

Professor Michael Zaworotko

Bernal Chair of Crystal Engineering, University of Limerick

Science Foundation of Ireland Research Professor

www.ul.ie/crystalengineering

Selected peer-reviewed publications: presented in chronological order (C = Communication, R= Review, F = Full paper, L = Letter, in chronological order, corresponding author underlined).

Key publications:

1. (C) Wilkes, J.S.; Zaworotko, M.J. "Air and Water Stable 1-methyl-3-ethylimidazolium Based Ionic Liquids" *J. Chem. Soc., Chem. Comm.*, 965, 1992.
2. (C) Subramanian, S.; Zaworotko, M.J. "Porous Solids by Design: [Zn(4,4'-dipyridyl)₂(SiF₆)₂]_∞•x DMF, a Single Framework Octahedral Coordination Polymer with Large Square Channels" *Angew. Chem., Int. Ed. Engl.*, **34**, 2127-29, 1995.
3. (R) Moulton, B.; Zaworotko, M.J. "From Molecules to Crystal Engineering: Supramolecular Isomerism and Polymorphism in Network Solids" *Chemical Reviews*, **101**, 1629-1658, 2001.
4. (R) Almarsson, Ö.; Zaworotko, M.J. "Crystal Engineering of the Composition of Pharmaceutical Phases. Do Pharmaceutical Co-crystals Represent a New Path to Improved Medicines?" *Chem. Commun.*, 1889-1896, 2004.
5. (R) Vishweshwar, P.; McMahon, J.A.; Bis, J.A.; Zaworotko, M.J. "Pharmaceutical Co-crystals" *J. Pharm. Sci.*, **95**, 499-516, 2006.
6. (R) Perry, J.J.; Perman, J.A.; Zaworotko, M.J. "Design and synthesis of metal-organic frameworks using metal-organic polyhedra as supermolecular building blocks" *Chem. Soc. Rev.*, **38**, 1400-1417, 2009.

Recent publications:

7. (C) Zhang, Z.; Zhang, L. Wojtas, L.; Nugent, P.; Eddaoudi, M.; Zaworotko, M.J. "Templated synthesis, post-synthetic metal exchange and properties of a porphyrin encapsulating metal-organic material" *Journal of the American Chemical Society*, **134**, 924-927, 2012.
8. (F) Zhang, Z.; Zhang, L.; Wojtas, L.; Eddaoudi, M.; Zaworotko, M.J. "Template-directed synthesis of nets based upon octahemioctahedral cages that encapsulate catalytically active metalloporphyrins" *Journal of the American Chemical Society*, **134**, 928-933, 2012.
9. (C) Burd, S.D.; Ma, S.; Perman, J.A.; Sikora, B.J.; Snurr, R.Q.; Thallapally, P.K.; Tian, J.; Wojtas, L.; Zaworotko, M.J. "Highly Selective Carbon Dioxide Uptake by [Cu(bpy-n)₂(SiF₆)] (bpy-1 = 4,4'-bipyridine; bpy-2 = 1,2-bis(4-pyridyl)ethene)" *Journal of the American Chemical Society*, **134**, 3663-3666, 2012.
10. (C) Zhang, Z.; Gao, W.-Y.; Wojtas, L.; Ma, S.; Eddaoudi, M.; Zaworotko, M.J. "Post-Synthetic Modification of Porphyrin-Encapsulating Metal-Organic Materials via Cooperative Addition of Inorganic Salts to Enhance CO₂/CH₄ Selectivity" *Angew. Chem., Int. Ed. Engl.*, **51**, 9330-9334, 2012.
11. (C) Mohamed, M.; Elsaidi, S.; Wojtas, L.; Pham, T.; Forrest, K.A.; Tudor, B.; Space, B.; Zaworotko, M.J. "Highly selective CO₂ uptake in uninodal 6-connected "mmo" nets based

upon MO_4^{2-} (M = Cr, Mo) pillars" *Journal of the American Chemical Society*, 19556-19559, 134, 2012.

12. (C) Schoedel, A.; Cairns, A.J.; Belmabkhout, Y.; Wojtas, L.; Mohamed, M.; Zhang, Z.; Proserpio, D.M.; Eddaoudi, M.; Zaworotko, M.J. "The robust, inexpensive and modular "asc" trinodal platform: systematic 2-step assembly of triangular, tetrahedral and trigonal prismatic molecular building blocks" *Angew. Chem., Int. Ed. Engl.*, 2902-2905, 52, 2013.

13. (L) Nugent, P.; Belmabkhout, Y.; Burd, S.D.; Cairns, A.J.; Luebke, R.; Forrest, K.; Pham, T.; Ma, S.; Space, B.; Wojtas, L.; Eddaoudi, M.; Zaworotko, M.J. "Porous materials with optimal adsorption thermodynamics and kinetics for CO_2 separations" *Nature*, 80-84, 495, 2013.

14. (C) Zhang, Z.; Wojtas, L.; Eddaoudi, M.; Zaworotko, M.J. "Stepwise transformation of the molecular building blocks in a porphyrin-encapsulating metal-organic material" *Journal of the American Chemical Society*, 135, 5982-5985, 2013.

15. (F) Smith, A.J.; Kavuru, P.; Arora, K.K.; Kesani, S.; Tan, J.; Zaworotko, M.J.; Shytle, R.D. "Crystal engineering of green tea epigallocatechin-3-gallate (EGCg) cocrystals and pharmacokinetic modulation in rats" *Molecular Pharmaceutics*, 10, 2948-2961, 2013.

16. (C) Nugent, P.; Rhodus, V.; Pham, T.; Forrest, K.; Wojtas, L.; Space, B.; Zaworotko, M.J. "A robust molecular porous material (MPM) with high CO_2 uptake and selectivity" *Journal of the American Chemical Society*, 135, 10950-10953, 2013.

17. (C) Schoedel, A.; Boyette, W.; Wojtas, L.; Eddaoudi, M.; Zaworotko, M.J. "A family of porous lonsdaleite-e networks obtained through pillaring of decorated kagomé lattice sheets" *Journal of the American Chemical Society*, 135, 14016-14019, 2013.

18. (F) Zhang, Z.; Wojtas, L.; Zaworotko, M.J. "Organic-Inorganic Hybrid Polyhedra That Can Serve as Supermolecular Building Blocks" *Chemical Science*, 5, 927-931, 2014.

19. (F) Elsaidi, S.K.; Mohamed, M.H.; Wojtas, L.; Chanthapally, A.; Pham, T.; Space, B.; Vittal, J.J.; Zaworotko, M.J. "Putting the Squeeze on CH_4 and CO_2 through Control over Interpenetration in Diamondoid Nets" *Journal of the American Chemical Society*, 136, 5072-5077, 2014.

20. (R) Schoedel, A.; Zaworotko, M.J. " $[\text{M}_3(\mu_3\text{-O})(\text{O}_2\text{CR})_6]$ and related trigonal prisms: versatile molecular building blocks for crystal engineering of metal-organic material platforms" *Chemical Science*, 5, 1269-1282, 2014.

21. (R) Zhang, Z.; Zaworotko, M.J. "Template-directed synthesis of metal-organic materials", *Chemical Society Reviews*, 43, 5444-5455, 2014.

22. (R) Shan, N.; Perry, M.L.; Weyna, D.R.; Zaworotko, M.J. "Impact of pharmaceutical cocrystals: the effects on drug pharmacokinetics", *Expert Opinion of Drug Metabolism and Toxicology*, 10, 1255-1271, 2014.