

## DAFTAR PUSTAKA

- Anonymous. 2011. Transmission Electron Microscope (TEM). accessed from unl.edu.com on Saturday. March 12. 2011.
- Ahmed A.A.A., Z.A. Talib, M.Z Hussein., M.H. Flaifel, N.M. Al-Hada, 2014. Influence of Zn/Fe molar ratio on optical and magnetic properties of ZnO and ZnFe<sub>2</sub>O<sub>4</sub> nanocrystal as calcined products of layered double hydroxides. *Journal of Spectroscopy*. Article ID 732163, doi.org/10.1155/2014/732163.
- Akyol A., M. Bayramoglu. 2010. Preparation and characterization of supported ZnO photocatalyst by zincate method. *Journal of Hazardous Materials*. 175: pp 484-491.
- Ananda R.W., N. Kristiningrum, Y. Retnaningtyas. 2014. Validasi Dan Penetapan Kadar Rhodamin B Pada Lipstik Yang Beredar Di Sekitar Universitas Jember Dengan Metode KLT-Densitometri (Validation TLC-Densitometry Method for Determination of Rhodamine B in Lipstick at Jember University Area). *e-Jurnal Pustaka Kesehatan*. 2(1).
- Arief S., Rahmayeni, Zulhadjri. 2017. Comparison of Sol-Gel and Hydrothermal Synthesis of Zinc Ferrite (ZnFe<sub>2</sub>O<sub>4</sub>) Nanoparticles. *Research Journal of Pharmaceutical, Biological and Chemical Sciences*. 8(1): pp 499-503
- Arora A. K., S. Devi, V.S. Jaswal, J. Singh, M. Kinger, V.D. Gupta. 2014. *Oriental Journal of Chemistry*. 30(4): 1671-1679
- Arutanti, O. Abdullah, M. Khairurrijal. dan H. Mahfudz. 2009. Penjernihan air dari pencemar organik dengan proses fotokatalisis pada permukaan titanium dioksida (TiO<sub>2</sub>). *Jurnal Nanosains dan Nanoteknologi*. Edisi Khusus.
- Aslibeiki B., P. Kasmeri. 2015. Effect on structural and magnetic properties of MnFe<sub>2</sub>O<sub>4</sub>/ZnO nanocomposite. *J. Supercond. Nov. Magn.* 28: pp 3343-3350.
- Babu K.S., V. Narayanan. 2013. Hydrothermal synthesis of hydrated zinc oxide nanoparticles and its characterization. *Chem Sci. Trans.* 2(1): pp 33-36.
- Baykal A., N. Kasapoglu, Y. Koesoglu, M.S. Toprak, H. Bayrakdar. 2008. CATB-assisted Hydrothermal Synthesized of NiFe<sub>2</sub>O<sub>4</sub> and Its Magnetic Characterization. *Journal of Alloys and Compounds*. 464: pp 514-518.
- Byrappa K., T. Adschiri. 2007. Hydrothermal technology for nanotechnology. *Progress in Crystal Growth and Characterization of Materials*. 53: pp 117-166.
- Callister, D. William, Rethwisch, G. David. 2009. Materials science and engineering an introduction. Ed. 8th. USA. *John Wiley & Sons*. pp 809-811.

- Carati, A., Ferraris, G., Guidotti, M., Moretti, G., Psaro, R., and Rizzo, C. (2003). Preparation and characterization of mesoporous silica-alumina and silica-titania with a narrow pore size distribution. *Catal. Today*. 77: pp 315-323.
- Casbeer E., V.K. Sharma, X.Z. Li. 2012. Synthesis and photocatalytic activity of ferrites under visible light: A review. *Separation and Purification Technology*. 87: pp 1–14.
- Chang Y. C. 2014. Low temperature growth of ZnO nanowire arrays with enhanced high performance photocatalytic activity and reusability. *Catalysis Communications*. 56: pp 45–49.
- Cheville, NF; Stasko J (2014). "Techniques in Electron Microscopy of Animal Tissue". *Veterinary Pathology*. 51 (1): 28–41.
- Chu X., D. Jiang, C. Zheng. 2006. "The gas-sensing properties of thick film sensors based on nano-ZnFe<sub>2</sub>O<sub>4</sub> prepared by hydrothermal method", *Materials Science and Engineering*, 129 : pp 150-153.
- Comstock. 1999. Introduction to magnetism and magnetic recording, Wiley Interscience
- Cote L. J., A.S. Teja, A.P. Wilkinson, Z.J. Zhang. 2003. Continuous hydrothermal synthesis of CoFe<sub>2</sub>O<sub>4</sub> nanoparticles. *Fluid Phase Equilibria*. 201: pp 307-317.
- Dafare, S., P. S. Deshpande, R.S. Bhavsar. 2013. Photocatalytic degradation of Congo red dye on combustion synthesised Fe<sub>2</sub>O<sub>3</sub>. *Ind J Chem Technol*. 20: pp 406-410
- Dijkstra A.V., E. A. Meulenkaamp, D. Vanmaekelbergh, A. Meijerink. 2000. Identification of the transition responsible for the visible emission in ZnO using quantum size effects. *Journal of Luminescence*. 90(3): Pp 123-128.
- Dhiman P., J. Chand, A. Kumar, R.K. Kotnala, K.M. Batoor, M. Singh. 2013. Synthesis and characterization of novel Fe@ZnO nanosystem. *Journal of Alloys and Compounds*. 578: pp 235–241.
- Dom R., L.R. Baby, H.G. Kim, H.P. Borse. 2013. Enhanced solar photoelectro chemical conversion efficiency of ZnO:Cu electrodes for water-splitting application. *International Journal of Photoenergy*. Article ID 928321
- Feng H., M.H. Zhang, L.E. Yu. 2012. Hydrothermal Synthesis and Photocatalytic Performance of Metal-Ions Doped TiO<sub>2</sub>. *App. Cat. A. General*. 413: pp 238-244.
- Foroughi F., S.A. Hassanzadeh-Tabrizi, J. Amighian. 2015. Microemulsion synthesis and magnetic properties of hydroxyapatite encapsulated nano CoFe<sub>2</sub>O<sub>4</sub>. *Journal of Magnetism and Magnetic Materials*. 382: pp 182–187.
- Fultz, B & Howe, J (2007). Transmission Electron Microscopy and Diffractometry of Materials. *Springer*. ISBN 3-540-73885-1.

- Giahi M., N. Badalpoor, S. Habibi, H. Taghavi. 2013. Synthesis of CuO/ ZnO nanoparticles and their application for photocatalytic degradation of Lidocaine HCl by the trial-and-error and Taguchi methods. *Bull. Korean Chem. Soc.* 34. 7.
- Goldstein, G. I., D. E. Newbury, P. Echlin, D. C. Joy, C. Fiori, E. Lifshin. 1981. Scanning electron microscopy and x-ray microanalysis. New York: *Plenum Press*. ISBN 0-306-40768-X.
- Guo X., H. Zhu, Q. Li. 2014. Visible-light-driven photocatalytic properties of ZnO/ZnFe<sub>2</sub>O<sub>4</sub> Core/shell nanocable arrays. *Applied Catalysis B. Environmental*, 160–161: pp 408–414.
- Gupta S.M., M. Tripathi. 2012. A Review on the Synthesis of TiO<sub>2</sub> Nanoparticles by Solution Route. *Cent. European J. Chem.* 10(2): pp 279-294.
- Henrique A., J.L. Mourao, A.R. Malagutti, C. Ribeiro. 2010. Synthesis of TiO<sub>2</sub>-coated CoFe<sub>2</sub>O<sub>4</sub> photocatalysts applied to the photodegradation of atrazine and Rhodamine B in water. *Applied Catalysis A: General*. 382: pp 284–292.
- Herna'ndez-Ram'irez A., I. Medina-Ram'irez. 2015. Chapter 1. Semiconducting Materials. *Photocatalytic Semiconductors*. Springer International Publishing Switzerland. Pp 1-40.
- Ismunandar. 2006. *Padatan Oksida Logam: Struktur, sintesis, dan sifat-sifatnya*. Bandung, Penerbit ITB.
- Jacob B. P., A. Kumar, R. P. Pant, S. Singh, E. M. Mohammed. 2011. Influence of preparation method on structural and magnetic properties of nickel ferrite nanoparticles. *Bull. Mater. Sci.* 34(7): pp 1345–1350.
- Jang J.S. 2009. Synthesis of nanocrystalline ZnFe<sub>2</sub>O<sub>4</sub> by polymerized complex method for its visible light photocatalytic application: an Efficient photo-oxidant. *Bull. Korean chem Soc.* 30. 8.
- Jiang J., L.H Ai, L.C. Li, H. Liu. 2009. Facile fabrication and characterization of NiFe<sub>2</sub>O<sub>4</sub>/ZnO hybrid nanoparticles. *Journal of Alloys and Compounds*. 484: pp 69-72.
- Jin Y., L. Yong-kang, L. Yu and L. Jun-ping, 2010, Synthesis and characterization of magnetic TiO<sub>2</sub>/SiO<sub>2</sub>/NiFe<sub>2</sub>O<sub>4</sub> composite photocatalysts. *Chem Res. Chinese Univ.* 26(2): pp 278-282.
- Jin Z., Y.X. Zhang, F.L Meng, Y. Jia, T. Luo, X.Y. Yua, J. Wang, J.H. Liu, X.J. Huang. 2014. Facile synthesis of porous single crystalline ZnO nanoplates and their application in photocatalytic reduction of Cr(VI) in the presence of phenol. *Journal of Hazardous Materials*. 276: pp 400–407.
- Torrent J., V. Barro'n. 2002. Diffuse reflectance spectroscopy of iron oxides. *Encyclopedia of Surface and Colloid Science*. Marcel Dekker. Inc.

- Khan S. B., M. Faisal, M.M. Rahman, A. Jamal. 2011. Low-temperature growth of ZnO nanoparticles. *Photocatalyst and acetone sensor. Talanta*. 85: pp 943– 949.
- Khosravi I., M. Eftekhar. 2013. Characterization and evaluation catalytic efficiency of NiFe<sub>2</sub>O<sub>4</sub> nanospinel in removal of reactive dye from aqueous solution. *Powder Technology*. 250: pp 147–153.
- Kim Y. H., and H. C. Choi. 2013. ZnO on Thiolated Graphene Oxide as Efficient Photocatalyst for Degradation of Methylene Blue. *Bull. Korean Chem. Soc.* 34. (1): pp 3586-3590
- Kombaiah K., J. Judith Vijaya, L. John Kennedy, M. Bououdina. 2015. Studies on the microwave assisted and conventional combustion synthesis of *Hibiscus rosa-sinensis* plan extract based ZnFe<sub>2</sub>O<sub>4</sub> nanoparticles and their optical and magnetic properties. *Ceramic International*. <http://dx.doi.org/10.1016/j.ceramint.2015.11.003>.
- Laksono E.W. 2007. Kajian Penggunaan Adsorben Sebagai Alternatif Pengolahan Limbah Zat Pewarna Tekstil. UNY.Yogyakarta.
- Lamba R., A. Umar, S.K. Mehta, S.K. Kansal. 2015. CeO<sub>2</sub>-ZnO hexagonal nanodisks: Efficient material for the degradation of direct blue 15 dye and its simulated dye bath effluent under solar light. *J. Alloys Compd.* 620: pp 67–73.
- Lu Y., Y. Lin, D. Wang, L. Wang, T. Xie, T. Jiang. 2011. A High performance cobalt-doped ZnO visible light photocatalyst and its photogenerated charge transfer Properties. *Nano Res.* 4(11): pp 1144-1152.
- Lemine O.M., 2013, Effect of Milling Condition on the Formation of ZnFe<sub>2</sub>O<sub>4</sub> Nanocrystalline. *International Journal of Physical Scineces.* 8(10): pp 380-387.
- Li H., H.Wu, G. Xiao. 2010. Effects of synthetic conditions on particle size and magnetic properties of NiFe<sub>2</sub>O<sub>4</sub>. *Powder Technology*. 198: pp 157–166.
- Li J., G. Lu, Y. Wang, Y. Guo, Y. L. Guo. 2012. A high activity photocatalyst of hierarchical 3D flowerlike ZnO microspheres: Synthesis, characterization and catalytic activity. *Journal of Colloid and Interface Science.* 377: pp 191–196.
- Ma C., Z. Zhou, H. Wei, Z. Yang, Z. Wang and Y. Zhang. 2011. Rapid large-scale preparation of ZnO nanowires for photocatalytic application. *Nanoscale Research Letters.* 6(5): pp 36.
- Manikandan A., R. Sridhar, S.A. Antony, S. Ramakrishna. 2014. A simple aloe vera plant-extracted microwave and conventional combustion synthesis; Morphology, optical, magnetic and catalytic properties of CoFe<sub>2</sub>O<sub>4</sub> nanostructure. *J. Mol. Struct.* 1076: pp 188–200.
- Melo R.S., F.C. Silva, K.R.M. Moura, A.S. de Menezes, F.S.M. Sinfrônio. 2015. Magnetic ferrites synthesised using the microwave-hydrothermal method. *Journal of Magnetism and Magnetic Materials.* 381: pp 109–115.

- Mohamed R.M., and M.A. Barakat. 2012. Enhancement of photocatalytic activity of ZnO/SiO<sub>2</sub> by nanosized Pt for photocatalytic degradation of phenol in waste water. *International Journal of Photoenergy*. Article ID 103672.
- Mufthi M. 2009. Metode analisis thermal. <http://banemo.wordpress.com/2009/12/27/metode-analisis-thermal/>.
- Naseri M.G., E.B Saion, A. Kamali. 2012. An overview on nanocrystalline ZnFe<sub>2</sub>O<sub>4</sub>, MnFe<sub>2</sub>O<sub>4</sub>, and CoFe<sub>2</sub>O<sub>4</sub> synthesized by a thermal treatment method. *International Scholarly Research Network*. Article ID 604241.
- Nosrati R., A. Olad, R. Maramifar. 2012. Degradation of ampicillin antibiotic in aqueous solution by ZnO/polyaniline nanocomposite as photocatalyst under sunlight irradiation. *Environ. Sci. Pollut. Res.* 19: pp 2291–2299.
- Nugroho D.W. 2012. Pengaruh variasi pH pada sintesis nanopartikel ZnO dengan metode sol-gel. *Prosiding Pertemuan Ilmiah Ilmu Pengetahuan dan Teknologi Bahan*. Serpong.
- Nunome T., H. Irie, N. Sakamoto, O. Sakurai, K. Shinozaki, H. Suzuki, N. Wakiya. 2013. Magnetic and Photocatalytic Properties of n- and p-Type ZnFe<sub>2</sub>O<sub>4</sub> Particles Synthesized Using Ultrasonic Spray Pyrolysis. *Journal of Ceramic Society of Japan*, 121(1): pp 26-30.
- Pang Z., M. Fang, M. Wu, Y. Liu, Y. Ma, X. Liu, L. Zhang. 2011. Polyvinyl pyrrolidone-assisted hydrothermal synthesis of octahedral ZnFe<sub>2</sub>O<sub>4</sub> nanoparticles. *Published in Micro and Nano Letters*. 6. Iss. 12: pp 1012–1015.
- Phumying S., S. Labuayai, E. Swatsitang, V. Amornkitbamrung, S. Maensiri. 2013. Nanocrystalline spinel ferrite (MFe<sub>2</sub>O<sub>4</sub>, M = Ni, Co, Mn, Mg, Zn) powders prepared by a simple aloe vera plant-extracted solution hydrothermal route. *Materials Research Bulletin* 48: 2060–2065.
- Purwamargapratala Y., S. Yusuf, Ridwan. 2013. Degradasi Metilen Biru Dengan Komposit TiO<sub>2</sub>-SiO<sub>2</sub>-Fe<sub>3</sub>O<sub>4</sub>. *Seminar Nasional IX SDM Teknologi Nuklir Yogyakarta*. Yogyakarta. ISSN 1978-0176.
- Rahmayeni, U. Septiani., S. Arief, H. Hamdi. 2011. Sintesis, karakterisasi dan uji aktivitas nano komposit TiO<sub>2</sub>-CoFe<sub>2</sub>O<sub>4</sub>. *J. Riset Kimia*. 4(2): hal 71-78.
- Rahmayeni, S. Arief, Y. Stiadi, R. Rizal, Zulhadjri. 2012. Synthesis of magnetic nanoparticles of TiO<sub>2</sub>-NiFe<sub>2</sub>O<sub>4</sub>: Characterization and photocatalytic activity on degradation of rhodamine B. *I.J.C*, 12(3): pp 229-234.
- Rahmayeni, Y. Stiadi, Zulhajri. 2013. Fotokatalis komposit magnetik TiO<sub>2</sub>-MnFe<sub>2</sub>O<sub>4</sub>. *Prosiding Semirata FMIPA Universitas Lampung*. Lampung, hal 588-596.
- Rameshbabu R., R. Ramesh, S. Kanagesan, A. Karthigeyan, S. Ponnusamy. 2013. Synthesis of superparamagnetic ZnFe<sub>2</sub>O<sub>4</sub> nanoparticle by surfactant assisted hydrothermal method. *J Matter Sci*. DOI 10.1007/s10854-013-1397-6.

- Rameshbabu R., N. Kumar, A. Karthigeyan, B. Neppolian. 2016. Visible light photocatalytic activities of ZnFe<sub>2</sub>O<sub>4</sub>/ZnO nanoparticles for the degradation of organic pollutants. *Materials Chemistry and Physics*. 181: pp 106-115.
- Reddy M. P., W. Madhuri, K. Sadhana, I.G. Kim, K.N. Hui, K.S. Hui, K.V. Siva Kumar, R.R. Reddy. 2014. Microwave sintering of nickel ferrite nanoparticles processed via sol-gel method. *J. Sol-Gel Sci. Technol.* 70: pp 400-404.
- Richardson, J.T. (1989). *Principles of Catalyst Development*. New York: Plenum Press.
- Saif E., A. El-Saied. 2013. Band Gap Determination from Diffuse Reflectance Measurements of Irradiated Lead Borate Glass System Doped with TiO<sub>2</sub> by Using Diffuse Reflectance Technique. *Materials Sciences and Applications*. 4: pp 324-329.
- Saikia L., D. Bhuyana, M. Saikia, B. Malakara, D. K. Duttaa, P. Sengupta. 2015. Photocatalytic performance of ZnO nanomaterials for self sensitized degradation of malachite green dye under solar light. *Applied Catalysis A: General* 490: pp 42-49.
- Sathishkumara P., N. Pugazhentirana, R.V. Mangalarajab, A.M. Asiri, S. Anandan. 2013, ZnO supported CoFe<sub>2</sub>O<sub>4</sub> nanophotocatalysts for the mineralization of Direct Blue 71 in aqueous environments. *Journal of Hazardous Materials* 252-253: pp 171- 179.
- Serway R.A., J.W. Jewett. 2014. Physics for scientists and engineers with modern physics. *Cengage Learning*. 9<sup>th</sup> ed. New York.
- Sesha S., J. Srinivasan, Wade, E.K. Stefanakos. 2006. Synthesis and characterization of photocatalytic TiO<sub>2</sub>-ZnFe<sub>2</sub>O<sub>4</sub> nanoparticles. *Journal of Nanomaterials*. article ID 45712: pp 1-4.
- Shalaby A., A.B. Nedelcheva, R. Iordanova, Y. Dimitrev. 2013. A study of The citric acid on the crystallinity Of ZnO/TiO<sub>2</sub> Nanopowders. *Journal of Chemical Thecnology and Metallurgy*.48(6): pp 585-590.
- Shao R., L. Sun, L. Tang, Z. Chen. 2013. Preparation and characterization of magnetic core-shell ZnFe<sub>2</sub>O<sub>4</sub>@ZnO nanoparticles and their application for the photo degradation of methylene blue. *Chemical Engineering Journal*. 217: pp 185-191.
- Sharifi I., H. Shokrollahi, S. Amiri. 2012. Ferrite-based magnetic nanofluids used in hyperthermia applications. *Journal of Magnetism and Magnetic Materials*. 324: pp 903-915.
- Sibilia P., 1996. A Guide to Materials Characterization and Chemical Analysis I, 2nd ed. USA. Wiley-VCH. pp 143-174.
- Silalahi J., F. Rahman. 2011. Analisis Rhodamin B Pada Jajanan Anak Sekolah Dasar Di Kabupaten Labuhan Batu Selatan Sumatera Utara. *Indon. Med. Assoc.* 61(7): hal 293-298.
- Stoian, Razvan, A. Hill, T. Hariiman. 2006. TEM, SEM, and AFM of polystyrene latex and gold nanoparticles. Submission of journal publication on December, 7, 2006.

- Shifu C., Z. Wei, L. Wei, Z. Sujuan. 2009. Preparation, Characterization and Activity Evaluation of p-n Junction Photocatalyst p-NiO/n-ZnO. *J Sol-Gel Sci Thecnol.* 50: pp 387-396.
- Shifu C., Z. Wei, L. Wei, Z. Huaye, Y. Xiaoling. 2009. Preparation, characterization and activity evaluation of p-n junction photocatalyst p-CaFe<sub>2</sub>O<sub>4</sub>/n-ZnO. *Chemical Engineering Journal.* 155: pp 473-566.
- Sivakumar P.R. Ramesh, A. Ramanand, S. Ponnusamy C. Muthamizhchelvan, 2013. Synthesis and characterization of NiFe<sub>2</sub>O<sub>4</sub> nanoparticles and nanorod”, *Journal of Alloys and Compounds.* 563: pp 6-11.
- Soltaninezhad M., A. Aminifar. 2013. Study nanostructures of semiconductor zinc oxide (ZnO) as a photocatalyst for the degradation of organic pollutants. *International Journal of Nano Dimension.* 2(2): pp 137-145.
- Storck, S., Bretinger, H., and Maier, W.F. (1998). Characterization of micro- and mesoporous solids by physisorption methods and pore-size analysis. *Appl. Catal. A: Gen.* 174: pp 137-146.
- Su N.R., P. Lv, M. Li, X. Zhang, M. Li, J. Niu. 2014. Fabrication of MgFe<sub>2</sub>O<sub>4</sub>-ZnO heterojunction photocatalysts for application of organic pollutants. *Materials Letters.* 122: pp 201-204.
- Sun L., R. Shao, L.Q. Tang, C. Zhidong. 2013. Synthesis of ZnFe<sub>2</sub>O<sub>4</sub>/ZnO nanocomposites immobilized on graphene with enhanced photocatalytic activity under solar light irradiation. *Journal of Alloys and Compounds.* 564: pp 55-62.
- Sun S., X. Yang, Y. Zhang, F. Zhang, J. Ding, J. Bao, C. Gao. 2012. Enhanced photocatalytic activity of Sponge-Like ZnFe<sub>2</sub>O<sub>4</sub> synthesized by solution combustion method. *Progress in Natural Science:Material International.* 22(6): pp 639-643.
- Suzuki, E. (2002). "High-resolution scanning electron microscopy of immunogold-labelled cells by the use of thin plasma coating of osmium". *Journal of Microscopy.* 208 (3): 153-157. doi:10.1046/j.1365-2818.2002.01082.x
- Tang A., Y. Deng, J. Jin, H. Yang. 2012. ZnFe<sub>2</sub>O<sub>4</sub>-TiO<sub>2</sub> Nanoparticles within mesoporous MCM-4, “The ScientificWorld Journal Volume. Article ID 480527, 8 pages doi:10.1100/2012/480527.
- Thermo Gravimetric Analyzer (TGA), <https://materialcerdas.wordpress.com/alat-karakterisasi-thermo-gravimetric-analyzer-tga/>
- Tong G., F. Du, W. Wu, R. Wu, F. Liu, and Y. Liang. 2013. Enhanced reactive oxygen species (ROS) yields and antibacterial activity of spongy ZnO/ZnFe<sub>2</sub>O<sub>4</sub> hybrid microhexahedra selectively synthesized through a versatile glucose-engineered coprecipitation/annealing process. *J. Mater. Chem. B,* 1: pp 2647-2657.

- Verma K.C., V.P. Singh, M. Ramb, J. Shah, R.K. Kotnala. 2011. Structural, microstructural and magnetic properties of NiFe<sub>2</sub>O<sub>4</sub>, CoFe<sub>2</sub>O<sub>4</sub> and MnFe<sub>2</sub>O<sub>4</sub> nano ferrite thin films, *Journal of Magnetism and Magnetic Materials*. 323: pp 3271–3275.
- Walujodjati A., 2008. Sintesis Hidrotermal Dari Serbuk Oksida Keramik. *Momentum*. 4(2): pp 33-37.
- Wang C., X. Tan, J. Yan, B. Chai, J. Li, S. Chenca. 2016. Electrospinning direct synthesis of magnetic ZnFe<sub>2</sub>O<sub>4</sub>/ZnO multi-porous nanotubes with enhanced photocatalytic activity. *Applied Surface Science* xxx (2016) xxx–xxx, <http://dx.doi.org/10.1016/j.apsusc.2016.11.029>.
- Wang Y.Q., R.M. Cheng, Z. Wen, and L.J. Zhao. 2011. Synthesis and characterization of single-crystalline MnFe<sub>2</sub>O<sub>4</sub> ferrite nanocrystals and their possible application in water treatment. *Eur. J. Inorg. Chem.* pp 2942–2947.
- Wang Y., Q. Wang, X. Zhan, F. Wang, M. Safdar, J. He. 2013. Visible light driven type II heterostructures and their enhanced photocatalysis properties: a review. *Nanoscale* 5: pp 8326–8339.
- Wang. Y., Y.S. Wang, R.R. Jiang, R. Xu. 2012. Cobalt phosphate-ZnO composite photocatalysts for oxygen evolution from photocatalytic water oxidation. *Ind. Eng. Chem. Res.* 51: pp 9945–9951.
- Welderfael T., O.P. Yadav, A.M. Taddesse, J. Kaushal. 2013. Synthesis, characterization and photocatalytic activities of Ag-N-codoped ZnO nanoparticles for degradation of methyl red. *Bull. Chem. Soc. Ethiop.* 27: pp 221-232.
- West A. R., 1999. Basic Solid State Chemistry. Second Edition. *Jon Wiley & Sons, LTD.* New York.
- Widihati I.A.G., N.P. Diantariani, Y.F. Nikmah. 2011. Fotodegradasi Metilen Biru Dengan Sinar UV Dan Katalis Al<sub>2</sub>O<sub>3</sub>. *Jurnal Kimia* 5 (1): pp 31-42.
- Widodo, Slamet. 2010. Teknologi Sol Gel Pada Pembuatan Nanokristalin Metal Oksida Untuk Aplikasi Sensor Gas”. *Seminar Rekayasa Kimia dan Proses*, ISSN : pp 1411-4216.
- Williams D. H., Fleming I. 1995. Spectroscopy methods in organic chemistry. 5th ed. *McGraw-Hill International Limited.* England
- Wilson A, S.R. Mishra, R. Gupta, K. Ghosh. 2012. Preparation and photocatalytic properties of hybridcore–shell reusable CoFe<sub>2</sub>O<sub>4</sub>–ZnO nanosphere. *Journal of Magnetism and Magnetic Materials*. 324: pp 2597–2601.
- Woo M.A., T.W. Kim, I.Y. Kim, S.J. Hwang. 2011. Synthesis and lithium electrode application of ZnO-ZnFe<sub>2</sub>O<sub>4</sub> nanocomposites and porously assembled ZnFe<sub>2</sub>O<sub>4</sub> nanoparticles. *Solid State Ionic*. 182: pp 91-97.



- Wu C., 2014. Facile one-step synthesis of N-doped ZnO micro polyhedrons for efficient photocatalytic degradation of formaldehyde under visible-light irradiation. *Applied Surface Science*. 04: pp 217.
- Xu C., L. Cao, G. Su, W. Liu, H. Liu, Y. Yu, X. Qu. 2010. Preparation of ZnO/Cu<sub>2</sub>O compound photocatalyst and application in treating organic dyes. *Journal of Hazardous Materials*. 176: pp 807-813.
- Xu F., Y. Shen, L. Sun, H. Zeng, Y. Lu. 2011. Enhanced photocatalytic activity of hierarchical ZnO nanoplate-nanowire architecture as environmentally safe and facilely recyclable photocatalyst. *Nanoscale*. 3: pp 5020–5025.
- Xu L., B. Wei, W. Liu, H. Zhang, C. Su and J. Che, 2008. Flower-like ZnO-Ag<sub>2</sub>O composites: precipitation synthesis and photocatalytic activity. *Nanoscale Research Letters*. 8: pp 536.
- Xu Y., H. Xu, H. Li, J. Xia, C. Liu, L. Liu. 2011. Enhanced photocatalytic activity of new photocatalyst Ag/AgCl/ZnO. *Journal of Alloys and Compounds*, 509: pp 3286-3292.
- Yashavanth G.S., H.S. Kumar, N. Bhojya, A.S. Roy, K.N. Harish, R. Viswanath. 2012. Synthesis, Optical and Electrical Properties of ZnFe<sub>2</sub>O<sub>4</sub> Nanocomposites. *Nanomater. nanotechnol.* Vol. 2: Art. 19.
- Yu H., H. Ming, J. Gong, H. Li, H. Huang, K. Pan, Y. Liu, Z. Kang, J. Wei and D. Wang. 2013. Facile synthesis of Au/ZnO nanoparticles and their enhanced photocatalytic activity for hydroxylation of benzene. *Bull. Mater. Sci.* 36(3): pp 367–372.
- Zhang G., W. Xu, Z. Li, W. Hu, Y. Wang. 2009. Preparation and Characterization of Multi-Functional CoFe<sub>2</sub>O<sub>4</sub>-ZnO Nanocomposites. *Journal of Magnetism and Magnetic Materials*. 321: pp1424-1427.
- Zhang L. F., Y. Wu. 2013. Sol-Gel Synthesized Magnetic MnFe<sub>2</sub>O<sub>4</sub> Spinel Ferrite Nanoparticles as Novel Catalyst for Oxidative Degradation of Methyl Orange. *Journal of Nanomaterials*. pp 1-6.
- Zheng J., X. Song , X. Liu, W. Chen , Y. Li , J. Guo. 2012. Synthesis of hexagonal CoFe<sub>2</sub>O<sub>4</sub>/ZnO nanoparticles and their electromagnetic properties, *Materials Letters*. 73: pp 143–146.
- Zhao J. L., L. Zhao, X. Wang. 2008. Preparation and characterization of ZnO/ZnS hybrid photocatalysts via microwave-hydrothermal method. *Environ. Sci. Engin. China*, 2(4): 415–420.
- Zhao M., J. Huang, Y. Zhou, X. Pan, H. He, Z. Ye and X. Pan. 2013. Controlled synthesis of spinel ZnFe<sub>2</sub>O<sub>4</sub> decorated ZnO heterostructures as peroxidase mimetics for enhanced colorimetric biosensing. *Chem. Commun.* 49: pp 7656.
- Zhao X., F. Lou, M. Li, X. Lou, Z. Li, Ji. Zhou. 2014. Sol-gel based hydrothermal method for the synthesis of 3D flower-like ZnO microstructures composed of nano sheets for photocatalytic applications. *Ceramics International*. 40: pp 5507–5514.

- Zhu H. Y., R. Jiang, Y.Q. Fu, R.R. Li, J. Yao, S-T. Jiang. 2016. Novel multi functional  $\text{NiFe}_2\text{O}_4/\text{ZnO}$  hybrids for dye removal by adsorption, photo catalysis and magnetic separation. *Applied surface science*. 369: pp 1-10.
- Zhu X., F. Zhang, M. Wang, J. Ding, S. Sun, J. Bao, C. Gao. 2014. Facile synthesis, structure and visible light photocatalytic activity of recyclable  $\text{ZnFe}_2\text{O}_4/\text{TiO}_2$ . *Applied Surface Science*. 319: pp 83–89.
- Zhu Y. F., D.H. Fan, Y.W. Dong, G.H. Zhou. 2014. Morphology-controllable ZnO nanostructures: Ethanol-assisted synthesis, growth mechanism and solar cell applications. *Superlattices and Microstructures*. 74: pp 261–272.

