–66 **(Impact Factor: 3.3).**
7. *Bioconjugation of Luminescent Nanocrystal Metal Organic Framework for Molecular Sensing***, Kumar P.,** Paul K. A., Deep A., Bharadwaj M. L.,. **Inorganic Chemistry Communication**, (2014) 43, 114-117 **(Impact Factor: 2.01).**
6. *Luminescent Nanocrystal Metal Organic Framework Based Chemosensing of organophosphate pesticides***, Kumar P.,** Paul K. A., Deep A., **Analytical Methods (**2014) **6**, 4095-4101 **(Impact Factor: 1.93).**
5. *Bioconjugation of MOF-5 for Molecular Sensing* ,**Kumar P.,** Paul K. A., Deep A., Bharadwaj M. L., **Journal of Porous materials** (2014) 21 (1), 99-104 **(Impact Factor: 1.3).**
4. *Aqueous synthesis of l-cysteine stabilized water-dispersible CdS: Mn quantum dots for biosensing applications,* Kumar P., **Kumar P**., Deep A., Bharadwaj M. L., Paul K. A., Sharma C. S., Kush P., Deep A., , BioNanoSci. (2013) 3:95–101 **(Impact Factor: Counting).**
3. *Doped Zinc-Organic Framework for Sensing of Pesticide* **Kumar P.,** Kumar P., Deep A., Bharadwaj M. L., , *Advanced Materials Research* (2013) 488-489, 1543.
2. *Synthesis and Conjugation of ZnO Nanoparticles with Bovine Serum Albumin for biological applications* **Kumar P.,** Kumar P., Deep A., Bharadwaj M. L.,. Applied Nanoscience (2013) 3,141–144 **(Impact Factor: Counting).**
1. *Recovery of Pure ZnO Nanoparticles from Spent Zn-MnO2 Alkaline Batteries,* Deep A., Kumar P., **Kumar P.**, Sharma L. A., Gupta B., Bharadwaj M. L, , *Environmental sciences & Technology (ACS)* 2011, *45* (24), 10551–10556 **(Impact Factor: 5.3).**

Published Book chapter:

- *Metal Semiconductor Core-shell Nanostructures for Solar Energy and Environmental Applications*, **Kumar P.**, Bansal V, Kim H.K., Elsevier Ltd. 2016 (Invited Author)
- Secondary Metabolites: Volume 3 Their Roles in Stress Ecophysiology, Bansal V, **Kumar P.**, Kim H.K., Bansal V., **Kumar P.**, Tuteja K.S., Siddiqui W. M., Prasad K., Plant Volume 3, Publisher: Appe Academic Press, USA, Editor: Siddiqui W. M., Bansal V., ISBN: 9781771883573.

Workshops/ Training Attended

- Training Programme on **" Technology Led Entrepreneurship "** of **HRDG,CSIR –Hq, New Delhi** conducted by Faculty of **Indian Institute of Management (IIM) , Bangalore from** July 4-18,2011 **at Indian Institute of Chemical Technology(IICT) ,Hyderabad.**

- Organizing member in International conference on "Nano Sensors & Technology" (**ICNST-2011**) from October 28- 30, 2010, at **CSIO, Chandigarh, India.**

- Symposium on "**Intellectual Property Rights (IPR**)" 21th October 2010 at **PGIMER**, Chandigarh, **India**

- 3rd Summer Training **School on Pharmaceutical Nanotechnology on Advanced Drug Delivery, from** August 23 -26, 2010 at **National Institute Pharmaceutical Sciences Equation And Research (NIEPR**), S.A.S Nagar, Punjab-160062 from August 23 -26, 2010.

List of Papers Presented in Conferences

- **Pawan Kumar**, Parveen Kumar, A K Paul, Akash Deep, Aqueous synthesis of luminescent Zinc imidazolate Framework for Biological Applications, Oral Presentation in IUMRS-ICA2013, from Dec.16 - 20, 2013, IISc, Bangalore (**India).**
- **Pawan Kumar,** Parveen Kumar, Akash Deep, A K Paul A Luminescent Nanocrystal Metal Organic Framework synthesized in Aqueous Medium, Poster presentation in ICIACS-2013 from Oct 30 -2 Sept. 2013, Punjab University, Chandigarh (**India).**
- **Pawan Kumar,** A K Paul, Akash Deep, Ultra-Sensitive Chemosensing of Paraoxan with MOF-5, Oral presentation in NCIMSF-2013 from 24 - 26 Oct. 2013, Thapar University, Patiala (**India).**
- **Pawan Kumar,** Parveen Kumar, Akash Deep, A K Paul Aqueous Synthesis Of Zn-BDC for biological application, Oral presentation in CHASCHON-2013 from 1-3 July, 2013, Punjab University, Chandigarh (**India).**
- **Pawan Kumar**, Parveen Kumar, L. M. Bharadwaj, Akash Deep Aqueous Synthesis of Zeolitic Imidazolate Framework. (172341182) Oral Presentation in ETMN -2013, from 23 -24 Feb.2013, BITS, Goa Campus, (**India).**
- Akash Deep, Anju Joshi, **Pawan Kumar**, Parveen Kumar, Conjugation of Cl-CNT with Quantum dots for Optoelectronics applications (B07-18), Oral Presentation in AMPCO -2012, from 2-4 Nov.2012, IIT, Roorke **(India).**
- Varun Kumar, Parveen Kumar, **Pawan Kuma**r L. M. Bharadwaj, Akash Deep, Biofunctionlized Graphene –Indian Tin Oxide Hetro junction for sensing of bovine serum albumin, Poster presentation in National symposium on Instrumentation (NSI-37) from 30 October-1- November 2012, CSIR-CSIO,Chandiagrh (**India)**
- **Pawan Kumar**, Parveen Kumar, Akash Deep, Lalit M Bharadwaj, Protein Encapsulation in Zinc Imidazole Framework for Nano Biomedical

Delivery Applications, Poster presentation in Chemical Constellation Cheminar-2012 from Sept-10-12, 2012, CSIR-CSIO, Chandigarh (**India)**

- **Pawan Kumar**, Parveen Kumar, Akash Deep, Lalit M Bharadwaj, Doped Zinc-Organic Framework for Sensing of Pesticide, Oral Presentation in International Conference on Key Engineering Materials (ICKEM- 2012), from 26 -28 Feb.2012, Singapore **(Singapore).**
- Akash Deep, Parveen Kumar, **Pawan Kumar**, Lalit M Bharadwaj, Recovery of Pure ZnO Nanoparticles from Spent Zn-MnO2 Alkaline Batteries, Oral Presentation in International Conference on Nanoscience & Technology (ICNANO-2011), from 18 -21 Dec.2011, University of Delhi, New Delhi (**India).**
- Parveen Kumar**, Pawan Kumar**, Akash Deep, Lalit M Bharadwaj, Conjagation Of Ingap Quantum Dots With Proteins For Immuno histochemistry Application, Poster presentation in World Congress on Biotechnology"Biotechnology-2011" from March 21-23, 2011, HICC, Hyderabad (**India).**
- Parveen Kumar**, Pawan Kumar**, Akash Deep, Lalit M Bharadwaj, An Exploratory Study on Conjugation of ZnO Nanoparticles with Bovine Serum Albumin, Oral Presentation in 3rd Summer International School On Nanotechnology in Advanced Drug Delivery, August 23 -26, 2010, National Institute Pharmaceutical Sciences Equation And Research (NIEPR), S.A.S Nagar, Punjab (**India).**
- Parveen Kumar ,**Pawan kumar**, Aksah Deep, Sukesh Chander Sharma, Lalit M Bharadwaj, QD-Protein Probe Development and Characterization as Label for Ultrasensitive Detection of Protein for Diseases Diagnosis Poster presentation in International conference on "Nano Sensors & Technology" from October 28- 30, 2010, CSIO, Chandigarh (**India).**

- Akash Deep, Amit L. Sharma, **Pawan Kumar**, Parveen Kumar and Lalit M Bharadwaj, Immobilization of Biotinylated Antibodies on Conducting Polyaniline coated Microcantilever for Immunosensing, Poster presentation in **International conference on "Nano Sensors & Technology**" from October 28- 30, 2010, CSIO, Chandigarh (**India).**

(Pawan Kumar)