

Table of Contents

Foreword

Photocatalysts for Pollutants Degradation

High-Performance α-Bi₂O₃/CdS Heterojunction Photocatalyst: Innovative Design, Electrochemical Performance and DFT Calculation S.T. Lin, L.W. Shan, C.G. Ma, M.Q. Yuan, Z.L. Fang, Y.W. Xiao, L.M. Dong, D. Li and Y.K. Guo	3
Structural, Optical, Photocatalytic and Electrochemical Studies of PbS Nanoparticles P.A. Ajibade and A.E. Oluwalana	19
Visible-Light Sensitive Photocatalytic Activity of FeO_x- and P-Modified TiO₂ with Rutile Structure T. Hirai, Y. Hayashi and S. Iwamoto	33
Photocatalytic Activities of Cobalt-Doped ZnO Nanoparticles by Hydrothermal Method S. Sathiya, J. Vijayapriya, K. Parasuraman, D.B. Anburaj, S.J. Gnanamuthu and G. Nedunchezian	38
ZnO Photocatalysts Modified with Eu₂O₃ and Sm₂O₃ P. Rodionovs and J. Grabis	49
Synthesis, Structure, Optic and Photocatalytic Properties of Anatase/Brookite Nanocomposites V. Moklyak, V. Chelyadyn, A. Hrubak, B. Ostafiyuk, V. Kotsyubynsky, M. Mizilevska, M. Moklyak, R. Lisovskyy and Y. Yavorskyi	55
Radish (<i>Raphanus sativus</i>) Leaves Mediated CuO-NiO Nanocomposite for Photocatalytic Activity V. Pavitra, H.P. Divya, B.M. Praveen, G. Nagaraju and U. Udayabhanu	65
Facile Fabrication of the Glass Substrate Coated Nitrogen-doped TiO₂ Spheres/Polytetrafluoroethylene Based on Hydrophobic-Photocatalytic Self-Cleaning Properties F.N. Aini, S. Wahyuningsih and S. Hastuti	74
The Influence of Soaking Time on Photocatalytic Performance of g-C₃N₄ under Visible Light Irradiation T. Narkbuakaew and P. Sujaridworakun	84
Enhancement of Photocatalytic Performance of Anatase by Silver Deposition through Chemical Reduction Process at Room Temperature T. Narkbuakaew and P. Sujaridworakul	90
Electrogenerated Copper Supported Zinc Oxide for Degradation of 2,4-Dichlorophenol N.F. Jaafar, N. Zulkeffli and M.H. Anuar	97
Synthesis of Carbon Nitride Intercalation Compound Composite and Study of Visible Light-Induced Photocatalytic Performance L.J. Wan	103
A Morphological Investigation of Ag/Graphite Oxide/TiO₂ Composites for Photocatalysis C. Junin, A. Worayingyong, C. Kongmark, V. Yordsri, B. Chayasombat, C. Thanachayanont and W. Klysubun	109
Effect of Hydrogen Peroxide Concentration to Fluorescence Properties of Carbon Dot from HDPE R. Lestari, I. Kartini and T.D. Wahyuningsih	118
Green Synthesis of Fe₃O₄/TiO₂ Nanoparticles Using Extracts of <i>Moringa oleifera</i>: Microstructural and Optical Properties R.M. Tumbelaka, N.I. Istiqomah, N. Mabarroh and E. Suharyadi	126
The Effect of Silica on Photocatalytic Degradation of Methylene Blue Using Silica-Coated NiZn Ferrite Nanoparticles N.I. Istiqomah, A.T. Muzakki, A. Nofrianti, E. Suharyadi, T. Kato and S. Iwata	135
ZnO/g-C₃N₄/Fe₃O₄ Nanocomposites Embedded Sa-PVA as Photocatalyst Hydrogel Beads for Photodegradation B. Pattanasiri and S. Sangjan	141

Application of Photocatalytic and Adsorption Process for Residue Organic Degradation Using Doped ZnO Composites Hydrogel Beads S. Sangjan and W. Thongsamer	150
Sintering Temperature Effects on Photocatalytic Activity of $\text{SrTi}_{0.80}\text{Mn}_{0.20}\text{O}_3$ R. Afriani, D.K. Sandi, F. Nurosyid and Y. Iriani	157
Effects of Thickness and Preheated Temperature on Grains Orientation of 2D-ZnO Nanostructure and their Photocatalytic Activity M. Toubane, A. Azizi, D. Houanoh, R. Tala-Ighil, F. Bensouici, K. Chebout, S. Lamrani and M. Bououdina	164
The Preparation and Characterization of Fe-ZnO Nanoparticles Immobilized onto Fiberglass Cloth M. Omar, M. Adlim, I. Maulana, S. Suhendrayatna and I. Ismail	180
Synthesis of ZnO/Ag/ SiO_2 Nanocomposite Using Flame Pyrolysis Method and its Photocatalytic Activity S. Winardi, I. Riwayati, M. Shimada, S. Madhania, S. Machmudah and K. Kusdianto	190
Solvothermal Synthesis, Photocatalytic and Electrochemical Properties of Flower-Like TiO_2 with Hierarchical Structures S.H. Tan, G.Q. Yan, Z.J. Luan, D.Y. Yu and J.H. Luo	200
Photocatalytic Activity of Nickel Ferrite Nanoparticles Synthesized via Sol-Gel Auto Combustion Method S.A. Jadhav, A.V. Raut, M.V. Khedkar, S.B. Somvanshi and K.M. Jadhav	213
Low-Temperature Synthesis of ZnO Nanoparticles with Controlled Crystal Growth for Efficient Ultraviolet Photocatalyst J.S. Hu, Z.D. Hu, Z.Q. Wei and H. Fu	218
Synthesize Fe_3O_4-TiO_2 Composite for Methyl Orange Photocatalytic Degradation I. Kustiningsih, F. Nurrahman, H.A. Rinaldi, I.E. Jumiaty, D.K. Sari and J. Jayanudin	227
Synthesis of Nanocrystalline TiO_2 by the Extraction-Pyrolytic Method and its Phase Transformation in the Presence of Gadolinium R. Burve, V. Serga and A. Krumina	234
A Brief Review: Immobilization of TiO_2 Photocatalyst Materials on Supporting Surfaces for Degradation of Organic Pollutants Y. Indriani, A.S.A.P. Sutanti, M. Ayuningtyas and H. Widiyandari	240
A Review on Thermal Evaporation Method to Synthesis Zinc Oxide as Photocatalytic Material N. Hamid, S. Suhaimi, M.Z. Othman and W.Z.W. Ismail	249
Hierarchical ZnO Nanomaterials with Superior Photocatalytic Properties M.R. Alenezi, A.M. Almeshal and A.N.F.N.R. Alkhaledi	258
Annealing Temperature Effects in Co-Precipitated CoFe_2O_4 Nanoparticles Using Bengawan Solo River Fine Sediment A.T. Mubarak, H. Widiyandari, Utari and B. Purnama	270
Photocatalytic Performance of PVP-Doped TiO_2 Nanorod Arrays Prepared by Hydrothermal Method R. Li, W.Q. Qi, Z.F. Zhou, X. Wang, C. Gong, J. Yang and J. Du	276
Growth and Characterization of Nanostructured Ag-ZnO for Application in Water Purification A. Barnasas, M.V. Karavasilis, C. Aggelopoulos, C.D. Tsakiroglou and P. Pouloupoulos	284
$\text{Ag}_2\text{O}/\text{ZnO}$ Heterostructures with Enhanced Photocatalytic Activity D. Xiang and C.L. Shao	296
An Investigation of Photocatalytic Activity of Coatings Based on Strontium Bismuthate Deposited on a Ceramic Carrier K.S. Makarevich, O.I. Kaminsky and A.V. Zaitsev	303
Synthesis and Study of the Properties of Photocatalytic Compositions Based on $\text{SrO}/\text{Bi}_2\text{O}_3$ and $(\text{BiO})_2\text{CO}_3$ Solid Solutions with Modifying Additives of Transition Metals Cu, Mn, Fe K.S. Makarevich, O.I. Kaminsky and A.V. Zaitsev	309
Thickness Effect of ZnO Film on the Performance of Photocatalytic in a p-NiO/n-ZnO Heterostructure under Solar Light Irradiation H. Farh, A. Noua, R. Guemini, D.E. Guitoume and O. Zaoui	315
Preparation and Photocatalytic Performance of Flower-Shaped ZnO/GO/Fe_3O_4 on Degradation of Rhodamine B M. Rezaei, A. Shokuhfar and N. Shahcheraghi	324

Structural and Photocatalytic Property of CaTiO₃ Nanosphere C. Karthikeyan, M. Thamima and S. Karuppuchamy	336
Synthesis of TiO₂ Nanoparticles Using <i>Acinetobacter baumannii</i> for Photocatalytic Application M. Nagalakshmi, N. Anusuya and S. Karuppuchamy	342
Comparative Study of Bismuth Composites Obtained via Pulsed Laser Ablation in a Liquid and in Air for Photocatalytic Application V.A. Svetlichnyi, E.D. Fakhrutdinova, T.S. Nazarova, S.A. Kulinich and O.V. Vodyankina	347
Enhancement of Photocatalytic Performances by Sand/Zinc Oxide A.A. Ameer, A.B. Suriani, A.R. Jabur and M.S. Abbas	354
Preparation of TiO₂ Powder and the Study of Photocatalytic Activity D. Fu and C. Mildred	363
One-Step Hydrothermal Synthesis of an Orthorhombic WO₃·H₂O/TiO₂ Heterojunction and its Photocatalytic Activity H.Y. Zhao, J.L. Kuang, P. Sun, W.X. Liu and W.B. Cao	368
Enhancing the Photocatalytic Activity of La/Y Co-Doped ZnWO₄ under UV Irradiation C.W. Rao, W. Zhang, Z.F. Hu, Z.Y. Feng, Y.J. Chen, Y.M. Pan, P.J. Hu, Y.H. Wang and W.R. Zhao	375
Bio-Inspired Hierarchical Porous TiO₂ for Photodegradation of Organic Pollutant under Solar Irradiation L.L. Wu, H.Y. Zhang, C.P. Guo and F. Song	384
Temperature and Salinity Effects on Photocatalytic Performance of Cerium Doped Zinc Oxide W.R.W. Abdullah, L.C. Siang, M.S. Rooshde and M.S.M. Ghazali	391
A Comparative Study of Photodegradation Behavior Sodium Niobate Nanowires and Microcubes C.X. Yan, B. Li and J. Wang	397
Study on Preparation and Properties of PA6/TiO₂-GO Composites D. Liu	404
Structural, Morphological, Optical and Photocatalytic Properties of Os and N Co-Doped TiO₂ Films Z. Li and C.Y. Ma	409
Structure and Properties of Sputtered Ti-O-N Nanocomposite Films J.L. Huang and M.S. Wong	417
Preliminary Study of ZnO/GO Composite Preparation as Photocatalyst Material for Degradation Methylene Blue under Low UV-Light Irradiation A. Aprilia, R. Mutiara, C. Ghina Afrilia, A. Bahtiar, S. Suryaningsih and L. Safriani	423
Study of Low Temperature Preparation of Al Doped ZnO Powder and its Photocatalytic Properties A. Aprilia, D.P. Hanavi, C. Ghina Afrilia, A. Bahtiar, S. Suryaningsih and L. Safriani	430
Hydrothermal Fabrication of BiVO₄/ Diatomite Composite Photocatalysts and their Photocatalytic Performance T.Q. Cui, J.F. Ma, Q.S. Wang, Q. Zhou and D.B. Tang	439
Self - Cleaning Property of Ag/TiO₂ Thin Film K.A. Razak, D.S.C. Halin, M.M.A.B. Abdullah, A. Azani, M.A.A. Mohd Salleh, N. Mahmed and V. Chobpattana	447
Comparative Study of Fe,N-TiO₂ Photocatalysts under UV Light Irradiation Z. Malik, I.S. Aida, A. Ainun Rahmahwati, R. Hussin and K. Zakiah	455
Photocatalytic Activity of Bilayer TiO₂/ZnO and ZnO TiO₂ Thin Films R. Hussin, N.S. Zulkiflee, K. Zakiah, A. Ainun Rahmahwati, Z. Harun and M.N. Mohamed Hatta	463
Effect of ZnO Nanoparticles on the Physical Properties of PLA/PBS Biocomposite Films T. Jamnongkan, A. Yosta, B. Thanesthakul, M. Sugimoto, T. Hara, Y. Takatsuka and R. Mongkholrattanasit	470

Photocatalysts as Antimicrobial and Antioxidant Agents

Effect of Ag/ZnO-Graphitic Carbon Nitride on Antimicrobial Activity under Visible Light S. Rodmuang, R. Plairaharn, K. Teingtum, S. Sangjan and O. Chunhachart	481
--	-----

Antimicrobial Activity of Photoactive Cerium Doped Zinc Oxide M.S. Rooshde, W.R.W. Abdullah, A.Z. Amran, N.F. Ibrahim, F. Ariffin and M.S.M. Ghazali	487
Germ-Reducing Titanium Dioxide - Silicone Rubber Composites T. Fischer, S. Suttor, S. Mansi, M. Ahrens and M. Eblenkamp	493
Synthesis of Silver Nanoparticles Using <i>Sideritis montana</i> L. Leaf Extract: Characterization, Catalytic Degradation of Methylene Blue and Antioxidant Activity R. Erenler and E.N. Gecer	499
Nanocomposite Synthesis from a Natural Clay-Rich Soils and Exhausted Coffee Grounds for Environmental Applications V. Urdapilleta-Inchaurregui, F. Fernández-Luqueño, A.M. Torres-Huerta, D. Roa-Velázquez, F.J. Rodríguez-Varela and M.E. Sánchez-Castro	511

Photocatalysts of Wide and Non-Specific Applications

Photocatalytic Performance Test of $\text{Sn}_3\text{O}_4/\text{TiO}_2/\text{SiO}_2$ Particles with Adjusted Sn_3O_4 Deposition under Indoor Environment A. Yamazumi, D.T. Nguyen and K. Taguchi	531
First Principle Study of Na and P Co-Doped Heptazine Based Monolayer $\text{g-C}_3\text{N}_4$ D.K. Gorai and T.K. Kundu	537
Earth Abundant Metals as Cost Effective Alternatives in Photocatalytic Applications: A Review L.L. Nkabiti and P.G.L. Baker	545
Composition and Properties of TiO_2 Sol to Produce a Photocatalytic Composite Material E.N. Gubareva, V.V. Strokova, Y.N. Ogurtsova, P.S. Baskakov and L.P. Singh	559
Synthesis and Characterization of Semiconductor Nanoparticles CuInS_2 QDs/TiO_2 N. Hanifah, F.A. Hutomo, F.M. Ammrulloh, M.A. Refialdi, W. Widyastuti and A.D. Pramata	565
The Effect of Cu_2O Synthesis Method on its Optical Properties F.A. Hutomo, N. Hanifah, F.M. Ammrulloh, M.A. Refialdi, W. Widyastuti and A.D. Pramata	572