

REFERENCES

- Alfredsson, V., Anderson, M.W., Ohsuna, T., Terasaki, O., Jacob, M., and Bojrup M. (1997) Cubosome description of the inorganic mesoporous structure MCM-48. Chem. Mater., 9, 2066–2070.
- Asefa, T. and Tao, Z. (2012) Mesoporous silica and organosilica materials — Review of their synthesis and organic functionalization. Can. J. Chem., 90(12), 1015-1031.
- Beck, J.S., Vartuli, J.C., Roth, W.J., Leonowicz, M.E., Kresge, C.T., Schmitt, K.D., Chu, C.T.W., Olson, D.H., Sheppard, E.W., McCullen, S.B., Higgins, J.B. and Schlenker, J.L. (1992) A new family of mesoporous molecular sieves prepared with liquid crystal templates. J. Am. Chem. Soc., 114, 10834-10843.
- Charoenpinijkarn, W., Suwankruhasn, M., Kesapabutr, B., Wongkasemjit, S., and Jamieson A.M. (2001) Sol–gel processing of silatranes. Eur. Polym. J., 37, 1441–1448.
- Corma, A., Kan, Q., and Rey, F. (1998) Synthesis of Si and Ti-Si-MCM-48 mesoporous materials with controlled pore sizes in the absence of polar organic additives and alkali metal ions. Chem. Commun., 579–580.
- Díaz, I., Pérez-Pariente, J., and Terasaki O. (2004) Structural study by transmission and scanning electron microscopy of the time-dependent structural change in M41S mesoporous silica (MCM-41 to MCM-48, and MCM-50). J. Mater. Chem., 14, 48–53.
- Gallis, K.W. and Landry, C.C. (1997) Synthesis of MCM-48 by a Phase Transformation Process. Chem. Mater., 9, 2035-2038.
- Huo, Q., Margolese, D.I., and Stucky, G.D. (1996) Surfactant control of phases in the synthesis of mesoporous Silica-Based materials. Chem. Mater., 8, 1147-1160.
- Huo, Q., Margolese, D.I., Ciesla, U., Feng, P., Gier, T.E., Sieger, P., Leon, R., Petroff, P.M., Schüth, F., and Stucky, G.D. (1994) Generalized synthesis of periodic surfactant/inorganic composite materials. Nature, 368, 317– 321.

- Huo, Q.S., Margolese, D.I., Ciesla, U., Demuth, D.G., Feng, P.Y., Gier, T.E., Sieger, P., Firouzi, A., Chmelka, B.F., Schuth, F., and Stucky, G.D. (1994) Organization of Organic Molecules with Inorganic Molecular Species into Nanocomposite Biphase Arrays. Chem. Mater., 6, 1176–1191.
- Israelachvili, J.N., Mitchell, D.J., and Ninham B.W. (1976) Theory of Self-Assembly of Hydrocarbon Amphiphiles into Micelles and Bilayers. J. Chem. Soc. Faraday. Trans., 72 (2), 1525-1568.
- Kim, T.W., Chun, P.W., and Lin V.S.Y. (2010) Facile Synthesis of Monodisperse Spherical MCM-48 Mesoporous Silica Nanoparticles with Controlled Particle Size. Chem. Mater., 22, 5093–5104.
- Kresge, C.T., Leonowicz, M.E., Roth, W.J., Vartuli, J.C., and Beck J.S. (1992) Ordered mesoporous molecular sieves synthesized by a liquid-crystal template mechanism. Nature, 359, 710-712.
- Kruk, M., Jaroniec, M., Ryoo, R., and Kim, J.M. (1999) Characterization of high-quality MCM-48 and SBA-1 mesoporous silicas. Chem. Mater., 11, 2568-2572.
- Kumar, D., Schumarcher, K., Hohenesche, C., Grün, M., and Unger K.K. (2001) MCM-41, MCM-48 and related mesoporous adsorbents: their synthesis and characterization. Colloids. Surf. A, 187–188, 109–116.
- Lysenko, N.D., Shvets, A.V., and Il'in, V.G. (2008) Field of concentrations and conditions of template structure formation of a silica mesoporous molecular sieves of MCM-48 type. Theor. Exp. Chem., 44, 195–199.
- Mathieu, M., Van Der Voort, P., Weckhuysen, B.M., Rao, R.R., Catana, G., Schoonheydt, R.A., and Van-sant, E.F. (2001) Vanadium-Incorporated MCM-48 Materials: Optimization of the Synthesis Procedure and an in Situ Spectroscopic Study of the Vanadium Species. J. Phys. Chem. B, 105, 3393-3399.
- Meynen, V., Cool, P., and Vansant E.F. (2009) Verified syntheses of mesoporous materials. Micropor. Mesopor. Mater., 125, 170–223.
- Mintova, S. and Čejka J. (2007) Chapter 9 Micro/mesoporous composites. Stud. Surf. Sci. Catal., 168, 301–326.

- Monnier, A., Schüth, F., Huo, Q., Kumar, D., Margolese, D., Maxwell, R.S., Stucky, M., Krishnamurty, G.D., Petroff, P., Firouzi, A., and Janicke M. (1993) Cooperative Formation of Inorganic-Organic Interfaces in the Synthesis of Silicate Mesostructures. Science, 261, 1299-1303.
- Perez-Ramírez, J., Christensen, C.H., Egeblad, K., Christensen, C.H., and Groen, J.C. (2008) Hierarchical zeolites: enhanced utilisation of microporous crystals in catalysis by advances in materials design. Chem. Soc. Rev., 37, 2530–2542.
- Phiriyawirut, P., Jamieson, A.M., and Wongkasemjit S. (2005) VS-1 zeolite synthesized directly from silatrane. Micropor. Mesopor. Mater., 77, 203–213.
- Phiriyawirut, P., Magaraphan, R., Jamieson, A.M., and Wongkasemjit S. (2003) Morphology study of MFI zeolite synthesized directly from silatrane and alumatrane via the sol–gel process and microwave heating. Micropor. Mesopor. Mater., 64(1–3), 83–93.
- Phonthammachai, N., Chairassameewong, T., Gulari, E., Jameison, A.M., and Wongkasemjit S. (2003) Oxide one pot synthesis of a novel titanium glycolate and its pyrolysis. J. Met. Mater. Min., 12, 23.
- Ryoo, R., Joo, S.H., and Kim, J.M. (1999) Energetically Favored Formation of MCM-48 from Cationic–Neutral Surfactant Mixtures. J. Phys. Chem. B, 103, 7435-7440.
- Sakthivel, A., Dapurkar, S.E., and Selvam, P. (2001) Mesoporous (Cr)MCM-41 and (Cr)MCM-48 Molecular Sieves: Promising Heterogeneous Catalysts for Liquid Phase Oxidation Reactions. Catal. Lett., 7, 155-158.
- Sathupanya, M., Gulari, E., and Wongkasemjit S. (2003) Na-A (LTA) Zeolite Synthesis Directly from Alumatrane and Silatrane by Sol–Gel Microwave Techniques. J. Eur. Ceram. Soc., 23, 2305–2314.
- Sathupanya, M., Gulari, E., and Wongkasemjit, S. (2002) ANA and GIS Zeolite Synthesis Directly from Alumatrane and Silatrane by Sol–Gel Process and Microwave Techniques. J. Eur. Ceram. Soc., 22, 1293–1303.
- Sayari, A. (1996) Catalysis by Crystalline Mesoporous Molecular Sieves. Chem. Mater., 8(8), 1840-1852.

- Sayari, A. (2000) Novel Synthesis of High-Quality MCM-48 Silica. J. Am. Chem. Soc., 122, 6504-6505.
- Shao, Y., Wang, L., Zhang, J., and Anpo, M. (2005) Novel synthesis of high hydrothermal stability and long-range order MCM-48 with a convenient method. Micropor. Mesopor. Mater., 86, 314.
- Shao, Y., Wang, L., Zhang, J., and Anpo, M. (2008) Synthesis and characterization of high hydrothermally stable Cr-MCM-48. Micropor. Mesopor. Mater., 109, 271-277.
- Stucky, G.D., Monnier, A., Schüth, F., Huo, Q., Margolese, D., Kumar, D., Krishnamurty, M., Petroff, P., Firouzi, A., Janicke, M., and Chmelka, B.F. (1994) Molecular and Atomic Arrays in Nano- and Mesoporous Materials Synthesis. Mol. Cryst. Liq. Cryst., 240, 187.
- Thanabodeekij, N., Sadthayanon, S., Gulari, E., and Wongkasemjit, S. (2006) Extremely high surface area of ordered mesoporous MCM-41 by atrane route. Mater. Chem. Phys., 98, 131-137.
- Thanabodeekij, N., Tanglumlert, W., Gulari, E., and Wongkasemjit S. (2005) Synthesis of Ti-MCM-41 directly from silatrane and titanium glycolate and its catalytic activity. Appl. Organomet. Chem., 19, 1047-1054.
- Vartuli, J.C., Schmitt, K.D., Kresge, C.T., Roth, W.J., Leonowicz, M.E., McCullen, S.B., Hellring, S.D., Beck, J.S., Schlenker, J.L., Olson, D.H., and Sheppard E.W. (1994) Effect of Surfactant/Silica Molar Ratios on the Formation of Mesoporous Molecular Sieves: Inorganic Mimicry of Surfactant Liquid-Crystal Phases and Mechanistic Implications. Chem. Mater., 6, 2317-2326.
- Wang, L., Shao, Y., Zhang, J., and Anpo, M. (2006) Synthesis of MCM-48 mesoporous molecular sieve with thermal and hydrothermal stability with the aid of promoter anions. Micropor. Mesopor. Mater., 95, 17-25.
- Wang, L., Zhang, J., and Chen, F. (2009) Synthesis of hydrothermally stable MCM-48 mesoporous molecular sieve at low cost of CTAB surfactant. Micropor. Mesopor. Mater., 122, 229-233.
- Wangcheng, Z., Guanxiong, L., Yanglong, F., Yun, G., Yanqin, W., Yunsong, W., Zhigang, Z., and Xiaohui, L. (2008) Synthesis of cerium-doped MCM-48

molecular sieves and its catalytic performance for selective oxidation of cyclohexane. J. Rare Earths, 26, 515-522.

Xia Y.D. and Mokaya R. (2003) Facile and high yield synthesis of mesostructured MCM-48 silica crystals. J. Mater. Chem., 13, 657-659.

Xu, J., Luan, Z., Hartmann, M., and Kevan, L. (1999) Synthesis and Characterization of Mn-Containing Cubic Mesoporous MCM-48 and AlMCM-48 Molecular Sieves. Chem. Mater., 11, 2928-2936.

Yuan, S., Shi, L., Mori, K., and Yamashita, H. (2008) Synthesis of Ti-containing MCM-48 by using TiF_4 as titanium source. Mater. Lett., 62, 3028–3030.

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4. Longloilert R.; Chaisuwan T.; Luengnaruemitchai A.; and Wongkasemjit S. Kinetic study of styrene oxidation over Cr-MCM-48 synthesized from silatrane, to be submitted.

Presentations:

1. Longloilert, R.; and Wongkasemjit, S. (2011, March 20-24) Novel silica source for synthesis of MCM-48 from silatrane via sol-gel process. Outstanding poster presented at POLYCHAR 19, Kathmandu, Nepal
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