PRAKASH KANOO, PhD

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PROFESSIONAL APPOINTMENT

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

EDUCATION

2007 – 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 :Admitted as an Associate Member of Royal Society of Chemistry, London in September 2018
2018 :Nominated as Young Scientist by Vice-Chancellor, Central University of Haryana to attend IISF-2018 held in Lucknow, October 2018
2017 :Early Career Research Award, May 2017, from Science and Engineering Research Board, DST, (INR 40 Lacs; duration 3 years).
2015 :Start-Up Research Grant, June 2015, from Science and Engineering Research Board, DST, (INR 32 Lacs; duration 3 years).
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. Metal-Organic Frameworks (MOFs)/Porous Coordination Polymers (PCPs)
2. Adsorption Science of MOFs/PCPs

3. Catalysis Using Porous Materials

RESEARCH PUBLICATIONS

1. Cooperative adsorption of CO_2 evoked by XB interaction in the nanospace of porous coordination polymers, **P. Kanoo**, R. Matsuda, H. Sato, L. Li, N. Hosono and S. Kitagawa
   Submitted (2018)
2. Gated and stepwise sorption processes in functional metal-organic frameworks, **P. Kanoo**, R. Haldar, P. Sutar, A. Chakraborty and T. K. Maji
   Functional Supramolecular Materials: From Surfaces to MOFs (Chapter 12), ***The Royal Society of Chemistry***, Pages 412-453 (2017).
3. 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).
4. 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).
5. 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).
6. 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
   CrystEnggComm**,** 16, 4877 (2014).
7. 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).
8. 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).
9. Unusual room temperature CO_2 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).
10. Water adsorbing silver-adenine interpenetrated framework, J. Kumar, **P. Kanoo**, T. K. Maji and S. Verma
    CrystEnggComm.**,** 14, 3012 (2012).
11. 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).
12. 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).
13. 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).
14. A vanadium (VO^{2+}) 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).
15. 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).
16. 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)**
17. Vanadyl(IV) complexes of 4-alkoxy substituted [N,O] donor salicylaldimine Schiff base derived from chloro-/nitro-aniline: Syntheis, mesomorphism and DFT study, C. R. Bhattacharjee, G. Das, D. D. Purkayastha, **P. Kanoo** and P. Mondal
    J. Coord. Chem., 64, 2746 (2011).

18. 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).
19. 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).
20. 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).
21. Versatile functionalities in MOFs assembled from the same building units: Interplay of structural flexibilty, rigidity and regularity, **P. Kanoo**, K. L. Gurunatha and T. K. Maji
J. Mater. Chem., 20, 1322 (2010). **(Emerging Investigators Issue)**
22. 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).
23. A planar Cu^{2+} (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)**
24. 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).
25. 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)**

PAPERS PRESENTED IN CONFERENCES AND SCHOOLS

1. **Talk:** Porous Metal-Organic Frameworks: Design Strategy for Gas Capture and Storage @ The National Symposium on Recent Tends in Eco-friendly Chemistry, Sept. 2016, Central University of Haryana.
2. **Poster:** Adsorption of CO_2 Facilitated by Halogen Bond Interaction in the Nanospace of Porous Coordination Polymers @ ICCC 2016, July 2016, Brest, France.
3. **Poster:** Porous functions in the nanospaces of “flexible” and “not so flexible” metal-organic frameworks @ AsCA Conference, Dec. 2015, Kolkata.
4. **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.
5. **Poster:** A new porous metal complex having large channels decorated with hydroxyl groups @ Chemical Society of Japan conference, March 2013, Shiga, Japan.
6. **Poster:** Multiple structural changes in flexible coordination polymers ensue gated and selective CO_2 capture: Control of gate pressure by changing functionality of the linkers @International conference on Metal-Organic Frameworks, MOF2012, Sept. 2012, Edinburgh, UK.
7. **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.
8. **Poster:** S = ½ (Cu^{2+}) 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.
9. **Talk:** A dynamic porous solid with selective, gated and hysteretic CO_2 uptake @ Inhouse Symposium, Nov. 2010, JNCASR, Bangalore.
10. **Poster:** New interpenetrated copper coordination polymer frameworks having porous properties @International conference on Metal-Organic Frameworks, MOF2010, Sept. 2010, Marseille, France.
11. **Poster:** Three dimensional 3-fold interpenetrated microporous coordination networks of Cu(II) and H_2-storage property @International conference on Hydrogen Storage, IISc, Jan. 2009, Bangalore.
12. **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.
13. **Talk:** Flexible porous metal-organic frameworks derived from Cu(II) and 1,4-napthalenedicarboxylate @ Conference on Chemistry of Functional Materials, Sept. 2008, Alleppy, Kerala, India.

14. **Poster:** Supramolecular isomerism, framework flexibility and structure-property relationship in metal-organic frameworks @Conference on Chemistry of Functional Materials, Sept. 2008, Alleppy, Kerala, India.

STUDENTS SUPERVISED

Ph.D.

- Currently two (02) student pursuing

M.Sc. Projects

- Three (03) M.Sc. Projects (2016-2018 batch) at Central University of Haryana and Co-guided 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

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

TEACHING (Two M.Sc. batches each of 40 Students and Ph.D.)

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

CREDENTIALS

- Regular reviewer of *Chemical Communications* (RSC Journal). Reviewer of *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 7/8 teachers)*
- *Co-convener of Equal Opportunity Cell at the Central University of Haryana*