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- Abdelhamid, H.N., 2020, Salts Induced Formation of Hierarchical Porous ZIF-8 and Their Applications for CO₂ Sorption and Hydrogen Generation via NaBH₄ Hydrolysis, *Macromol. Chem. Phys.*, 221, 1–7.
- An, J. and Rosi, N.L., 2010, Tuning MOF CO₂ Adsorption Properties Via Cation Exchange, *J. Am. Chem. Soc.*, 132, 5578–5579.
- Anderson, T.R., Hawkins, E., and Jones, P.D., 2016, CO₂, The Greenhouse Effect and Global Warming: from the Pioneering Work of Arrhenius and Callendar to Today's Earth System Models, *Endeavour*, 40, 178–187.
- Babaee, S., Zarei, M., Sepehrmansourie, H., Zolfigol, M.A., and Rostamnia, S., 2020, Synthesis of Metal-Organic Frameworks MIL-101(Cr)-NH₂ Containing Phosphorous Acid Functional Groups: Application for the Synthesis of N-Amino-2-pyridone and Pyrano [2,3- c]pyrazole Derivatives via a Cooperative Vinylogous Anomeric-Based Oxidati, *ACS Omega*, 5, 6240–6249.
- Bakhtyari, A., Mofarahi, M., and Lee, C.H., 2020, CO₂ Adsorption by Conventional and Nanosized Zeolites, *Adv. Carbon Capture Methods, Technol. Appl.*, 193–228.
- Banerjee, R., Phan, A., Wang, B., Knobler, C., Furukawa, H., O'Keeffe, M., and Yanghi, O.M., 2008, High-Throughput Synthesis of Zeolitic Imidazolate Frameworks and Application to CO₂ Capture, *Science (80-.).*, 319, 939–943.
- Bao, Q., Lou, Y., Xing, T., and Chen, J., 2013, Rapid Synthesis of Zeolitic Imidazolate Framework-8 (ZIF-8) in Aqueous Solution Via Microwave Irradiation, *Inorg. Chem. Commun.*, 37, 170–173.
- Bergaoui, M., Khalfaoui, M., Awadallah-F, A., and Al-Muhtaseb, S., 2021, A review of the features and applications of ZIF-8 and its derivatives for separating CO₂ and isomers of C3- and C4- hydrocarbons, *J. Nat. Gas Sci. Eng.*, 96, 104289.
- Beurroies, I., Boulhout, M., Llewellyn, P.L., Kuchta, B., Férey, G., Serre, C., and Denoyel, R., 2010, Using Pressure to Provoke the Structural Transition of Metal-Organic Frameworks, *Angew. Chem. Int. Ed.*, 49, 7526–7529.
- Bose, R., Ethiraj, J., Sridhar, P., Varghese, J.J., Kaisare, N.S., and Selvam, P., 2020, Adsorption of Hydrogen and Carbon Dioxide in Zeolitic Imidazolate Framework Structure with SOD Topology: Experimental and Modelling Studies, *Adsorption*, 26, 1027–1038.
- Butonova, S.A., Ikonnikova, E. V., Sharshieva, A., Chernyshov, I.Y., Kuchur, O.A., Mukhin, I.S., Hey-Hawkins, E., Vinogradov, A. V., and Morozov, M.I., 2021, Degradation Kinetic Study of ZIF-8 Microcrystals With and Without the



Presence of Lactic Acid, *RSC Adv.*, 11, 39169–39176.

Cravillon, J., Nayuk, R., Springer, S., Feldhoff, A., Huber, K., and Wiebcke, M., 2011, Controlling Zeolitic Imidazolate Framework Nano-and Microcrystal Formation: Insight into Crystal Growth by Time-Resolved In Situ Static Light Scattering, *Chem. Mater.*, 23, 2130–2141.

Delachaux, F., Hessou, E.P., Vallières, C., Monnier, H., and Badawi, M., 2023, A Dispersion-Corrected DFT Method for Zeolite-Based CO₂/N₂ Separation: Assessment and Application, *J. Environ. Chem. Eng.*, 11, 1–13.

Duffy, A., Walker, G.M., and Allen, S.J., 2006, Investigations on the Adsorption of Acidic Gases Using Activated Dolomite, *Chem. Eng. J.*, 117, 239–244.

Dugan, E., Wang, Z., Okamura, M., Medina, A., and Cohen, S.M., 2008, Covalent Modification of a Metal-Organic Framework with Isocyanates: Probing Substrate Scope and Reactivity, *Chem. Commun.*, 7345, 3366–3368.

Eddaoudi, M., Kim, J., Rosi, N., Vodak, D., Wachter, J., O'Keeffe, M., and Yaghi, O.M., 2002, Systematic Design of Pore Size and Functionality in Isoreticular MOFs and Their Application in Methane Storage, *Science (80-.).*, 295, 469–472.

Fischer, E.U. and Uhrig, H., 2009, Virtual High Throughput Screening Confirmed Experimentally: Porous Coordination Polymer Hydration, *J. Am. Chem. Soc.*, 131, 15834–15842.

Fischer, M. and Bell, R.G., 2014, Interaction of Hydrogen and Carbon Dioxide with sod-Type Zeolitic Imidazolate Frameworks: A Periodic DFT-D Study, *CrystEngComm*, 16, 1934–1949.

Fuentes-Azcatl, R. and Barbosa, M.C., 2016, Sodium Chloride, NaCl/ε: New Force Field, *J. Phys. Chem. B*, 120, 2460–2470.

Furukawa, H., Cordova, K.E., O'Keeffe, M., and Yaghi, O.M., 2013, The Chemistry and Applications of Metal-Organic Frameworks, *Science (80-.).*, 341, 974.

Furukawa, H., Gándara, F., Zhang, Y.B., Jiang, J., Queen, W.L., Hudson, M.R., and Yaghi, O.M., 2014, Water Adsorption in Porous Metal-Organic Frameworks and Related Materials, *J. Am. Chem. Soc.*, 136, 4369–4381.

George, P., Das, R.K., and Chowdhury, P., 2019, Facile Microwave Synthesis of Ca-BDC Metal Organic Framework for Adsorption and Controlled Release of Curcumin, *Microporous Mesoporous Mater.*, 281, 161–171.

Goel, S. and Agarwal, D., 2014, Carbon Dioxide, *Encycl. Toxicol. Third Ed.*, 675–677.



- Gross, A.F., Sherman, E., and Vajo, J.J., 2012, Aqueous Room Temperature Synthesis of Cobalt and Zinc Sodalite Zeolitic Imidizolate Frameworks, *Dalt. Trans.*, 41, 5458–5460.
- Herrick, R.A. and Lipták, B.G., 2003, Carbon Dioxide, *Instrum. Eng. Handb. Process Meas. Anal. Fourth Ed.*, 335–343.
- Hu, H. and Xu, K., 2020, Physicochemical Technologies for HRPs and Risk Control,. In, *High-Risk Pollutants in Wastewater*. Elsevier, pp. 169–207.
- Hu, Y., Liu, Z., Xu, J., Huang, Y., and Song, Y., 2013, Evidence of Pressure Enhanced CO₂ Storage in ZIF-8 Probed by FTIR Spectroscopy, *J. Am. Chem. Soc.*, 135, 9287–9290.
- Hu, Z., Liu, H., Zuo, Y., Ji, Y., Li, S., Zhang, W., Liu, Z., Chen, Z., Zhang, X., and Wang, X., 2022, Facile Synthesis of Magnesium-Based Metal-Organic Framework with Tailored Nanostructure for Effective Volatile Organic Compounds Adsorption, *R. Soc. Open Sci.*, 9, 211544.
- Jian, M., Liu, B., Liu, R., Qu, J., Wang, H., and Zhang, X., 2015, Water-Based Synthesis of Zeolitic Imidazolate Framework-8 with High Morphology Level at Room Temperature, *RSC Adv.*, 5, 48433–48441.
- Joseph, J., Iftekhar, S., Srivastava, V., Fallah, Z., Zare, E.N., and Sillanpää, M., 2021, Iron-Based Metal-Organic Framework: Synthesis, Structure and Current Technologies for Water Reclamation with Deep Insight into Framework Integrity, *Chemosphere*, 284, 131171.
- Kaur, R., Marwaha, A., Chhabra, V.A., Kaushal, K., Kim, K.H., and Tripathi, S.K., 2020, Facile Synthesis of a Cu-based Metal-Organic Framework From Plastic Waste and Its Application as a Sensor for Acetone, *J. Clean. Prod.*, 263, 121492.
- Kida, K., Okita, M., Fujita, K., Tanaka, S., and Miyake, Y., 2013, Formation of High Crystalline ZIF-8 in an Aqueous Solution, *CrystEngComm*, 15, 1794–1801.
- Kiely, E., Zwane, R., Fox, R., Reilly, A.M., and Guerin, S., 2021, Density Functional Theory Predictions of the Mechanical Properties of Crystalline Materials, *CrystEngComm*, 23, 5697–5710.
- Kim, J., Chen, B., Reineke, T.M., Li, H., Eddaoudi, M., Moler, D.B., O’Keeffe, M., and Yaghi, O.M., 2001, Assembly of Metal-Organic Frameworks from Large Organic and Inorganic Secondary Building Units: New Examples and Simplifying Principles for Complex Structures, *J. Am. Chem. Soc.*, 123, 8239–8247.
- Kitagawa, S., Kitaura, R., and Noro, S.I., 2004, Functional Porous Coordination



- Polymers, *Angew. Chemie - Int. Ed.*, 43, 2334–2375.
- Kuppler, R.J., Timmons, D.J., Fang, Q.R., Li, J.R., Makal, T.A., Young, M.D., Yuan, D., Zhao, D., Zhuang, W., and Zhou, H.C., 2009, Potential Applications of Metal-Organic Frameworks, *Coord. Chem. Rev.*, 253, 3042–3066.
- Langseth, E., Swang, O., Arstad, B., Lind, A., Cavka, J.H., Jensen, T.L., Kristensen, T.E., Moxnes, J., Unneberg, E., and Heyn, R.H., 2019, Synthesis and Characterization of Al@MOF Materials, *Mater. Chem. Phys.*, 226, 220–225.
- Lestari, W.W., Wibowo, A.H., Astuti, S., Irwinskyah, Pamungkas, A.Z., and Krisnandi, Y.K., 2018, Fabrication of Hybrid Coating Material of Polypropylene Itaconate Containing MOF-5 for CO₂ Capture, *Prog. Org. Coatings*, 115, 49–55.
- Lgaz, H. and Lee, H. seung, 2021, Computational Investigation on Interaction Mechanism of Sulfur Mustard Adsorption by Zeolitic Imidazolate Frameworks ZIF-8 and ZIF-67: Insights from Periodic and Cluster DFT Calculations, *J. Mol. Liq.*, 344, 117705.
- Li, G., Xia, L., Dong, J., Chen, Y., and Li, Y., 2019, Metal-Organic Frameworks, Elsevier Inc.
- Li, Y., Zhou, K., He, M., and Yao, J., 2016, Synthesis of ZIF-8 and ZIF-67 Using Mixed-Base and Their Dye Adsorption, *Microporous Mesoporous Mater.*, 234, 287–292.
- Liu, J., Shi, L., Wang, Y., Li, M., Zhou, C., Zhang, L., Yao, C., Yuan, Y., Fu, D., Deng, Y., Liu, M., Wang, G., Wang, L., and Wang, Z., 2019, Ruthenium-Based Metal-Organic Framework with Reactive Oxygen and Nitrogen Species Scavenging Activities for Alleviating Inflammation Diseases, *Nano Today*, 47, 101627.
- Mehio, N., Dai, S., and Jiang, D.E., 2014, Quantum Mechanical Basis for Kinetic Diameters of Small Gaseous Molecules, *J. Phys. Chem. A*, 118, 1150–1154.
- Milburn, K., 2014, Synthesis and Characterization of ZIF-8 and ZIF-8 / Polymer Composites.,
- Van Mourik, T., Bühl, M., and Gaigeot, M.P., 2014, Density Functional Theory Across Chemistry, Physics and Biology, *Philos. Trans. R. Soc. A*, 372, 1–5.
- Newsome, D. and Coppens, M.O., 2015, Molecular Dynamics as a Tool to Study Heterogeneity in Zeolites - Effect of Na⁺ Cations on Diffusion of CO₂ and N₂ in Na-ZSM-5, *Chem. Eng. Sci.*, 121, 300–312.
- Øien, S., Wragg, D., Reinsch, H., Svelle, S., Bordiga, S., Lamberti, C., and Lillerud, K.P., 2014, Detailed Structure Analysis of Atomic Positions and Defects in



- Zirconium Metal-Organic Frameworks, *Cryst. Growth Des.*, 14, 5370–5372.
- Orio, M., Pantazis, D.A., and Neese, F., 2009, Density Functional Theory, *Photosynth. Res.*, 102, 443–453.
- Pambudi, F.I. and Prasetyo, N., 2022, Theoretical Investigation on the Structure of Mixed-Metal Zeolitic Imidazolate Framework and Its Interaction with CO₂, *Comput. Mater. Sci.*, 210, 1–8.
- Pan, Y., Liu, Y., Zeng, G., Zhao, L., and Lai, Z., 2011, Rapid Synthesis of Zeolitic Imidazolate Framework-8 (ZIF-8) Nanocrystals in an Aqueous System, *Chem. Commun.*, 47, 2071–2073.
- Park, K.S., Ni, Z., Cote, A.P., Choi, J.Y., Huang, R., Uribe-Romo, F.J., Chae, H.K., O’Keeffe, M., and Yaghi, O.M., 2006, Exceptional Chemical and Thermal Stability of Zeolitic Imidazolate Frameworks,. In, *Proceedings of the National Academy of Sciences.*, pp. 10186–10191.
- Pérez-Pellitero, J., Amrouche, H., Siperstein, F.R., Pirngruber, G., Nieto-Draghi, C., Chaplais, G., Simon-Masseron, A., Bazer-Bachi, D., Peralta, D., and Bats, N., 2010, Adsorption of CO₂, CH₄, and N₂ on Zeolitic Imidazolate Frameworks: Experiments and Simulations, *Chem. Eur. J.*, 16, 1560–1571.
- Pranowo, H.D. and Hetadi, A.K.R., 2011, Pengantar Kimia Komputasi, Lubuk Agung, Bandung.
- Pu, S., Zhang, Xuan, Yang, C., Naseer, S., Zhang, Xutong, Ouyang, J., Li, D., and Yang, J., 2019, The Effects of NaCl on Enzyme Encapsulation by Zeolitic Imidazolate Frameworks-8, *Enzyme Microb. Technol.*, 122, 1–6.
- Ranocchiari, M. and Bokhoven, J.A. Van, 2011, Catalysis by Metal-Organic Frameworks: Fundamentals and Opportunities, *Phys. Chem. Chem. Phys.*, 13, 6388–6396.
- Ravishankara, A.R., Rudich, Y., and Pyle, J.A., 2015, Role of Chemistry in Earth’s Climate, *Chem. Rev.*, 115, 3679–3681.
- Ren, J., Langmi, H.W., North, B.C., Mathe, M., and Bessarabov, D., 2014, Modulated Synthesis of Zirconium-Metal Organic Framework (Zr-MOF) for Hydrogen Storage Applications, *Int. J. Hydrogen Energy*, 39, 890–895.
- Rowse, J.L.C. and Yaghi, O.M., 2004, Metal-Organic Frameworks: A New Class of Porous Materials, *Microporous Mesoporous Mater.*, 73, 3–14.
- Schejn, A.M., 2015, Synthesis and Catalytic Activity of ZIF-8 and Doped-ZIF-8 Crystals : Stability and Cytotoxicity Evaluation,.
- Shi, Z., Yu, Y., Fu, C., Wang, L., and Li, X., 2017a, Water-Based Synthesis of



Zeolitic Imidazolate Framework-8 for CO₂ Capture, *RSC Adv.*, 7, 29227–29232.

Shi, Z., Yu, Y., Fu, C., Wang, L., and Li, X., 2017b, Water-Based Synthesis of Zeolitic Imidazolate Framework-8 for CO₂ Capture, *RSC Adv.*, 7, 29227–29232.

Solomon, S., Plattner, G.K., Knutti, R., and Friedlingstein, P., 2009, Irreversible Climate Change due to Carbon Dioxide Emissions, *Proc. Natl. Acad. Sci. U. S. A.*, 106, 1704–1709.

Stock, N. and Biswas, S., 2012, Synthesis of Metal-Organic Frameworks (MOFs): Routes to Various MOF Topologies, Morphologies, and Composites, *Chem. Rev.*, 112, 933–969.

Strauss, I., Mundstock, A., Treger, M., Lange, K., Hwang, S., Chmelik, C., Rusch, P., Bigall, N.C., Pichler, T., Shiozawa, H., and Caro, J., 2019, Metal-Organic Framework Co-MOF-74-Based Host-Guest Composites for Resistive Gas Sensing, *ACS Appl. Mater. Interfaces*, 11, 14175–14181.

Tanabe, K.K. and Cohen, S.M., 2011, Postsynthetic Modification of Metal–Organic Frameworks—A Progress Report, *Chem. Soc. Rev.*, 40, 498–519.

Taylor, K.M.L., Jin, A., and Lin, W., 2008, Surfactant-Assisted Synthesis of Nanoscale Gadolinium Metal-Organic Frameworks for Potential Multimodal Imaging, *Angew. Chemie - Int. Ed.*, 47, 7722–7725.

Tranchemontagne, D.J., Tranchemontagne, J.L., O’keeffe, M., and Yaghi, O.M., 2009, Secondary Building Units, Nets and Bonding in the Chemistry of Metal–Organic Frameworks, *Chem. Soc. Rev.*, 38, 1257–1283.

Walker, D., Verma, P.K., Cranswick, L.M.D., Jones, R.L., Clark, S.M., and Buhre, S., 2004, Halite-Sylvite Thermoelasticity, *Am. Mineral.*, 89, 204–210.

Wang, B., Côté, A.P., Furukawa, H., O’Keeffe, M., and Yaghi, O.M., 2008, Colossal Cages in Zeolitic Imidazolate Frameworks as Selective Carbon Dioxide Reservoirs, *Nature*, 453, 207–211.

Wang, H., Zhao, L., Xu, W., Wang, S., Ding, Q., Lu, X., and Guo, W., 2015, The Properties of the Bonding Between CO and ZIF-8 Structures: A Density Functional Theory Study, *Theor. Chem. Acc.*, 134, 1–9.

White, W.B., 2010, Springwater geochemistry, *Groundw. Hydrol. Springs*, 231–268.

Xu, X.L., Wang, H., Liu, J.B., and Yan, H., 2017, The Applications of Zeolitic Imidazolate Framework-8 in Electrical Energy Storage Devices: A Review, *J. Mater. Sci. Mater. Electron.*, 28, 7532–7543.



Yakovenko, A.A., Reibenspies, J.H., Bhuvanesh, N., and Zhou, H.C., 2013, Generation and Applications of Structure Envelopes for Porous Metal-Organic Frameworks, *J. Appl. Crystallogr.*, 46, 346–353.

Zhang, C., Han, C., Sholl, D.S., and Schmidt, J.R., 2016, Computational Characterization of Defects in Metal-Organic Frameworks: Spontaneous and Water-Induced Point Defects in ZIF-8, *J. Phys. Chem. Lett.*, 7, 459–464.

Zhao, Z., Li, Z., and Lin, Y.S., 2009, Adsorption and Diffusion of Carbon Dioxide on Metal-Organic Franework (MOF-5), *Ind. Eng. Chem. Res.*, 48, 10015–10020.