

## DAFTAR PUSTAKA

- Anantharaj, Sengeni, dan Suguru Noda. 2022. "Dos and don'ts in screening water splitting electrocatalysts." *Energy Advances* (8):511–23. doi:10.1039/d2ya00076h.
- Arsad, Akmal Zaini, Ahmad Wafi, Mahmood Zuhdi, Siti Fazlili Abdullah, dan Chien Fat Chau. 2023. "Effect of Chemical Bath Deposition Variables on the Properties of Zinc Sulfide Thin Films : A Review."
- Bagheri, Reza, dan Hosein Kafashan. 2024. "Physical characterizations of Se-doped CdS nanostructures." *Physica B: Condensed Matter* 688. doi:10.1016/j.physb.2024.416156.
- Brook, Stony. 2000. "The absolute energy positions of conduction and valence bands of selected semiconducting minerals." 85:543–56.
- Callister, W. D., dan D. G. Rethwisch. 2020. *Materials Science and Engineering: An Introduction*. Wiley.
- Chang, Sook-Keng, Qurat-ul-Ain Abbasi, Zeeshan Abbasi, Fatima Khushbakht, Inam Ullah, Fazal Ur Rehman, dan Muhammad Hafeez. 2024a. "Rapid pH-dependent Photocatalytic Degradation of Methylene Blue by CdS Nanorods Synthesized through Hydrothermal Process." *Arabian Journal of Chemistry* 17(1):105422. doi:https://doi.org/10.1016/j.arabjc.2023.105422.
- Chang, Sook-Keng, Qurat-ul-Ain Abbasi, Zeeshan Abbasi, Fatima Khushbakht, Inam Ullah, Fazal Ur Rehman, dan Muhammad Hafeez. 2024b. "Rapid pH-dependent Photocatalytic Degradation of Methylene Blue by CdS Nanorods Synthesized through Hydrothermal Process." *Arabian Journal of Chemistry* 17(1):105422. doi:https://doi.org/10.1016/j.arabjc.2023.105422.
- Chen, Jing-Yu, Yong-Min Chen, Yu Sun, Jyh-Fu Lee, San-Yuan Chen, Po-Chun Chen, dan Pu-Wei Wu. 2014. "Chemical bath deposition of IrO<sub>2</sub> films on ITO substrate." *Ceramics International* 40(9, Part B):14983–90. doi:https://doi.org/10.1016/j.ceramint.2014.06.098.
- Chen, R., Z. H. Yan, X. J. Kong, L. S. Long, dan L. S. Zheng. 2018a. "Integration of Lanthanide–Transition-Metal Clusters onto CdS Surfaces for Photocatalytic Hydrogen Evolution." *Angew. Chem., Int. Ed.* 57:16796.
- Chen, R., Z. H. Yan, X. J. Kong, L. S. Long, dan L. S. Zheng. 2018b. "Integration of Lanthanide–Transition-Metal Clusters onto CdS Surfaces for Photocatalytic Hydrogen Evolution." *Angew. Chem., Int. Ed.* 57:16796.

- Gao, W. Z., Y. Xu, Y. Chen, dan W. F. Fu. 2015. "Highly Efficient and Selective Photocatalytic Reduction of Nitroarenes Using the Ni<sub>2</sub>P/CdS Catalyst under Visible-Light Irradiation." *Chem. Commun.* 51:13217.
- Gorai, S., dan S. Chaudhuri. 2006. "Optical characterization of In<sub>2</sub>S<sub>3</sub> – SiO<sub>2</sub> nanocomposite thin films synthesized by sol – gel technique." 126:97–101. doi:10.1016/j.mseb.2005.08.109.
- Guo, Biao, Liyuan Liu, Ai Li, Xinlin Li, Yue Chang, Zhengbo Jiao, dan Minmin Han. 2024. "Insights into the effect of Ni doping on In<sub>2</sub>S<sub>3</sub> for enhanced activity and selectivity of photocatalytic CO<sub>2</sub> reduction." *Journal of Alloys and Compounds* 995. doi:10.1016/j.jallcom.2024.174741.
- Hernández-De los Santos, X., E. M. López-Alejandro, E. Ramírez-Morales, M. G. Hernández-Cruz, dan Lizeth Rojas Blanco. 2025. "ESTUDIO DEL EFECTO DEL pH EN LA DEGRADACIÓN FOTOCATALÍTICA DE CONTAMINANTES TEXTILES." *Journal of Energy, Engineering Optimization and Sustainability* 9(2):1–10. doi:10.19136/jeeos.a9n2.6468.
- Huang, N. M. 2011. "Synthesis and Characterization of In<sub>2</sub>S<sub>3</sub> Nanorods in Sucrose Ester Water-in-Oil Microemulsion." 2011:1–6. doi:10.1155/2011/815709.
- Iler, R. K. 1979. *The Chemistry of Silica: Solubility, Polymerization, Colloid and Surface Properties and Biochemistry of Silica*. Wiley.
- Ishibashi, Ken Ichi, Akira Fujishima, Toshiya Watanabe, dan Kazuhito Hashimoto. 2000. "Detection of active oxidative species in TiO<sub>2</sub> photocatalysis using the fluorescence technique." *Electrochemistry Communications* 2(3):207–10. doi:10.1016/S1388-2481(00)00006-0.
- Jamjoum, Hayfa Alajilani Abraheem, Khalid Umar, Rohana Adnan, Mohd. R. Razali, dan Mohamad Nasir Mohamad Ibrahim. 2021. "Synthesis, Characterization, and Photocatalytic Activities of Graphene Oxide/metal Oxides Nanocomposites: A Review." *Frontiers in Chemistry* Volume 9-2021.
- Jia, P. Y., X. M. Liu, G. Z. Li, M. Yu, J. Fang, dan J. Lin. 2006. "Sol-gel synthesis and characterization of SiO<sub>2</sub>@CaWO<sub>4</sub>, SiO<sub>2</sub>@CaWO<sub>4</sub>:Eu<sup>3+</sup>/Tb<sup>3+</sup> core-shell structured spherical particles." *Nanotechnology* 17(3):734–42. doi:10.1088/0957-4484/17/3/020.
- Joy, David C. 1991. "The theory and practice of high-resolution scanning electron microscopy." *Ultramicroscopy* 37(1):216–33. doi:https://doi.org/10.1016/0304-3991(91)90020-7.

- Kadhim, Khalid Ridha, dan Raghad Y. Mohammed. 2022. "Effect of Annealing Time on Structure , Morphology , and Optical Properties of Nanostructured CdO Thin Films Prepared by CBD Technique."
- Khan, Idrees, Khalid Saeed, Ivar Zekker, Baoliang Zhang, Abdulmajeed H. Hendi, Ashfaq Ahmad, Shujaat Ahmad, Noor Zada, Hanif Ahmad, Luqman Ali Shah, Tariq Shah, dan Ibrahim Khan. 2022. "and Photodegradation."
- Khan, Mazhar, Zeeshan Akmal, Muhammad Tayyab, Seemal Mansoor, Dongni Liu, Junwen Ding, Ziwei Ye, Jinlong Zhang, Shiqun Wu, dan Lingzhi Wang. 2025. "Core–Shell MIL-125(Ti)@In<sub>2</sub>S<sub>3</sub> S-Scheme Heterojunction for Boosting CO<sub>2</sub> Photoreduction." *ACS Applied Materials & Interfaces* 17(21):30895–909. doi:10.1021/acsami.5c03817.
- Kumar, Anuj, Anirudh Thorbole, dan Ram K. Gupta. 2025. "Sustaining the future: Semiconductor materials and their recovery." *Materials Science in Semiconductor Processing* 185.
- Kundakci, M., A. Ateş, A. Astam, dan M. Yildirim. 2008. "Structural, optical and electrical properties of CdS, Cd<sub>0.5</sub>In<sub>0.5</sub>S and In<sub>2</sub>S<sub>3</sub> thin films grown by SILAR method." *Physica E: Low-Dimensional Systems and Nanostructures* 40(3):600–605. doi:10.1016/j.physe.2007.08.145.
- Kurajica, S., V. Mandić, M. Tkalčević, K. Mužina, dan I. K. Munda. 2019. "Određivanje zabranjene zone poluvodiča metodom UV-Vis difuzne refleksijske spektroskopije." 68:415–26.
- Kuru, Duygu, Alev Akpınar Borazan, dan Nuran ay. 2019. "The Effect of Piranha and Silane Modifications on Boron Nitride Nanosheets (BNNSs) Thin Film Formation." *Cumhuriyet Science Journal* 40:424–32. doi:10.17776/csj.521889.
- Lakowicz, Joseph. 2006. *Principles of Fluorescence Spectroscopy*. Vol. 1.
- Landi, Salmon, Iran Rocha Segundo, Elisabete Freitas, Mikhail Vasilevskiy, Joaquim Carneiro, dan Carlos José Tavares. 2022. "Use and misuse of the Kubelka-Munk function to obtain the band gap energy from diffuse reflectance measurements." *Solid State Communications* 341:114573. doi:https://doi.org/10.1016/j.ssc.2021.114573.
- Lin, Xuan Hao, Si Ni Lee, Wenlin Zhang, dan Sam Fong Yau Li. 2016. "Photocatalytic degradation of terephthalic acid on sulfated titania particles and identification of fluorescent intermediates." *Journal of Hazardous Materials* 303:64–75. doi:https://doi.org/10.1016/j.jhazmat.2015.10.025.
- Liu, Chunyan, Qian Luo, Yan Wang, Mingling Xie, Zhiqi Feng, Yongcheng He, Xianwei Zuo, Weichun Ye, dan Huanwang Jing. 2026. "Photoelectrocatalytic

- CO<sub>2</sub> Reduction to C<sub>2</sub> Products via the Morphology Control of a Three-Dimensional In<sub>2</sub>S<sub>3</sub>/CdS Heterojunction.” *ACS Applied Materials & Interfaces*. doi:10.1021/acsami.5c23973.
- Lokhande, C. D., Eun-Ho Lee, Kwang-Deog Jung, dan Oh-Shim Joo. 2004. “Room temperature chemical deposition of amorphous TiO<sub>2</sub> thin films from Ti (III) chloride solution.” *Journal of materials science* 39(8).
- Luque, P. A., A. Castro-Beltran, A. R. Vilchis-Nestor, M. A. Quevedo-Lopez, dan A. Olivas. 2015. “Influence of pH on properties of ZnS thin films deposited on SiO<sub>2</sub> substrate by chemical bath deposition.” *Materials Letters* 140:148–50. doi:https://doi.org/10.1016/j.matlet.2014.10.167.
- Manurung, P., Y. Putri, W. Simanjuntak, dan I. M. Low. 2013. “Synthesis and characterisation of chemical bath deposited TiO<sub>2</sub> thin-films.” *Ceramics International* 39(1):255–59. doi:https://doi.org/10.1016/j.ceramint.2012.06.019.
- Miclescu, Adriana, Hari Shanker Sharma, Cécile Martijn, dan Lars Wiklund. 2010. “Methylene Blue Protects the Cortical Blood-Brain Barrier against Ischemia/Reperfusion-Induced Disruptions.” *Critical Care Medicine* 38(11):2199–2206. doi:10.1097/CCM.0b013e3181f26b0c.
- Mishra, Shristi, B. K. Pandey, Ratan Lal Jaiswal, Jyoti Gupta, dan Sachin. 2024. “Unified model for the studies of band gap of nanosolids with their varying shape and size.” *Chemical Physics Letters* 841. doi:10.1016/j.cplett.2024.141177.
- Mishra, Vikash, M. Kamal Warshi, Aanchal Sati, Anil Kumar, Vinayak Mishra, Archana Sagdeo, Rajesh Kumar, dan Pankaj R. Sagdeo. 2018. “Diffuse reflectance spectroscopy: An effective tool to probe the defect states in wide band gap semiconducting materials.” *Materials Science in Semiconductor Processing* 86:151–56. doi:https://doi.org/10.1016/j.mssp.2018.06.025.
- Moore, Lisa A., dan Charlene M. Smith. 2022. “Fused silica as an optical material.” *Optical Materials Express* 12(8):3043–59.
- Moradi Haghighi, Elahe, dan Ali A. Orouji. 2024. “Optimizing interface energy band alignment in Cd-free Sb<sub>2</sub>Se<sub>3</sub> solar cells by controlling the oxygen content of In<sub>2</sub>(O,S)<sub>3</sub> buffer layer to improve the efficiency: A simulation study.” *Optics & Laser Technology* 169:110107. doi:https://doi.org/10.1016/j.optlastec.2023.110107.
- Nugraha, Mahendra Kusuma, Moh. Ali Joko Wasono, dan Mitrayana Mitrayana. 2022. “Performance Characterization of 450 nm Visible Light Based Photoacoustic Imaging for Phantom Imaging of Synthetic Dye Contrast

- Agents.” *INDONESIAN JOURNAL OF APPLIED PHYSICS* 12(1):124. doi:10.13057/ijap.v12i1.49179.
- Ouachtari, Fouad, Ahmed Rmili, Sidi El, Bachir Elidrissi, Ahmed Bouaoud, Hassan Erguig, dan Philippe Elies. 2011. “Influence of Bath Temperature , Deposition Time and [ S ]/[ Cd ] Ratio on the Structure , Surface Morphology , Chemical Composition and Optical Properties of CdS Thin Films Elaborated by Chemical Bath Deposition.” 2011(September):1073–82. doi:10.4236/jmp.2011.29131.
- Pereira, Antonio G. B., Francisco H. A. Rodrigues, Alexandre T. Paulino, Alessandro F. Martins, dan André R. Fajardo. 2021. “Recent advances on composite hydrogels designed for the remediation of dye-contaminated water and wastewater: A review.” *Journal of Cleaner Production* 284:124703. doi:https://doi.org/10.1016/j.jclepro.2020.124703.
- Qiao, Shanlin, Mengyu Di, Jia Xing Jiang, dan Bao Hang Han. 2022. “Conjugated porous polymers for photocatalysis: The road from catalytic mechanism, molecular structure to advanced applications.” *EnergyChem* 4(6).
- Qin, N., Y. Liu, W. Wu, L. Shen, X. Chen, Z. Li, dan L. Wu. 2015. “One-Dimensional CdS/TiO<sub>2</sub> Nanofiber Composites as Efficient Visible-Light-Driven Photocatalysts for Selective Organic Transformation: Synthesis, Characterization, and Performance.” *Langmuir* 31:1203.
- Raveendran, Asha, Mijun Chandran, dan Ragupathy Dhanusuraman. 2023. “A comprehensive review on the electrochemical parameters and recent material development of electrochemical water splitting electrocatalysts.” *RSC Advances* 13(6):3843–76.
- Riente, P., dan T. Noël. 2019. “Application of Metal Oxide Semiconductors in Light-Driven Organic Transformations.” *Catal. Sci. Technol.* 9:5186.
- Saint, Uttama Kumar, Suresh Chandra Baral, Dilip Sasmal, P. Maneesha, Sayak Datta, Farzana Naushin, dan Somaditya Sen. 2025. “Effect of pH on photocatalytic degradation of methylene blue in water by facile hydrothermally grown TiO<sub>2</sub> nanoparticles under natural sunlight.” *JCIS Open* 19. doi:10.1016/j.jciso.2025.100150.
- Sapawe, N., A. A. Jalil, S. Triwahyono, R. N. R. A. Sah, N. W. C. Jusoh, N. H. H. Hairom, dan J. Efendi. 2013a. “Electrochemical strategy for grown ZnO nanoparticles deposited onto HY zeolite with enhanced photodecolorization of methylene blue: Effect of the formation of SiOZn bonds.” *Applied Catalysis A: General* 456:144–58. doi:10.1016/j.apcata.2013.02.025.
- Sapawe, N., A. A. Jalil, S. Triwahyono, R. N. R. A. Sah, N. W. C. Jusoh, N. H. H. Hairom, dan J. Efendi. 2013b. “Electrochemical strategy for grown ZnO

- nanoparticles deposited onto HY zeolite with enhanced photodecolorization of methylene blue: Effect of the formation of SiOZn bonds.” *Applied Catalysis A: General* 456:144–58. doi:10.1016/j.apcata.2013.02.025.
- Senthamilselvi, V., K. Ravichandran, dan K. Saravanakumar. 2013. “Influence of immersion cycles on the stoichiometry of CdS films deposited by SILAR technique.” *Journal of Physics and Chemistry of Solids* 74(1):65–69. doi:10.1016/j.jpcs.2012.07.020.
- Shchedrina, N., M. Lancry, T. Charpentier, D. Neuville, dan N. Ollier. 2025. “Impact of the silica glass initial state on the thermal and structural properties of metamict-like silica glass.” *Journal of Non-Crystalline Solids* 655. doi:10.1016/j.jnoncrysol.2025.123463.
- Skoog, D. A., F. J. Holler, dan S. R. Crouch. 2017. *Principles of Instrumental Analysis*. Cengage Learning.
- Smairi, Salma, Bouchaib Hartiti, Youssef Arba, Hicham Labrim, Salah Fadili, Mounia Tahri, Amine Belfhailli, dan Philippe Thévenin. 2022a. “Elaboration and characterization of cadmium sulfide (CdS) thin films prepared by chemical bath deposition (CBD).” *Materials Today: Proceedings* 66:112–15. doi:https://doi.org/10.1016/j.matpr.2022.03.690.
- Smairi, Salma, Bouchaib Hartiti, Youssef Arba, Hicham Labrim, Salah Fadili, Mounia Tahri, Amine Belfhailli, dan Philippe Thévenin. 2022b. “Elaboration and characterization of cadmium sulfide (CdS) thin films prepared by chemical bath deposition (CBD).” Hlm. 112–15 dalam *Materials Today: Proceedings*. Vol. 66. Elsevier Ltd.
- Smart, L. E., dan E. A. Moore. 2012. *Solid State Chemistry: An Introduction, Fourth Edition*. Taylor & Francis.
- Steehler, Jack. 2005. “Ewing’s Analytical Instrumentation Handbook, 3rd Edition (Jack Cazes).” *Journal of Chemical Education - J CHEM EDUC* 82. doi:10.1021/ed082p1315.
- Sun, Hongxiao, Min Hong, Qiangqiang Yang, Chuan Li, Guangzhi Zhang, Qiaoli Yue, Yanhua Ma, Xia Li, dan Chen-Zhong Li. 2019. “Visualizing the down-regulation of hTERT mRNA expression using gold-nanoflare probes and verifying the correlation with cancer cell apoptosis.” *Analyst* 144(9):2994–3004. doi:10.1039/C9AN00204A.
- Sun, Shihai, Yukui Cai, Pin Zhang, Teng Zhang, Jawad Aslam, Xiaoliang Liang, Yunqing Tang, Xing Li, dan Zhanqiang Liu. 2025. “Scratching force and material removal mechanism of 2.5D SiO<sub>2</sub>f/SiO<sub>2</sub> composites under single-abrasive scratch test.” *Journal of Manufacturing Processes* 153:16–28. doi:https://doi.org/10.1016/j.jmapro.2025.08.058.

- Suryanarayana, C., dan M. G. Norton. 1998. *X-Ray Diffraction: A Practical Approach*. Artech House Telecommunications. Springer US.
- Thai, Van Phuoc, dan Toru Sasaki. 2026. "Inner-filter-induced bias in fluorescence-based hydroxyl radical dosimetry using terephthalic acid." *Talanta* 305. doi:10.1016/j.talanta.2026.129621.
- Tohidi, Tavakkol, Kazem Jamshidi-Ghaleh, Abdolrahman Namdar, dan Reza Abdi-Ghaleh. 2014. "Comparative studies on the structural, morphological, optical, and electrical properties of nanocrystalline PbS thin films grown by chemical bath deposition using two different bath compositions." *Materials Science in Semiconductor Processing* 25:197–206. doi:https://doi.org/10.1016/j.mssp.2013.11.028.
- Tu, Yu, Weihua Ao, Chunhong Wang, Tianyu Ren, Lijuan Zhang, Jiabin Zhong, Wei Li, dan Hao Ding. 2021. "Hydrolytic modification of  $\text{SiO}_2$  microspheres with  $\text{Na}_2\text{SiO}_3$  and the performance of supported nano- $\text{TiO}_2$  composite photocatalyst." *Materials* 14(10). doi:10.3390/ma14102553.
- Wang, Yuanyuan, Yaoxian Zhu, Hangmin Guan, Yingfei Hu, Yijie Zhao, Wenyan Zhang, dan Yancheng Gong. 2023. "Cu-doped  $\text{In}_2\text{S}_3$  hierarchical structures for photocatalytic organic dye degradation under visible light irradiation." *Materials Letters* 349. doi:10.1016/j.matlet.2023.134843.
- Wang, Yuchen, Qianqian Pan, Songlin Cai, Liwei Liang, Liangsheng Chen, Ruirui Zhang, Liu Liu, Yanzhen Yin, Tao Yang, Hongxiang Zhu, dan Tao Liu. 2025. "The novel biochar-based organic semiconductor toward broadband and direct radicals transfer enhanced photocatalytic degradations." *Journal of Environmental Management* 386:125689. doi:https://doi.org/10.1016/j.jenvman.2025.125689.
- Wang, Zhongchun, dan Xingfang Hu. 1999. "Fabrication and electrochromic properties of spin-coated  $\text{TiO}_2$  thin films from peroxo-polytitanic acid." *Thin Solid Films* 352(1):62–65. doi:https://doi.org/10.1016/S0040-6090(99)00321-1.
- Warrier, Anita, Teny John, K. Vijayakumar, dan C. Kartha. 2009. "Structural and Optical Properties of Indium Sulfide Thin Films Prepared by Silar Technique." *The Open Condensed Matter Physics Journal* 2. doi:10.2174/1874186X00902010009.
- Watanabe, T., K. Tatsumura, dan I. Ohdomari. 2004. "SiO<sub>2</sub>/Si interface structure and its formation studied by large-scale molecular dynamics simulation." Hlm. 125–33 dalam *Applied Surface Science*. Vol. 237. Elsevier.
- Wei, Ling, Jun Zhang, dan Mengnan Ruan. 2021. "Combined CdS/ $\text{In}_2\text{S}_3$  heterostructures with cocatalyst for boosting carriers separation and

- photoelectrochemical water splitting.” *Applied Surface Science* 541. doi:10.1016/j.apsusc.2020.148431.
- Wen, Xiaokun, Hongyi Li, Hong Chen, Kexin Wang, Yadan Ding, Guorui Wang, Haiyang Xu, dan Xia Hong. 2024a. “Talanta Tri-signal CdS @ SiO<sub>2</sub> 2 nanoprobe for accurate and sensitive detection of human immunoglobulin G with enhanced flexibility and internal validation.” *Talanta* 278(June):126495. doi:10.1016/j.talanta.2024.126495.
- Wen, Xiaokun, Hongyi Li, Hong Chen, Kexin Wang, Yadan Ding, Guorui Wang, Haiyang Xu, dan Xia Hong. 2024b. “Tri-signal CdS@SiO<sub>2</sub> nanoprobe for accurate and sensitive detection of human immunoglobulin G with enhanced flexibility and internal validation.” *Talanta* 278. doi:10.1016/j.talanta.2024.126495.
- Weng, B., M. Y. Qi, C. Han, Z. R. Tang, dan Y. J. Xu. 2019. “Photocorrosion Inhibition of Semiconductor-Based Photocatalysts: Basic Principle, Current Development, and Future Perspective.” *ACS Catal.* 9:4642.
- Wijaya, Roni Adi, Gunawan Gunawan, Ahmad Suseno, Nor Basid Adiwibawa Prasetya, Fitria 'Izzatun Nisa, Wilman Septina, dan Takashi Harada. 2026. “Tailoring BiVO<sub>4</sub>/CdS dip-coated Z-scheme heterojunction thin films for enhanced visible-light-driven photodegradation of methylene blue: deposition optimization, kinetics, and mechanistic insights.” *Journal of Electroanalytical Chemistry* 1006:119876. doi:10.1016/j.jelechem.2026.119876.
- Wu, Jiachao, Jun Wei, Bing Lv, Mingjun Wang, Xiaolu Wang, dan Wenzhong Wang. 2023. “Enhanced solar-light-driven photoelectrochemical water splitting performance of type II 1D/0D CdS/In<sub>2</sub>S<sub>3</sub> nanorod arrays.” *Chemical Physics Letters* 830. doi:10.1016/j.cplett.2023.140776.
- Wu, W., R. Lin, L. Shen, R. Liang, R. Yuan, dan L. Wu. 2013. “Mechanistic Insight into the Photocatalytic Hydrogenation of 4-Nitroaniline over Band-Gap-Tunable CdS Photocatalysts.” *Phys. Chem. Chem. Phys.* 15:19422.
- Xu, Liang, Ying Di Ge, Xin Yi Zhou, Mei Yi Xing, Xue Qian Wu, Yang Wang, Lin Zhang, dan Xin Wang. 2025. “Study on the sonocatalytic removal of tetracycline by an type-II heterojunction CuS/FeWO<sub>4</sub>.” *Journal of Alloys and Compounds* 1015. doi:10.1016/j.jallcom.2025.178826.
- Xu, Yong, dan Martin Schoonen. 2000. “The Absolute Energy Position of Conduction and Valence Bands of Selected Semiconducting Minerals.” *American Mineralogist* 85. doi:10.2138/am-2000-0416.
- Yang, Lei, Tengyang Gao, Saisai Yuan, Ying Dong, Yiming Chen, Xijuan Wang, Chuanxiang Chen, Liang Tang, dan Teruhisa Ohno. 2023. “Journal of Colloid And Interface Science Spatial charge separated two-dimensional / two-

- dimensional Cu-In<sub>2</sub>S<sub>3</sub> / CdS heterojunction for boosting photocatalytic hydrogen production.” *Journal of Colloid And Interface Science* 652(PB):1503–11. doi:10.1016/j.jcis.2023.08.149.
- Yu, Haiyan, Haiou Liang, Jie Bai, dan Chunping Li. 2023. “Sulfur vacancy and CdS phase transition synergistically boosting one-dimensional CdS/Cu<sub>2</sub>S/SiO<sub>2</sub> hollow tube for photocatalytic hydrogen evolution.” *International Journal of Hydrogen Energy* 48(42):15908–20. doi:10.1016/j.ijhydene.2023.01.120.
- Yuan, Peiling, Shengxi Wu, Pengwen Wu, Yu Zeng, Xiaotian Deng, Pengxiang Li, dan Doudou Xu. 2025. “A novel photoelectrochemical microfluidic immunosensor for the ultrasensitive detection of PIGF based on ZnIn<sub>2</sub>S<sub>4</sub>/In<sub>2</sub>S<sub>3</sub> heterojunction material modification.” *Sensors and Actuators B: Chemical* 444:138379. doi:https://doi.org/10.1016/j.snb.2025.138379.
- Zabuha, Artem, Oleksandr Dobrozhan, Dmytro Velykodnyi, dan Anatoliy Opanasyuk. 2025. “Impact of optical and recombination losses on the photovoltaic parameters of thin-film solar cells with n-CdS(ZnO, ZnMgO)/p-Cu<sub>12</sub>Sb<sub>4</sub>S<sub>13</sub> heterojunctions.” *Micro and Nanostructures* 208482. doi:https://doi.org/10.1016/j.micrna.2025.208482.
- Zahro, Septi Fatimatus, dan Sandyanto Adityosulindro. 2023. “Literature Review : Penggunaan Bahan Berbasis Limbah Sebagai Adsorben untuk Degradasi Zat Warna pada Air Limbah.” 22(3):359–68.
- Žerjav, Gregor, Alen Albreht, Irena Vovk, dan Albin Pintar. 2020. “Revisiting terephthalic acid and coumarin as probes for photoluminescent determination of hydroxyl radical formation rate in heterogeneous photocatalysis.” *Applied Catalysis A: General* 598. doi:10.1016/j.apcata.2020.117566.
- Zhang, J., Y. Guo, Y. Xiong, D. Zhou, dan S. Dong. 2017. “An Environmentally Friendly Z-Scheme WO<sub>3</sub>/CDots/CdS Heterostructure with Remarkable Photocatalytic Activity and Anti-Photocorrosion Performance.” *J. Catal.* 356:1.
- Zheng, Chaofan, Ziyao Wang, Jialong Yuan, Qingfeng Xu, Haixin Li, Xiaoyi Lu, Jiangang Gao, dan Wenjin Yue. 2023. “A Facile Synthesis of Highly Efficient In<sub>2</sub>S<sub>3</sub> Photocatalysts for the Removal of Cationic Dyes with Size-Dependent Photocatalysis.” *RSC Advances* 13(7):4173–81. doi:10.1039/d2ra07108h.