

PRAKASH KANOO, PhD

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Department of Chemistry
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PROFESSIONAL APPOINTMENT

March 2016 – Present : Assistant Professor (Chemistry), Central University of Haryana, Mahendergarh, Haryana
Jan 2016 – Feb 2016 : DST Young Scientist with **Prof. GR Desiraju**, IISc, Bangalore
Dec 2014 – Dec 2015 : Research Associate with **Prof. GR Desiraju**, IISc, Bangalore
May 2012 – May 2014 : JSPS postdoctoral research fellow with **Prof. Susumu Kitagawa**, Kyoto University, Japan
Jan 2006 – Jun 2007 : R&D Assistant, Department of Chemistry, Assam University, Silchar, Assam

EDUCATION

July 2007 – May 2012 : PhD in Materials Science (Chemistry), JNCASR, Bangalore
2005 : MSc, Inorganic Chemistry, Department of Chemistry, Assam University, Silchar, Assam
2003 : BSc, Chemistry, Karimganj College (Assam University), Karimganj, Assam
1999 : HSSLC, Karimganj College (AHSEC), Karimganj, Assam
1997 : HSLC, Isabheel HS School (SEBA), Isabheel, Karimganj, Assam

AWARDS AND FELLOWSHIPS

2018 **Nominated as Young Scientist** by Vice-Chancellor, Central University of Haryana to attend IISF-2018 held in Lucknow, October 2018.
2018 Admitted as an **Associate Member of Royal Society of Chemistry**, London in Sept. 2018.
2017 **Early Career Research Award**, May 2017, from Science and Engineering Research Board, New Delhi.
2015 **Start-Up Research Grant**, June 2015, from Science and Engineering Research Board, New Delhi.
2015 **DS Kothari Postdoctoral Fellowship** (2015-2018), March 2015, from UGC.
2012 **JSPS Postdoctoral Research Fellowship** awarded by Japan Society for the Promotion of Science, Japan 2012-2014.
2011 **ICAM-I2CAM Junior Travel Award** for attending 'Nanoporous Materials and Their Applications', a GRC Conference held at Holderness, NH, USA during August 2011.
2010 **Poster Award** in International Winter School on Chemistry and Physics of Materials, 2010 at JNCASR jointly organized by JNCASR, Bangalore and University of Cambridge, UK.
2010 **Foreign Travel Grant** from CSIR, India for attending International Conference on Metal-Organic Frameworks, MOF2010 held at Marseilles, France during Sept. 2010.
2007 Awarded **Junior Research Fellowship** by CSIR, Govt. of India in 2007 (Senior Research Fellowship from 2009).
2007 Qualified **GATE - 2007**, conducted by Indian Institute of Technology, Kanpur (**All India Rank 45**; Percentile 99.04).
2006 **Certificate of appreciation by Govt. of India** for witnessing Republic Day Parade 2006 at Rajpath, New Delhi from Prime Ministers Box as a guest of honorable prime minister of India (for securing 1st class 1st position in MSc Chemistry).
2005 Awarded **Gold Medal** by Assam University, Silchar for securing 1st class 1st position in MSc Chemistry.

RESEARCH INTERESTS

1. Catalysis/Electro-catalysis Using MoS₂ Integrated Hybrid Materials
2. Solubility/Permeability Study of APIs by Making Cocrystals/Loading APIs in Hybrid Polymer Matrices
3. Design, Synthesis and Adsorption Science of MOFs/PCPs

RESEARCH FUNDING

1. Early Career Research (ECR) Grant from Science and Engineering Research Board, New Delhi for the duration 2018-2021 (Project Sanctioned in 2017, Sanctioned Amount 39.99 lacs)
2. Start Up Research Grant (Young Scientists) from Science and Engineering Research Board, New Delhi for the duration 2015-2018 (Sanctioned Amount 32 lacs, Withdrawn in 2016 for submitting ECR Application)

Total Number of Publications – 27

Average Impact Factor – 5.3

Total Citations – 1170

h-index – 19

1. Fragile magnetic ground state of a spin - $\frac{1}{2}$ metal-organic kagomé lattice, A. Jain, S. M. Yusuf, **P. Kanoo**, S. K. Dhar and T. K. Maji
Phys. Rev. B. (Rapid Commun.), 101, 140413(R) (2020). (IF: 3.7)
2. Pseudo gated adsorption with negligible volume change evoked by halogen bond interaction in the nanospace of PCPs/MOFs, **P. Kanoo**, R. Matsuda, H. Sato, L. Li, N. Hosono and S. Kitagawa
Chem. Eur. J., 26, 2148 (2020). (IF: 5.2)
3. Metal-organic frameworks as platform for Lewis acid catalyzed organic transformations, A. Yadav, **P. Kanoo**
Chem. Asian J., 14, 3531 (2019). (IF: 3.7)
(Invited Review Article published in the Special Issue: MOFs and Their Applications)
(Top 10% downloaded paper 2018-19, *Chem. Asian J.*, Wiley)
4. Gated and stepwise sorption processes in functional metal-organic frameworks, Functional Supramolecular Materials: From Surfaces to MOFs (Chapter 12), **P. Kanoo**, R. Haldar, P. Sutar, A. Chakraborty and T. K. Maji
The Royal Society of Chemistry, Pages 412-453 (2017). (IF: NA)
5. Crystal dynamics in multi-stimuli responsive entangled metal-organic frameworks, **P. Kanoo**, R. Haldar, S. K. Reddy, A. Hazra, S. Bonakala, R. Matsuda, S. Kitagawa, S. Balasubramanian and T. K. Maji
Chem. Eur. J., 22, 15864 (2016). (IF: 5.2)
6. A crystalline porous coordination polymer decorated with nitroxyl radical catalyzes aerobic oxidation of alcohols, L. Li, R. Matsuda, I. Tanaka, H. Sato, **P. Kanoo**, H. J. Jeon, M. L. Foo, A. Wakamiya, Y. Murata, and S. Kitagawa
J. Am. Chem. Soc., 136, 7543 (2014). (IF: 14.7)
7. Densely fluorinated nanospace of a porous coordination polymer composed of perfluorobutyl-functionalized ligand, H. J. Jeon, R. Matsuda, **P. Kanoo**, H. Kajiro, L. Li, H. Sato, Y. Zheng and S. Kitagawa
Chem. Commun., 50, 10861 (2014). (IF: 6.2)
8. Two 3D metal-organic frameworks of Cd(II): Modulation of structures and porous properties based on linker functionalities, R. Haldar, S. Bonakala, **P. Kanoo**, B. Sundaram and T. K. Maji
CrystEngComm, 16, 4877 (2014). (IF: 3.4)
9. In situ generation of functionality in a reactive haloalkane-based ligand for the design of new porous coordination polymers, **P. Kanoo**, R. Matsuda, H. Sato, L. Li, H. J. Jeon and S. Kitagawa
Inorg. Chem., 52, 10735, (2013). (IF: 4.9)
10. Topological difference in 2D layers steers the formation of rigid and flexible 3D supramolecular isomers: Impact on adsorption properties, **P. Kanoo**, R. Matsuda, R. Kitaura, S. Kitagawa and T. K. Maji
Inorg. Chem., 51, 9141, (2012). (IF: 4.9)
11. Unusual room temperature CO₂ uptake in a fluoro-functionalized MOF: Insights from Raman spectroscopy and theoretical studies, **P. Kanoo**, S. K. Reddy, G. Kumari, R. Haldar, C. Narayana, S. Balasubramanian and T. K. Maji
Chem. Commun., 48, 8487 (2012). (IF: 6.2)
12. Water adsorbing silver-adenine interpenetrated framework, J. Kumar, **P. Kanoo**, T. K. Maji and S. Verma
CrystEngComm, 14, 3012 (2012). (IF: 3.4)
13. A metal-organic framework with highly polar pore surface: Selective gas adsorption and guest-dependent luminescence properties, **P. Kanoo**, A. C. Ghosh, S. T. Cyriac and T. K. Maji
Chem. Eur. J., 18, 237 (2012). (IF: 5.2)
14. Coordination driven axial chirality in a microporous solid assembled from an achiral linker *via in situ* C-N coupling, **P. Kanoo**, Ritesh Haldar, Soumya T. Cyriac and Tapas Kumar Maji
Chem. Commun., 47, 11038 (2011). (IF: 6.2)
15. A pillared-bilayer porous coordination polymer with a 1D channel and a 2D interlayer space, showing unique gas and vapor sorption, **P. Kanoo**, G. Mostafa, R. Matsuda, S. Kitagawa and T. K. Maji
Chem. Commun., 47, 8106 (2011). (IF: 6.2)
16. A vanadium (VO²⁺) metal-organic framework (MOF) as a precursor for a polyoxovanadate: Selective vapour adsorption and interesting magnetic properties of the MOF, **P. Kanoo**, A. C. Ghosh and T. K. Maji
Inorg. Chem., 50, 5145 (2011). (IF: 4.9)
17. Guest-specific double- or single-step adsorption in a flexible porous framework based on a mixed-ligand system, **P. Kanoo**, R. Sambhu, and T. K. Maji
Inorg. Chem. (Communication), 50, 400 (2011). (IF: 4.9)
18. High heat of hydrogen adsorption and guest-responsive magnetic modulation in a 3D porous pillared-layer coordination framework, A. Hazra, **P. Kanoo** and T. K. Maji
Chem. Commun., 47, 538 (2011). (Emerging Investigators Issue) (IF: 6.2)
19. Vanadyl(IV) complexes of 4-alkoxy substituted [N,O] donor salicylaldimine Schiff base derived from chloro-/nitro-aniline: Synthesis, mesomorphism and DFT study, C. R. Bhattacharjee, G. Das, D. D. Purkayastha, **P. Kanoo** and P. Mondal
J. Coord. Chem., 64, 2746 (2011). (IF: 1.7)

20. A flexible supramolecular host with a crowned chair octameric water cluster and highly selective adsorption properties, A. Hazra, **P. Kanoo**, S. Mohapatra, G. Mostafa and T. K. Maji
CrystEnggComm, 12, 2775 (2010). (IF: 3.4)
21. Tunable emission from a porous metal-organic framework by employing an excited-state intramolecular proton transfer responsive ligand, K. Jayaramulu, **P. Kanoo**, S. J. George and T. K. Maji
Chem. Commun., 46, 7906 (2010). (IF: 6.2)
22. Construction of 2D rectangular grid to 3D diamondoid interpenetrated frameworks and their functionalities by changing the second spacers, **P. Kanoo** and T. K. Maji
Eur. J. Inorg. Chem., 3762 (2010). (IF: 2.6)
23. Versatile functionalities in MOFs assembled from the same building units: Interplay of structural flexibility, rigidity and regularity, **P. Kanoo**, K. L. Gurunatha and T. K. Maji
J. Mater. Chem., 20, 1322 (2010). (Emerging Investigators Issue) (IF: 6.6)
24. New interpenetrated copper coordination polymer frameworks having porous properties, **P. Kanoo**, R. Matsuda, M. Higuchi, S. Kitagawa and T. K. Maji
Chem. Mater., 21, 5860 (2009). (IF: 10.2)
25. A planar Cu²⁺ (S = ½) kagomé network pillared by 1,2- bis(4-pyridyl)ethane with interesting magnetic properties, **P. Kanoo**, C. Madhu, G. Mostafa, T. K. Maji, A. Sundaresan, S. K. Pati and C. N. R. Rao
Dalton Trans. (Communication), 5062 (2009). (Highlighted on the Cover Page) (IF: 4.1)
26. Temperature controlled synthesis of metal-organic coordination polymers: Crystal structure, supramolecular isomerism, and porous property, **P. Kanoo**, K. L. Gurunatha and T. K. Maji
Cryst. Growth Des., 9, 4147 (2009). (IF: 4.2)
27. Syntheses, crystal structures, and adsorption properties of ultramicroporous coordination polymers constructed from hexafluorosilicate ion and pyrazine, K. Uemura, A. Maeda, T. K. Maji, **P. Kanoo** and H. Kita
Eur. J. Inorg. Chem., 2329 (2009). (Highlighted on the Cover Page) (IF: 2.6)

PAPERS PRESENTED IN CONFERENCES AND SCHOOLS

1. **Talk:** Pseudo gated adsorption with negligible volume change in the nanospace of porous coordination polymers @ CE-FMC, March 2019, NIT Raipur.
2. **Talk:** Pseudo gated adsorption with negligible volume change in the nanospace of PCPs/MOFs @ OrganiX-2018, Tezpur University, Assam.
3. **Talk:** Porous metal-organic frameworks: Design strategy for gas capture and storage @ The National Symposium on Recent Trends in Eco-friendly Chemistry, Sept. 2016, Central University of Haryana.
4. **Poster:** Adsorption of CO₂ facilitated by halogen bond interaction in the nanospace of porous coordination polymers @ ICCO 2016, July 2016, Brest, France.
5. **Poster:** Porous functions in the nanospaces of “flexible” and “not so flexible” metal-organic frameworks @ AsCA Conference, Dec. 2015, Kolkata.
6. **Poster:** In situ generation of functionality in a reactive haloalkane-based ligand for the design of new porous coordination polymers @ UK-Japan workshop on Organic-Inorganic Framework Materials, Oct. 2013, iCeMS, Kyoto University, Kyoto, Japan @JSCC conference, Nov. 2013, Okinawa, Japan.
7. **Poster:** A new porous metal complex having large channels decorated with hydroxyl groups @ Chemical Society of Japan conference, March 2013, Shiga, Japan.
8. **Poster:** Multiple structural changes in flexible coordination polymers ensue gated and selective CO₂ capture: Control of gate pressure by changing functionality of the linkers @International conference on Metal-Organic Frameworks, MOF2012, Sept. 2012, Edinburgh, UK.
9. **Poster:** Coordination driven axial chirality in a microporous solid assembled from an achiral linker *via in situ* C-N coupling @Nanoporous Materials and their Applications, a GRC conference held at Holderness, NH, USA during August 2011 @ Asian Coordination Chemistry Conference, Oct. 2011, Delhi, India.
10. **Poster:** S = ½ (Cu²⁺) kagomé networks pillared by organic linkers with interesting magnetic properties @ Winter School on Chemistry and Physics of Materials, Dec. 2010, JNCASR, Bangalore @ AMPM, June 2010, Manali, India.
11. **Talk:** A dynamic porous solid with selective, gated and hysteretic CO₂ uptake @ Inhouse Symposium, Nov. 2010, JNCASR, Bangalore.
12. **Poster:** New interpenetrated copper coordination polymer frameworks having porous properties @International conference on Metal-Organic Frameworks, MOF2010, Sept. 2010, Marseille, France.
13. **Poster:** Three dimensional 3-fold interpenetrated microporous coordination networks of Cu(II) and H₂-storage property @International conference on Hydrogen Storage, IISc, Jan. 2009, Bangalore.
14. **Poster:** Versatile functionalities in MOFs assembled from same building units: Interplay of structural flexibility, rigidity and regularity @ MTIC 2009, Indian Institute of Science, Bangalore @ Winter School on Chemistry and Physics of Materials, Dec. 2009, JNCASR, Bangalore.
15. **Talk:** Flexible porous metal-organic frameworks derived from Cu(II) and 1,4-naphthalenedicarboxylate @ Conference on Chemistry of Functional Materials, Sept. 2008, Alleppy, Kerala, India.
16. **Poster:** Supramolecular isomerism, framework flexibility and structure-property relationship in metal-organic frameworks @Conference on Chemistry of Functional Materials, Sept. 2008, Alleppy, Kerala, India.

STUDENT SUPERVISION

Ph.D.

- ❖ Three (03) Ph.D. students currently working

Research Assistant

- ❖ One (01) Project Assistant currently working in an ECR project

M.Sc. Research Projects Supervised/Co-supervised (Total 25 Nos)

- ❖ Two (02) M.Sc. Projects (2018-2020 batch) at Central University of Haryana and Co-supervised three (03) students
- ❖ Four (04) M.Sc. Projects (2017-2019 batch) at Central University of Haryana and Co-supervised three (03) students
- ❖ Three (03) M.Sc. Projects (2016-2018 batch) at Central University of Haryana and Co-supervised three (03) students
- ❖ Two (02) M.Sc. Projects (2015-2017 batch) at Central University of Haryana
- ❖ Five (05) M.Sc. Projects (2014-2016 batch) at Central University of Haryana

CONFERENCES ORGANIZED

1. Recent Trends in Eco-friendly Chemistry 2016 (RTEC 2016); Organizing Institute: Central University of Haryana; Role: Organizing Committee Member

TEACHING (M.Sc. batches of 40/50 Students and Ph.D. Students)

- ❖ Symmetry, Structure and Bonding in Inorganic Compounds
- ❖ Electronic Spectra and Magnetic Properties of Transition Metal Complexes
- ❖ Transition Elements, Lanthanides and Actinides
- ❖ Nano Materials and Composites
- ❖ Crystal Engineering and Supramolecular Chemistry
- ❖ Infrared and Raman Spectroscopy
- ❖ Mössbauer and Nuclear Quadrupole Resonance Spectroscopy
- ❖ Bioinorganic Chemistry

COURSES DEVELOPED AT CENTRAL UNIVERSITY OF HARYANA

- ❖ Adsorption Science and Technology (Credits 2)
- ❖ Nanoparticulate Drug Delivery Systems (Credits 2)
- ❖ Introduction to Nanomaterials (Credits 2)

CREDENTIALS

- ❖ Regular reviewer of **Chemical Communications (RSC Journal)**. Reviewer of *Dalton Transactions*, *International Journal of Hydrogen Energy*, *CrystEnggComm*, *RSC Advances*.
- ❖ **Coordinator, UGC-NET Cell** at the Central University of Haryana (Coordinating classes for around 100 students conducted by 5 teachers)
- ❖ **Coordinator, International Students Admission** at the Central University of Haryana
- ❖ **Co-convener, Equal Opportunity Cell** at the Central University of Haryana
- ❖ **Member for publishing information Bulletin 2019** of Central University of Haryana