DAFTAR PUSTAKA

Abbas, M., Rao, B. P., Reddy, V. and Kim, C., 2014, Fe_3O_4/TiO_2 Core/Shell Nanocubes: Single-Batch Surfactantless Synthesis, Characterization and Efficient Catalysts for Methylene Blue Degradation, *Ceram. Int.*, 40, 11177-11186.

Abdulghani, A.J. and Hussain, R.K., 2014, Synthesis of Gold Nanoparticles via Chemical Reduction of Au (III) Ions by Isatin in Aqueous Solutions: Ligand Concentrations and pH Effects, *J. Baghdad Sci.*, 11(3), 1201-1216.

Akcil, A., Erust, C., Gahan, C.S., Ozgun, M., Sahin, M. and Tuncuk, A., 2015, Precious Metal Recovery from Waste Printed Circuit Boards Using Cyanide and Non-Cyanide Lixiviants - A Review, *Waste Manag.*, 45, 258-271.

Alvarez, P.M., Jaramillo, J., Lopez-Pinero, F. and Plucinski, P.K., 2010, Preparation and Characterization of Magnetic TiO_2 Nanoparticles and Their Utilization for Degradation of Emerging Pollutants in Water, *Appl. Catal. B: Environ.*, 100, 338-345.

Anandan, S. dan Yoon, M., Photocatalytic Activities of the Nano-Sized TiO_2-Supported Y-Zeolites, *J. Photochem. Photobiol. C: Photochem. Rev.*, 4, 5-18.

Asgari, S., Fakhari, Z. and Berijani, S., 2014, Synthesis and Characterization of Fe_3O_4 Magnetic Nanoparticles Coated with Carboxymethyl Chitosan Grafted Sodium Methacrylate, *J. Nanostruc.*, 4, 55-63.

Atsuya, T. and Mutsuo, S., 1997, *The Synthesis of a Photocatalyst Containing Ferromagnetic Metal Particles Dispersed in a Semiconducting Metal Matrix*, U.S. Patent, 703550.

Bahnemann, W., Muneer, M. and Haque, M.M., 2007, Titanium Dioxide-Mediated Photocatalysed Degradation of few Selected Organic Pollutants in Aqueous Suspensions, *Catal. Today*, 124, 133-148.

Banerjee, S., Gopal, J., Muraleedharan, P., Tyagi, A.K. and Raj, B., 2006, Physics and Chemistry of Photocatalytic Titanium Dioxide: Visualization of Bactericidal Activity Using Atomic Force Microscopy, *Current Sci.*, 90, 1378-1383.

Banisharif, A., Elahi, S.H., Firooz, A.A., Khodadadi, A.A. and Mortazavi, Y., 2013, TiO_2/Fe_3O_4 Nanocomposite Photocatalysts for Enhanced Photo-Decolorization of Congo Red Dye, *Int. J. Nanosci. Nanotechnol.*, 9(4), 193-202.

Barakat, M.A., Chen, Y.T. and Huang, C.P., 2004, Removal of Toxic Cyanide and Cu(II) Ions from Water by Illuminated TiO_2 Catalyst, *Appl. Catal. B: Environ.*, 53(1), 13-20.

Baur, V.W.H., 1961 Atomabstände und Bindungswinkel im Brookit, TiO_2. *Acta Crystallogr.*, 14, 214-216.

Berensmeier, S., 2006, Magnetic Particles for the Separation and Purification of Nucleic Acids, *Appl. Microbiol. Biotechnol.*, 73, 495-504.

Beydoun, D. and Amal, R., 2002, Implications of Heat Treatment on the Properties of a Magnetic Iron Oxide-Titanium Dioxide Photocatalyst, *Mater. Sci. Eng. B*, 94, 71-81.

Beydoun, D., Amal, R., Low, G.K.C. and McEvoy, S., 2000, Novel Photocatalyst: Titania-Coated Magnetite. Activity and Photodissolution, *J. Phys. Chem. B.*, 104, 4387-4396.

Beydoun, D., Amal, R., Low, G. and McEvoy, S., 2002, Occurrence and Prevention of Photodissolution at the Phase Junction of Magnetite and Titanium Dioxide, *J. Mol. Catal. A: Chem.*, 180, 193-200.

Byrne, J.A., Eggins, B.R., Brown, N.M.D., McKinney, B. and Rouse, M., 1998, Immobilisation of TiO_2 Powder for the Treatment of Polluted Water, *Appl. Catal. B*, 17, 25-36.

Carbonell, E., Ramiro-Manzano, F., Rodriguez, I., Corma, A., Meseguer, F. and Garcia, H., 2008, Enhancement of TiO_2 Photocatalytic Activity by Structuring the Photocatalyst Film as Photonic Sponge, *Photochem. Photobiol. Sci.*, 7, 931-935.

Carp, O., Huisman, C.L. and Reller, A., 2004, Photoinduced Reactivity of Titanium Dioxid, *Prog. Sol. State Chem.*, 32, 33-117.

Chen, X. and Mao, S.S., 2007, Titanium Dioxide Nanomaterials: Synthesis, Properties, Modifications, and Applications, *Chem. Rev.*, 107, 2891-2959.

Chia, C.H., Zakaria, S., Farahiyan, R., Khong, L.T., Nguyen, K.L., Abdullah, M. and Ahmad, S., 2008, Size-Controlled Synthesis and Characterization of Fe_3O_4 Nanoparticles by Chemical Coprecipitation Method, *Sains Malay.*, 37, 389-394.

Chiang, C.L., Sung, C.S., Wu, T.F., Chena, C.Y. and Hsu, C.Y., 2005, Application of Superparamagnetic Nanoparticles in Purification of Plasmid DNA from Bacterial Cells, *J. Chromatogr. B*, 822, 54-60.

Chmielewski, A.G., Urbański, T.S. and Migdał, W., 1997, Separation Technologies for Metals Recovery from Industrial Wastes, *Hydrometallurgy*, 45(3), 333-344.

Coronado, J.M., Fresno, F. and Hernandes-Alonso, M.D., 2013, *Design of Advanced Photocatalytic Material for Energy and Environmental Application*, Springer, New York.

Cromer, D.T. and Herrington, K., 1955, The Structures of Anatase and Rutile, *J. Am. Chem. Soc.*, 77, 4708-4709.

Cui, J. and Zhang, L., 2008, Metallurgical Recovery of Metals from Electronic Waste: A Review, *J. Hazard. Mater.*, 158, 228-256.

Dang, F., Enomoto, N., Hojo, J. and Enpuku, K., 2010, Sonochemical Coating of Magnetite Nanoparticles with Silica, *Ultrason. Sonochem*., 17, 193-199.

Dhas, N.A. and Suslick, K.S., 2005, Sonochemical Preparation of Hollow Nanospheres and Hollow Nanocrystals, *J. Am. Chem. Soc*., 127, 2368-2369.

Dhawale, D.S., Salunkhe, R.R., Jamadade, V.S., Dubal, D.P., Pawar, S.M. and Lokhande, C.D., 2010, Hydrophilic Polyaniline Nanofibrous Architecture using Electrosynthesis Method for Supercapacitor Application, *Curr. Appl. Phys.*, 10, 904-909.

Du, G.H., Liu, Z.L., Xia, X., Chu, Q. and Zhang, S.M., 2006, Characterization and Application of Fe_3O_4/SiO_2 Nanocomposites, *J. Sol-Gel Sci. Technol*., 39(3), 285-291.

Fagnern, N., Leotphayakkarat, R., Chawengkijwanich, C., Gleeson, M.P., Koonsaeng, N. and Sanguanruang, S., 2012, Effect of Titanium-Tetraisopropoxide Concentration on the Photocatalytic Efficiency of Nanocrystalline Thin Films TiO_2 Used for the Photodegradation of Textile Dyes, *J. Phys. Chem. Sol.*, 73(12), 1483-1486.

Farimani, M. H. R., Shahtahmasebi, N., Rezaee Roknabadi, M., Ghows, N. and Kazemi, A., 2013, Study of Structural and Magnetic Properties of Superparamagnetic Fe_3O_4/SiO_2 Core-Shell Nanocomposites Synthesized with Hydrophilic Citrate-Modified Fe_3O_4 Seeds via a Sol-Gel Approach, *Phys. E: Low-Dimens. Sys. Nanostruc.*, 53, 207-216.

Fox, M.A. and Dulay, M.T., 1993, Heterogeneous Photocatalysis, *Chem. Rev.*, 93, 341-357.

Freestone, I., Meeks, N., Sax, M. and Higgitt, C., 2007, The Lycurgus Cup - a Roman Nanotechnology, *Gold Bull.*, 40(4), 270-277.

Fu, L., Dravid, V.P., Klug, K., Liu, X. and Mirkin, C.A., 2002, Synthesis and Patterning of Magnetic Nanostructures, *Eur. Cells and Mater.*, 3, 156-157.

Fu, W.Y., Yang, H.B., Chang, L.X., Bala, H., Li, M.H. and Zou, G.T., 2006, Anatase TiO_2 Nanolayer Coating on Strontium Ferrite Nanoparticles for Magnetic Photocatalyst, *Coll. Surf. A*, 289, 47-52.

Gad-Allah, T.A., Kato, S., Satokawa, S. and Kojima, T., 2007, Role of Core Diameter and Silica Content in Photocatalytic Activity of $TiO_2/SiO_2/Fe_3O_4$ Composite, *Sol. Stat. Sci.*, 9(8), 737-743.

Gao, J.Z. and Li, S., 2007, Preparation and Photocatalytic Activity of PANI/TiO_2 Composite Film, *Rare Met.*, 26, 1-7.

Gao, Y., Chen, B., Li, H. and Ma, Y., 2003, Preparation and Characterization of A Magnetically Separated Photocatalyst and its Catalytic Properties, *Mater. Chem. Phys.*, 80, 348-355.

Gedanken, A., 2004, Using Sonochemistry for the Fabrication of Nanomaterials, *Ultrason. Sonochem.* 11, 47.

Ghosh, B., Ghosh, M.K., Parhi, P., Mukherjee, P.S. and Mishra, B.K., 2015, Waste Printed Circuit Boards Recycling: an Extensive Assessment of Current Status, *J. Clean. Prod.*, 94, 5-19.

Gimeno, M.C., 2008, *The Chemistry of Gold*, Wiley-CVCH Verlag GmbH & Ko, KGaA, Weinheim.

Güleryüz, H., Filiâtre, C., Euvrard, M., Buron, C. and Lakard, B., 2013, Novel Strategy to Prepare Polyaniline-Modified SiO_2/TiO_2 Composite Particles, *Syn. Met.*, 181, 104-109.

Gupta, S.M. and Tripathi, M., 2011, A Review of TiO_2 Nanoparticles, *Chin. Sci. Bull.*, 56(16), 1639-1657.

Gurung, M., Adhikari, B.B., Kawakita, H., Ohto, K., Inoue, K. and Alam, S., 2013, Recovery of Gold and Silver from Spent Mobile Phones by Means of Acidothiourea Leaching Followed by Adsorption Using Biosorbent Prepared from Persimmon Tannin, *Hydrometallurgy.*, 133, 84-93.

Hagelüken, C., 2006, Improving Metal Returns and Eco-Efficiency in Electronics Recycling - a Holistic Approach for Interface Optimisation between Pre-Processing and Integrated Metals Smelting and Refining, *IEEE Int. Sympos. Electro. Environ.*, 218-223.

Hasanov, R., Bilgic, S. and Gece, G., 2011, Experimental and Theoretical Studies on the Corrosion Properties of Some Conducting Polymer Coatings, *J. Sol. State Electrochem.*, 15, 1063-1070.

Herrmann, J.M., Tahiri, H., Ait-Ichou, Y., Lassaletta, G., González-Elipe, A.R. and Fernández, A., 1997, Characterization and Photocatalytic Activity in Aqueous Medium of TiO_2 and Ag-TiO_2 Coatings on Quartz, *Appl. Catal. B*, 13, 219-228.

Higby, G., 1982, Gold in Medicine, *Gold Bull.*, 15(4), 130-140.

Hoffmann, M.R., Martin, S., Choi, W. and Bahnemann, D.W., 1995, Environmental Applications of Semiconductor Photocatalysis, *Chem. Rev.*, 95(1), 69-96.

Hong, R.Y., Li, J.H., Zhang, S.Z., Li, H.Z., Zheng, Y., Ding, J.M. and Wei, D.G., 2009, Preparation and Characterization of Silica-Coated Fe_3O_4 Nanoparticles Used as Precursor of Ferrofluids, *Appl. Surf. Sci.*, 255(6), 3485-3492.

Hu, H., Wang, Z. and Pan, L., 2010, Synthesis of Monodisperse Fe_3O_4@Silica Core-Shell Microspheres and Their Application for Removal of Heavy Metal Ions from Water, *J. Alloys Comp.*, 492(1-2), 656-661.

Hu, X., Yang, J. and Zhang, J., 2011, Magnetic Loading of $TiO_2/SiO_2/Fe_3O_4$ Nanoparticles on Electrode Surface for Photoelectrocatalytic Degradation of Diclofenac, *J. Hazard. Mater*., 196, 220-227.

Huang, J., Virji, S., Weiller, B.H. and Kaner, R.B., 2004, Nanostructured Polyaniline Sensors, *Euro. J*., 10, 1314-1319.

Jacintho, G.V.M., Brolo, A.G., Corio, P., Suarez, P.A.Z. and Rubim, J.C., 2009, Structural Investigation of MFe_2O_4 (M = Fe, Co) Magnetic Fluids, *J. Phys. Chem*. C, 113(18), 7684-7691.

Jing, J., Li, J., Feng, J., Li, W. and Yu, W. W., 2013, Photodegradation of Quinoline in Water over Magnetically Separable Fe_3O_4/TiO_2 Composite Photocatalysts, *Chem. Eng. J.*, 219, 355-360.

Jo, W.K. and Kang, H.J., 2013, (Ratios: 5, 10, 50, 100, and 200) Polyaniline-TiO_2 Composites under Visible or UV-light Irradiation for Decomposition of Organic Vapors, *Mater. Chem. Phys.*, 143(1), 247-255.

Jolivet, J.P., Chanéac, C. and Tronc, E., 2004, Iron Oxide Chemistry. From Molecular Clusters to Extended Solid Networks, *Chem. Commun.*, 4, 481-487.

Khosroshahi, M.E., Ghazanfari, L., 2010, Preparation and Characterization of Silica-Coated Iron-Oxide Bionanoparticles under N_2 Gas, *Phys. E: Low-Dimens. Syst. Nanostruct.*, 42(6), 1824-1829.

Kim, B.C., Too, C.O., Kwon, J.S., Ko, J.M. and Wallace, G.G., 2011, A Flexible Capacitor Based on Conducting Polymer Electrodes, *Syn. Met.*, 161, 1130-1132.

Kirillov, V.L., Balaev, D.A., Semenov, S.V., Shaikhutdinov, K.A. and Martyanov, O.N., 2014, Size Control in the Formation of Magnetite Nanoparticles in the Presence of Citrate Ions, *Mater. Chem. Phys.*, 145(1-2), 75-81.

Klotz, S., Steinle-Neumann, G., Strassle, Th., Philippe, J., Hansen, Th. and Wenzel, M.J., 2008, Magnetism and the Verwey Transition in Fe_3O_4 under Pressure, *Phys. Rev. B*, 77, 012411-012414.

Kumar, K.J., Raju, N.R.C. and Subrahmanyam, A., 2011, Thickness Dependent Physical and Photocatalytic Properties of ITO Thin Films Prepared by Reactive DC Magnetron Sputtering, *Appl. Surf. Sci.*, 257, 3075-3080.

Kwan, W.P. and Voelker, B.M., 2003, Rates of Hydroxyl Radical Generation and Organic Compound Oxidation in Mineral-Catalyzed Fenton-like Systems, *Environ. Sci. Technol.*, 37, 1150-1158.

Lam, U.T., Mammucari, R., Suzuki, K. and Foster, N.R., Processing of Iron Oxide Nanoparticles by Supercritical Fluids, *Indus. Eng. Chem. Res.*, 47, 599-614.

Larson, S.A. and Falconer, J.L., 1994, Characterization of TiO_2 Photocatalysts Used in Trichloroethene, *Oxid. Appl. Catal. B*, 4, 325-342.

Latt, K. K. and Kobayashi, T., 2008, TiO_2 Nanosized Powders Controlling by Ultrasound Sol-Gel Reaction, *Ultrason. Sonochem.*, 15(4), 484-491.

Li, G., Chen, L., Graham, M.E. and Gray, K.A., 2007, A Comparison of Mixed Phase Titania Photocatalysts Prepared by Physical and Chemical Methods: the Importance of the Solid-Solid Interface, *J. Mol. Catal. Chem.*, 275, 30-35.

Li, J., Zhu, L., Wu, Y., Harima, Y., Zhang, A. and Tang, H., 2006, Hybrid Composites of Conductive Polyaniline and Nanocrystalline Titanium Oxide Prepared via Self-Assembling and Graft Polymerization, *Polym.*, 47(21), 7361-7367.

Li, Q., Zhang, C. and Li, J., 2010, Photocatalysis and Wave-Absorbing Properties of Polyaniline/TiO_2 Microbelts Composite by in situ Polymerization Method, *Appl. Surf. Sci.*, 257(3), 944-948.

Li, X., Jiang, G., He, G., Zheng, W., Tan, Y. and Xiao, W., 2014, Preparation of Porous PPyTiO_2 Composites: Improved Visible Light Photoactivity and the Mechanism, *Chem. Eng. J.*, 236, 480-489.

Li, X., Wang, G. and Li, X., 2005, Surface Modification of Nano-SiO_2 Particles Using Polyaniline, *Surf. Coat. Technol.*, 197(1), 56-60.

Li, Y., Yua, Y., Wu, L. and Zhia, J., 2013, Processable Polyaniline/Titania Nanocomposites with Good Photocatalytic and Conductivity Properties Prepared via Peroxo-Titanium Complex Catalyzed Emulsion Polymerization Approach, *Appl. Surf. Sci.*, 273, 135-143.

Liu, H., Jia, Z., Ji, S., Zheng, Y., Li, M. and Yang, H., 2011, Synthesis of $TiO_2/SiO_2@Fe_3O_4$ Magnetic Microspheres and Their Properties of Photocatalytic Degradation Dyestuff, *Catal. Today*, 175(1), 293-298.

Loddo, V., Marci, G., Palmisano, L., and Sclafani, A., 1998, Preparation and Characterization of Al_2O_3 Supported TiO_2 Catalysts Employed for 4-Nitrophenol Photodegradation in Aqueous Medium, *Mater. Chem. Phys.*, 53, 217-224.

Lu, A.H., Salabas, E.L. and Schuth, F., 2007, Magnetic Nanoparticles: Synthesis, Protection, Functionalization, and Application, *Angew. Chem. Int. Ed.*, 46, 1222-1244.

Lucas, M.S., Tavares, P.B., Peres, J.A., Faria, J.L., Rocha, M., Pereira, C. and Freire, C., 2013, Photocatalytic Degradation of Reactive Black 5 with TiO_2-Coated Magnetic Nanoparticles, *Catal. Today*, 209, 116-121.

Luty-Błocho, M., Pacławski, K., Wojnicki, M. and Fitzner, K., 2013, The Kinetics of Redox Reaction of Au^{3+} Chloride Complex Ions with L-Ascorbic Acid, *Inorg. Chim. Acta*, 395, 189-196.

Ma, C.M., Shen, Y.S. and Lin, P.H., 2012, Photoreduction of Cr(VI) Ions in Aqueous Solutions by UV/TiO_2 Photocatalytic Processes, *Int. J. Photoener.*, 2012, 1-7.

MacDiarmid, A.G., 2001, Synthetic Metals: a Novel Role for Organic Polymers (Nobel Lecture), *Angew. Chem. Int. Ed.*, 40, 2581-2590.

Mahdavi, M., Ahmad, M. Bin, Haron, M. J., Namvar, F., Nadi, B., Ab Rahman, M. Z. and Amin, J., 2013, Synthesis, Surface Modification and Characterisation of Biocompatible Magnetic Iron Oxide Nanoparticles for Biomedical Applications, *Molecules*, 18(7), 7533-7548.

Majewski, P. and Thierry, B., 2007, Functionalized Magnetite Nanoparticles - Synthesis, Properties, and Bio-Applications, *Crit. Rev. Sol. Stat. Mater. Sci.*, 32, 203-215.

Manahan, S., 2003, *Toxicological Chemistry and Biochemistry*, 3rd Edition, CRC Press LCC, Florida.

Masaya, M. and Masakazu, A., 2003, Local Structures, Excited States, and Photocatalytic Reactivities of Highly Dispersed Catalysts Constructed Within Zeolites, *J. Photochem. Photobiol. C: Photochem. Rev.*, 3, 225-252.

Min, S., Wang, F., and Han, Y., 2007, An Investigation on Synthesis and Photocatalytic Activity of Polyaniline Sensitized Nanocrystalline TiO_2 Composites, *J. Mater. Sci.*, 42(24), 9966-9972.

Mizutani, N., Iwasaki, T., Watano, S., Yanagida, T. and Kawai, T., 2010, Size Control of Magnetite Nanoparticles in Hydrothermal Synthesis by Coexistence of Lactate and Sulfate Ions, *Curr. Appl. Phys.*, 10(3), 801-806.

Mo, S. and Ching, W., 1995, Electronic and Optical Properties of Three Phases of Titanium Dioxide: Rutile, Anatase and Brookite, *Phys. Rev. B*, 51, 13023-13032.

Mo, T.C., Wang, H.W., Chen, S.Y. and Yeh, Y.C., 2008, Synthesis and Dielectric Properties of Polyaniline/Titanium Dioxide Nanocomposites, *Ceram. Int.*, 34(7), 1767-1771.

Mohamed, H.H., Dillert, R. and Bahnemann, D.W., 2012, Kinetic and Mechanistic Investigations of the Light Induced Formation of Gold Nanoparticles on the Surface of TiO_2, *Chem. Eur. J.*, 18, 4314-4321.

Mohammadnejad, S., Provis, J.L. and van Deventer, J.S., 2015, Computational Modelling of Gold Complexes Using Density Functional Theory, *Comput. Theory Chem.*, 1073, 45-54.

Moyer, M., 2010, How Much is Left?, *Sci. Am.*, 303(3), 74-81.

Murphy, P. and LaGrange, M., 1998, Raman Spectroscopy of Gold Chloro-Hydroxy Speciation in Fluids at Ambient Temperature and Pressure: a Re-Evaluation of the Effects of pH and Chloride Concentration, *Geochim. Cosmochim. Acta*., 62, 3515-3526.

Nayak, J., Mahadeva, S.K., Chen, Y., Kang, K.S. and Kim, J., 2010, Effect of Ionic Liquid Dispersion on Performance of a Conducting Polymer Based Schottky Diode, *Thin Sol. Films*, 518, 5626-5628.

Ni, M., Leung, M.K.H., Leung, D.Y.C. and Sumathy, K., 2007, A Review and Recent Developments in Photocatalytic Water-Splitting Using TiO_2 for Hydrogen Production, *Renew. Sust. Ener. Rev.*, 11, 401-425.

Olad, A., Behboudi, S. and Entezami, A.A., 2012, Preparation, Characterization and Photocatalytic Activity of TiO_2/Polyaniline Core-Shell Nanocomposite, *Bull. Mater. Sci.*, 35(5), 801-809.

Pacławski, K. and Fitzner, K., 2004, Kinetics of Gold (III) Chloride Complex Reduction Using Sulfur (IV), *Metallurgy Mater. Trans. B*, 35, 1071-1085.

Pacławski, K. and Fitzner, K., 2006, Kinetics of Reduction of Au^{3+} Complexes Using H_2O_2, *Metallurgy Mater. Trans. B*, 37(5), 703-714.

Pandey, R.K. and Lakshminarayanan, V., 2014, A Quick Electrochemical Approach for Synthesizing the Metal Nanostructures Stabilized with Conducting Polymers, *Mater. Res. Bull.*, 50, 413-416.

Pang, S.C., Kho, S.Y. and Chin, S.F., 2012, Fabrication of Magnetite/Silica/Titania Core-Shell Nanoparticles, *J. Nanomater.*, 2012, 1-6.

Park, H., Park, Y., Kim, W. and Choi, W., 2013, Surface Modification of TiO_2 Photocatalyst for Environmental Applications, *J. Photochem. Photobiol. C: Photochem. Rev.*, 15(1), 1-20.

Paxton, A.T. and Thiên-Nga, L., 1998, Electronic Structure of Reduced Titanium Dioxide, *Phys. Rev. B*, 57, 1579-1584.

Paz, Y. and Heller, A., 1997, Photooxidatively Self-Cleaning Transparent Titanium Dioxide Films on Soda Lime Glass: the Deleterious Effect of Sodium Contamination and its Prevention, *J. Mater. Res.*, 12, 2759-2766.

Peck, J.A., Tait, C.D., Swanson, B.I. and Brown, G.E., 1991, Speciation of Aqueous Gold (III) Chlorides from Ultraviolet/Visible Absorption and Raman/Resonance Raman Spectroscopies. *Geochim. Cosmochim. Acta*., 55, 671-676.

Perkas, N., Amirian, G., Rottman, C., delaVega, F. and Gedanken, A., 2009, Sonochemical Deposition of Magnetite on Silver Nanocrystals, *Ultrason. Sonochem*., 16, 132-135.

Pierson, H.O., 1999, *Handbook of Chemical Vapor Deposition: Principles, Technology, and Application*, 2nd Edition, William Andrew, Norwich.

Pol, V.G., Motiei, M., Gedanken, A., Calderon-Moreno, J. and Mastai, Y., 2003, Sonochemical Deposition of Air-Stable Iron Nanoparticles on Monodispersed Carbon Spherules, *Chem. Mater.*, 15, 1378-1384.

Pron, A. and Rannou, P., 2002, Processable Conjugated Polymers from Organic Semiconductor to Organic Metals and Superconductors, *Prog. Polym. Sci*., 27, 135-190.

Radoičić, M., Šaponjić, Z., Janković, I.A., Ćirić-Marjanović, G., Ahrenkiel, S.P. and Čomor, M.I., 2013, Improvements to The Photocatalytic Efficiency of Polyaniline Modified TiO_2 Nanoparticles, *Appl. Catal. B: Environ.*, 136-137, 133-139.

Rana, S., Rawat, J. and Misra, R.D.K., 2005, Anti-Microbial Active Composite Nanoparticles with Magnetic Core and Photocatalytic Shell: TiO_2-$NiFe_2O_4$ Biomaterial System, *Acta. Biomater.*, 1, 691-703.

Rashid, J., Barakat, M.A., Ruzmanova, Y. and Chianese, A., 2015, $Fe_3O_4/SiO_2/TiO_2$ Nanoparticles for Photocatalytic Degradation of 2-Chlorophenol in Simulated Wastewater, *Environ. Sci. Poll. Res.*, 22(4), 3149-3157.

Razak, S., Nawi, R.M.A. and Haitham, K., 2014, Fabrication, Characterization and Application of a Reusable Immobilized TiO_2-PANI Photocatalyst Plate for the Removal of Reactive Red 4 Dye, *Appl. Surf. Sci.*, 319(1), 90-98.

Sato, J., Kobayashi, H., Ikarashi, K., Saito, N., Nishiyama, H. and Inoue, Y., 2004, Photocatalytic Activity for Water Decomposition of RuO_2-Dispersed Zn_2GeO_4 with d^{10} Configuration, *J. Phys. Chem. B*, 108, 4369-4375.

Sclafani, A., Palmisano, L. and Schiavello, M., 1990, Influence of the Preparation Methods of Titanium Dioxide on the Photocatalytic Degradation of Phenol in Aqueous Dispersion, *J. Phys. Chem.*, 94, 829-832.

Sheng, J., Karasawa, J. and Fukami, T., 1997, Thickness Dependence of Photocatalytic Activity of Anatase Film by Magnetron Sputtering, *J. Mater. Sci. Lett.*, 16, 1709-1711.

Shihon, X., Wenfeng, S., Jian, Y., Mingxia, C. and Jianwei, S., 2007, Preparation and Photocatalytic Properties of Magnetically Separable TiO_2 Supported on Nickel Ferrite, *Chin. J. Chem. Eng.*, 13, 190-195.

Shirota, Y. and Kageyama, H., 2007, Charge Carrier Transporting Molecular Materials and Their Applications in Devices, *Chem. Rev.*, 107, 953-1010.

Silva, M., 1986, *Placer Gold Recovery Methods*, California Department of Conservation Division of Mines and Geology, California.

Sonawane, R.S., Hegde, S.G. and Dongare, M.K., 2002, Preparation of Titanium(IV) Oxide Thin Film Photocatalyst by Sol-Gel Dip Coating, *Mater. Chem. Phys.*, 77, 744-750.

Stejskal, J. and Gilbert, R.G., 2002, Polyaniline. Preparation of Conducting Polymer, *Pure Appl. Chem.*, 74, 857-867.

Stuhlpfarrer, P., Luidold, S. and Antrekowitsch, H., 2016, Recycling of Waste Printed Circuit Boards with Simultaneous Enrichment of Special Metals by Using Alkaline Melts: a Green and Strategically Advantageous Solution, *J. Hazard. Mater.*, 307, 17-25.

Sumboja, A., Wang, X., Yan, J. and Lee, P.S., 2012, Nanoarchitectured Current Collector for High Rate Capability of Polyaniline Based Supercapacitor Electrode, *Electrochim. Acta.*, 65, 190-195.

Suslick, K.S. and Price, G.J., 1999, Applications of Ultrasound to Material Chemistry, *Annu. Rev. Mater.*, 29, 295.

Szaciłowski, K., Macyk, W., Drzewiecka-Matuszek, A., Brindell, M. and Stochel, G., 2005, Bioinorganic Photochemistry: Frontiers and Mechanisms, *Chem. Rev.*, 105, 2647-2694.

Tavakoli, A., Sohrabi, M. and Kargari, A., 2007, A Review of Methods for Synthesis of Nanostructured Metals with Emphasis on Iron Compounds, *Chem. Pap.*, 61, 151-170.

Teng, Z., Su, X., Chen, G., Tian, C., Li, H., Ai, L. and Lu, G., 2012, Superparamagnetic High-Magnetization Composite Microspheres with Fe_3O_4@SiO_2 Core and Highly Crystallized Mesoporous TiO_2 Shell, *Coll. Surf. A: Physicochem. Eng. Asp.*, 402, 60-65.

Turkevich, J., Stevenson, P.C. and Hillier, J., 1951, The Formation of Colloidal Gold, *J. Phys. Chem.*, 57(7), 670-673.

van Grieken, R., Aguado, J., López-Muñoz, M.J. and Marugán, J., 2005, Photocatalytic Gold Recovery from Spent Cyanide Plating Bath Solutions, *Gold Bull.*, 38(4), 80-187.

Vansant, E.F., Voort, P.V.D. and Vrancken, K.C., 1995, Characterization and Chemical Modification of the Silica Surface, *Stud. Surf. Sci. Catal.*, 93, 556.

Vermeule, C.C., 1974, *Museum of Fine Arts B. Greek and Roman Sculpture in Gold and Silver*, Museum of Fine Arts, Boston.

Wahyuni, E.T., Aprilita, N.H., Hatimah, H., Wulandari, A. and Mudasir, M., 2015, Removal of Toxic Metal Ions in Water by Photocatalytic Method, *Am. Chem. Sci. J.*, 5(2), 194-201.

Wahyuni, E.T., Kuncaka, A. and Sutarno, S., 2015, Application of Photocatalytic Reduction Method with TiO_2 for Gold Recovery, *Am. J. Appl. Chem.*, 3(6), 207-211.

Wang, C., Ao, Y., Wang, P., Hou, J. and Qian, J., 2010, A Facile Method for the Preparation of Titania-Coated Magnetic Porous Silica and its Photocatalytic Activity under UV or Visible light, *Coll. Surf. A: Physicochem. Eng. Asp.*, 360(1-3), 184-189.

Wang, D., Wang, Y., Li, X., Luo, Q., An, J. and Yue, J., 2008, Sunlight Photocatalytic Activity of Polypyrrole-TiO_2 Nanocomposites Prepared by 'in situ' Method, *Catal. Commun.*, 9, 1162-1166.

Wang, F. and Min, S.X., 2007, TiO_2/Polyaniline Composites: an Efficient Photocatalyst for the Degradation of Methylene Blue under Natural Light, *Chin. Chem. Lett.*, 18, 1273-1277.

Wang, F., Min, S., Han, Y. and Feng, L., 2010, Visible-Light-Induced Photocatalytic Degradation of Methylene Blue with Polyaniline-Sensitized TiO_2 Composite Photocatalysts, *Superlatt. Microstruct.*, 48, 170-180.

Wang, L., Wang, H., Wang, A. and Liu, M., 2009, Surface Modification of a Magnetic SiO_2 Support and Immobilization of a Nano-TiO_2 Photocatalyst on it, *Chin. J. Catal.*, 30(9), 939-944.

Wang, R., Wang, X., Xi, X., Hu, R. and Jiang, G., 2012, Preparation and Photocatalytic Activity of Magnetic $Fe_3O_4/SiO_2/TiO_2$ Composites, *Adv. Mater. Sci. Eng.*, 2012, 1-8.

Wang, R.J., Jiang, G.H., Ding, Y.W., Wang, Y., Sun, X., Wang, X. and Chen, W., 2011, Photocatalytic Activity of Heterostructures Based on TiO_2 and Halloysite Nanotubes, *ACS Appl. Mater. Interfaces*, 3(10), 4154-4158.

Wang, S., Qian, K., Bi, X. and Huang, W., 2009, Influence of Speciation of Aqueous $HAuCl_4$ on the Synthesis, Structure, and Property of Au Colloids, *J. Phys. Chem. C*, 113(16), 6505-6510.

Wang, X., Tang, S., Zhou, C., Liu, J. and Feng, W., 2009, Uniform TiO_2-PANI Composite Capsules and Hollow Spheres, *Synth. Met.*, 159, 1865-1869.

Wen, Y., Liu, B.T., Zeng, W. and Wang, Y.H., Plasmonic Photocatalysis Properties of Au Nanoparticles Precipitated Anatase/Rutile Mixed TiO_2 Nanotubes, *Nanoscale*, 5, 9739-9746.

Wojnicki, M., Rudnik, E., Luty-Błocho, M., Pacławski, K. and Fitzner, K., 2012, Kinetic Studies of Au^{3+} Chloride Complex Reduction and Solid Phase Precipitation in Acidic Aqueous System Using Dimethylamine Borane as Reducing Agent, *Hydrometallurgy*, 127-128, 45-53.

Wojnicki, M., Tokarski, T. and Kwolek, P., 2013, Kinetic Study of the Photoelectrochemical Gold Recovery from Diluted Chloride Solutions, *Arch. Metal. Mater.*, 58(3), 709-716.

Wright, D.A. and Welbourn, P., 2002, *Environmental Toxicology*, Cambridge University Press, Cambridge.

Wunderlich, W., Oekermann, T., Miao, L., Nguyen, T.H., Tanemura, S. and Tanemura, M., 2004, Electronic Properties of Nanoporous TiO_2 and ZnO Thin Films-Comparison of Simulations and Experiments, *J. Ceram. Proc. Res.*, 5, 343-354.

Xin, T., Ma, M., Zhang, H., Gu, J., Wang, S., Liu, M. and Zhang, Q., 2014, A Facile Approach for the Synthesis of Magnetic Separable Fe_3O_4@TiO_2, Core-Shell Nanocomposites as Highly Recyclable Photocatalysts, *Appl. Surf. Sci.*, 288, 51-59.

Xu, J., Ao, Y., Fu, D. and Yuan, C., 2008, Low-Temperature Preparation of Anatase Titania-Coated Magnetite, *J. Phys. Chem. Sol.*, 69(8), 1980-1984.

Xu, J., Yang, H., Fu, W., Du, K., Sui, Y., Chen, J., Zeng, Y., Li, M. and Zou, G., 2007, Preparation and Magnetic Properties of Magnetite Nanoparticles by Sol-Gel Method, *J. Magn. Magn. Mater.*, 309, 307-311.

Xu, S., Jiang, L., Yang, H., Song, Y. and Dan, Y., 2011, Structure and Photocatalytic Activity of Polythiophene/TiO_2 Composite Particles Prepared by Photoinduced Polymerization, *Chin. J. Catal.*, 32(3-4), 536-545.

Yang, S., Ishikawa, Y., Itoh, H. and Feng, Q., 2011, Fabrication and Characterization of Core/Shell Structured TiO_2/Polyaniline Nanocomposite, *J. Coll. Interfaces Sci.*, 356(2), 734-740.

Yu, X.X., Yu, J.G., Cheng, B. and Jaroniec, M., 2009, Synthesis of Hierarchical Flower-like AlOOH and TiO_2/AlOOH Superstructures and Their Enhanced Photocatalytic Properties, *J. Phys. Chem. C*, 113, 17527-17535.

Yue, J., Wang, Z.H., Cromack, K.R., Epstein, A.J. and MacDiarmid, A.G., 1991, Effect of Sulfonic Acid Group on Polyaniline Backbone, *J. Am. Chem. Soc.*, 113, 2665-2671.

Zagorny, M., Bykov, I., Melnyk, A., Lobunets, T., Zhygotsky, A., Pozniy, A., Shirokov, A. and Ragulya, A., 2014, Surface Structure, Spectroscopic and Photocatalytic Activity Study of Polyaniline/TiO_2 Nanocomposites, *J. Chem. Chem. Eng.*, 8, 118-127.

Zhang, L.X., Liu, P. and Su, Z.X., 2006, Preparation of PAN/TiO_2 Nanophotocatalysts and Their Solid-Phase Photocatalytic Degradation, *Polym. Degrad. Stab.*, 91, 2213-2219.

Zhao, Z., Zhou, Y., Wan, W., Wang, F., Zhang, Q. and Lin, Y., 2014, Nanoporous TiO_2/Polyaniline Composite Films with Enhanced Photoelectrochemical Properties, *Mater. Lett.*, 130, 150-153.

Zhi, J, Wang,Y., Lu, Y., Ma, J. and Luo, G., 2006, In situ Preparation of Magnetic Chitosan/Fe_3O_4 Composite Nanoparticles in Tiny Pools of Water-in-Oil Microemulsion, *React. Funct. Polym.*, 66, 1552-1558.

Zielińska-Jurek, A., Bielan, Z., Wysocka, I., Strychalska, J., Janczarek, M. and Klimczuk, T., 2017, Magnetic Semiconductor Photocatalysts for the Degradation of Recalcitrant Chemicals from Flow Back Water, *J. Environ. Manag.*, 195, 157-165.