

Curriculum Vitae



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WORKING EXPERIENCES:

Year 2016 – now, Joint researcher in *National Taiwan University of Science and Technology (NTUST)*, Taipei, Taiwan.

Year 2012 – now, Lecturer and researcher in *Universitas Prima Indonesia*, Faculty of Computer Sciences and Engineering, Medan, North Sumatera, Indonesia.

Year 2007 – 2011, Instructor in private senior high school for subject of math, chemistry, and physics.

Year 2001 – 2006, Marketing staff in *Charoen Pokphand Indonesia company*, Medan, North Sumatera, Indonesia.

Year 1999 – 2001, Staff in Production Planning and Inventory Controlling at *Centralwindu sejati company*, Medan, North Sumatera, Indonesia.

ACADEMIC QUALIFICATIONS:

University Education:

Doctor of Philosophy (PhD in Materials Science) – 2.5 years - Department of Materials Science and Engineering, *National Taiwan University of Science and Engineering (NTUST)*, Taipei, Taiwan - graduated in May 2016.

Master of Science (MSc, Materials Science) - 2 years - Department of Physics, *University of North Sumatera (USU)*, Medan, North Sumatera, Indonesia – graduated in July 2012

Bachelor of Industrial Engineering - 4 years – *Fakultas Teknologi Industri, Institut Sains dan Teknologi TD. Pardede (ISTP)*, Medan, North Sumatera, Indonesia –

graduated in July 1998

School Education:

Senior high school – 3 years – *Sutomo School*, Medan. North Sumatera, Indonesia – completed in May 1993

Junior high school – 3 years – *Sutomo School*, Medan. North Sumatera, Indonesia – completed in June 1990

Elementary school – 6 years – *Sutomo School*, Medan. North Sumatera, Indonesia – completed in June 1987

LIST OF PUBLICATIONS

1. **H. Abdullah**, Dong-Hau Kuo, Photocatalytic performance of Ag and CuBiS₂ nanoparticle-coated SiO₂@TiO₂ composite sphere under visible and ultraviolet light irradiation for Azo dye degradation with the assistance of numerous nano p–n diodes, *ACS J. Phys. Chem. C* (2015) 119:13632. (IF= 4.309)
2. **H. Abdullah**, Dong-Hau Kuo, Facile synthesis of n-type (AgIn)_xZn_{2(1-x)}S₂/p-type Ag₂S nanocomposite for visible light photocatalytic reduction to detoxify hexavalent chromium, *ACS Appl. Mater. Interfaces* (2015) 7(48):26941–26951. (IF= 8.456)
3. W. Wubet, D.H. Kuo, **H. Abdullah**, Effects of sintering temperature and duration on the structural and electrical properties of CuBiS₂ bulks, *J. Solid State Chem.* (2015) 230:237–242. (IF= 2.299)
4. **H. Abdullah**, D.H. Kuo, Y.R. Kuo, F.A. Yu, K.B. Cheng, Facile synthesis and recyclability of thin nylon film supported n-type ZnO/p-type Ag₂O nano composite for visible light photocatalytic degradation of organic dye, *J. Phys. Chem. C* (2016) 120:7144–7154. (IF= 4.309)
5. **H. Abdullah**, D.H. Kuo, Y.H. Chen, Facile synthesis of n-type TiO₂/p-Type Cu₂O

- nano diode photocatalyst to detoxify hexavalent chromium under visible light irradiation, *J. Mater. Sci.* (2016) 51(17):8209–8223 (IF= 2.599)
6. **H. Abdullah**, D.H. Kuo, J.Y. Lee, C.M. Wu, Recyclability of thin nylon film-supported p-CuBiS₂/n-TiO₂ heterojunction-based nanocomposites for visible light photocatalytic degradation of organic dye, *Appl. Phys. A* (2016) 122:750. (IF= 1.694)
 7. **H. Abdullah**, D.H. Kuo, Photocatalytic performance of the SiO₂ sphere/n-type TiO₂/p-type CuBiS₂ composite catalysts coated with different contents of Ag nanoparticles under ultraviolet and visible light irradiations, *Appl. Phys. A* (2016) 122:739. (IF= 1.694)
 8. **H. Abdullah**, D.H. Kuo, X. Chen, High efficient noble metal free Zn(O,S) nanoparticles for hydrogen evolution, *Int. J. Hydrogen Energy* (2017) 42(9): 5638–5648. (IF= 4.084)
 9. X. Chen, **H. Abdullah**, D.H. Kuo, CuMnOS nanoflowers with different Cu⁺/Cu²⁺ ratios for the CO₂-to-CH₃OH and the CH₃OH-to-H₂ redox reactions, *Sci. Reports* (2017) 7:41194. (IF= 4.259)
 10. K.T. Chuang, **H. Abdullah**, S.J. Leu, K.B. Cheng, D.H. Kuo, H.C. Chen, J.H. Chien, W.T. Hu, Metal oxide composite thin films made by magnetron sputtering for bactericidal application, *J. Photochem. Photobiol. A: Chem.* (2017) 337:151–164. (IF= 2.625)
 11. **H. Abdullah**, N.S. Gultom, D.H. Kuo, Indium oxysulfide nanosheet photocatalyst for the hexavalent chromium detoxification and hydrogen evolution reaction, *J. Mater. Sci.* (2017) 52(11):6249–6264 (IF= 2.599)
 12. O.A. Zeleke, D.H. Kuo, J.M. Yassin, K.E. Ahmed, **H. Abdullah**, Synthesis of efficient silica supported TiO₂/Ag₂O heterostructured catalyst with enhanced photocatalytic performance, *Appl. Surf. Sci.* (2017) 410:454–463 (IF= 3.387)

13. **H. Abdullah**, N.S. Gultom, D.H. Kuo, A simple one-pot synthesis of Zn(O,S)/Ga₂O₃ nanocomposite photocatalyst for hydrogen production and 4-nitrophenol reduction, *New J. Chem.* (2017) 41:12397-12406 (IF= 3.277)
14. N.S. Gultom, **H. Abdullah**, D.H. Kuo, Enhanced photocatalytic hydrogen production of noble-metal free Ni-doped Zn(O,S) in ethanol solution, *Int. J. Hydrogen Energy* (2017) 42(41):25891-25902 (IF= 4.084)
15. A.D. Saragih, W. Wubet, **H. Abdullah**, A K. Abay, D.H. Kuo, Characterization of Ag-doped Cu₂ZnSnSe₄ bulks material and their application as thin film semiconductor in solar cells, *Mater Sci Eng.* (2017) 225:45-53 (IF= 2.552)
16. X. Chen, **H. Abdullah**, D.H. Kuo, H.N. Huang, C.C. Fang, Abiotic Synthesis with the C-C Bond Formation in Ethanol from CO₂ over (Cu,M)(O,S) Catalysts with M = Ni, Sn, and Co, *Sci. Rep.* (2017) 7:10094 (IF= 4.259)
17. Y.X. Hou, **H. Abdullah**, D.H. Kuo, S.J Leu, N.S. Gultom, C.H. Su, A comparison study of SiO₂/nano metal oxide composite sphere for antibacterial application, *Composites Part B: Eng.* (2018) 133:166-176 (IF= 4.727)
18. X. Chen, D.H. Kuo, A.D. Saragih, Z.Y. Wu, **H. Abdullah**, J. Lin, The effect of the Cu⁺/Cu²⁺ ratio on the redox reactions by nanoflower CuNiOS, *Chem. Eng. Sci.* (2018) DOI: 10.1016/j.ces.2018.02.016 (IF= 2.895)
19. **H. Abdullah**, N.S. Gultom, D.H. Kuo, A.D. Saragih, Cobalt-doped Zn(O,S)/Ga₂O₃ nanoheterojunction composites for enhanced hydrogen production, *New J Chem*, (2018), DOI: 10.1039/C7NJ05124G (IF= 3.069)
20. X Chen, DH Kuo, ZY Wu, **H Abdullah**, J Zhang, J Lin, Bimetal Seleno-Sulfide CuNiSeS Nanosheet Catalyst for Methylene Blue Degradation in the Dark, *European Journal of Inorganic Chemistry* 2018 (36), 4053-4062 (IF= 2.507)
21. **H Abdullah**, NS Gultom, DH Kuo, Synthesis and characterization of La-doped Zn (O, S) photocatalyst for green chemical detoxification of 4-nitrophenol,

- Journal of hazardous materials 363, 2019, 109-118 (IF= 7.65)
22. **H Abdullah**, DH Kuo, Utilization of photocatalytic hydrogen evolved (Zn, Sn)(O, S) nanoparticles to reduce 4-nitrophenol to 4-aminophenol, International Journal of Hydrogen Energy 44, 2019, 191-201 (IF= 4.084)
 23. NS Gultom, **H Abdullah**, DH Kuo, Facile synthesis of cobalt-doped (Zn, Ni)(O, S) as an efficient photocatalyst for hydrogen production, Journal of the Energy Institute (IF= 4.217)
 24. **H Abdullah**, NS Gultom, DH Kuo, N=N bond cleavage of azobenzene via photocatalytic hydrogenation with Dy-doped Zn(O,S): The progress from hydrogen evolution to green chemical conversion. Catalysis Science and Technology, 2019, 9, 2651-2663 (IF= 5.726)
 25. NS Gultom, **H Abdullah**, D-H Kuo, W-C Ke, Oriented p-n Heterojunction Ag₂O/Zn(O,S) Nanodiodes on Mesoporous SiO₂ for Photocatalytic Hydrogen Production. ACS Applied Energy Materials, 2019, 2(5), 3228-3236 (IF= 8.456)
 26. LW Duresa, D-H Kuo, KE Ahmed, MA Zeleke, H. Abdullah, Highly Enhanced Photocatalytic Cr (vi) Reduction Using In-Doped Zn (O, S) Nanoparticles, New Journal of Chemistry, 2019, 43, 8746-8754. (IF= 3.069)
 27. X Chen, DH Kuo, AD Saragih, ZY Wu, H Abdullah, J Lin, The Effect of the Cu⁺/Cu²⁺ Ratio on The Redox Reactions by Nanoflower CuNiOS Catalysts, Chemical Engineering Science, 2019, 194, 105-115. (IF= 3.372)
 28. FT Bekena, H Abdullah, DH Kuo, MA Zeleke, Photocatalytic Reduction of 4-nitrophenol Using Effective Hole Scavenger Over Novel Mg-doped Zn (O, S) Nanoparticles, 2019, 78, 116-124. (IF= 4.978)
 29. N.S. Gultom, H. Abdullah, D.H. Kuo, Concept of Stagnant Capillarity Water in the Nanoporous SiO₂@(Zn,Ni)(O,S) Nanocomposite Photocatalyst as a Strategy to Improve Hydrogen Evolution, ACS Applied Materials & Interfaces, 2019,

11(31), 27760-27769. (IF= 8.456)

INTERNATIONAL CONFERENCE PAPERS:

1. N.S. Gultom, **H. Abdullah**, D.H. Kuo, Convenient synthesis of Mn-doped Zn (O,S) nanoparticle photocatalyst for 4-nitrophenol reduction, the 2018 International Conference on Mechanical, Electronics, Computer, and Industrial Technology (MECnIT 2017), 12/6~12/8, Medan, Indonesia. IOP Conf. Series: Journal of Physics: Conf. Series 1007 (2018) 012061. (Oral presentation)
2. Z.Y. Wu, **H. Abdullah**, D.H. Kuo, Photocatalytic antibacterial activity of copper-based nanoparticles under visible light illumination, the 2018 International Conference on Mechanical, Electronics, Computer, and Industrial Technology (MECnIT 2017), 12/6~12/8, Medan, Indonesia. IOP Conf. Series: Journal of Physics: Conf. Series 1007 (2018) 012062. (Oral presentation)
3. **H. Abdullah**, N.S. Gultom, D.H. Kuo, A.D. Saragih, Hydrazine-modified Zn-oxysulfide nanoparticles for CO₂ reduction under low UV-light illumination, the 2018 International Conference on Mechanical, Electronics, Computer, and Industrial Technology (MECnIT 2018), 12/12~12/14, Medan, Indonesia. (Oral presentation)
4. **H. Abdullah**, N.S. Gultom, D.H. Kuo, A.D. Saragih, effect of Zn(O,S) synthesis temperature to photocatalytic hydrogen evolution performance, the 2018 International Conference on Mechanical, Electronics, Computer, and Industrial Technology (MECnIT 2018), 12/12~12/14, Medan, Indonesia. (Oral presentation)
5. N.S. Gultom, **H. Abdullah**, D.H. Kuo, P. Simamora, M. Sirait, Development photocatalyst reduce graphene oxide (RGO) composited with (Zn,Ni)(O,S) for photocatalytic hydrogen production, the 2018 International Conference on Mechanical, Electronics, Computer, and Industrial Technology (MECnIT 2018),

- 12/12~12/14, Medan, Indonesia. (Oral presentation)
6. A.D. Saragih, **H. Abdullah**, and D.H. Kuo, Study on the doping effect of Cu-doped ZnO thin films deposited by co-sputtering technique. The 2018 International Conference on Mechanical, Electronics, Computer, and Industrial Technology (MECnIT 2018), 12/12~12/14, Medan, Indonesia. (Oral presentation)
 7. A.D. Saragih, **H. Abdullah**, and D.H. Kuo, Optimazation of sputtered n-type GaN/InGaN for Cu(In,Ga)Se₂ thin film solar cells. The 2018 International Conference on Mechanical, Electronics, Computer, and Industrial Technology (MECnIT 2018), 12/12~12/14, Medan, Indonesia. (Oral presentation)
 8. **H. Abdullah**, N.S Gultom, D.H. Kuo, Development of Zn(O,S) nanoparticles for hydrogen evolution reaction and its application for hydrogenation reaction. International Forum on Advanced Technologies 2019 (IFAT 2019), 8th March 2019, GIS convention center, National Taiwan University (NTU), Taipei, Taiwan. (Invited speaker)
 9. **H. Abdullah**, D.-H. Kuo, and Gultom, N.S., Photocatalytic Hydrogenation Reactions with Dy-doped Zn(O,S): The progress from hydrogen evolution to green chemical conversion, International Symposium of Renewable and Sustainable Materials-2019, YS-05, 8/8~8/10, National Taiwan University of Science and Technology, Taipei, Taiwan. (Oral presentation)
 10. C.C. Hsu, **H. Abdullah**, Gultom, N.S., and D.-H. Kuo, Facile synthesis of SiO₂/cobalt-doped (Zn,Ni)(O,S) as an efficient photocatalyst for hydrogen production. The 2nd International Conference of Nanomaterials and Advanced Composites (NAC)-2019, IP-24, 8/9~8/11, National Taiwan University of Science and Technology, Taipei, Taiwan. (Poster presentation)

NATIONAL CONFERENCE PAPERS:

1. Gultom, N.S., **H. Abdullah**, and D.-H. Kuo, A simple synthesis method of RGO/(Zn,Ni)(O,S) Nanocomposite for Photocatalytic Hydrogen Evolution Reaction. The 13th National Conference on Hydrogen Energy and Fuel Cell, The 5th Taiwan Energy Association Annual Meeting - HEFC2018, H_0_6, 10/19~10/20, Yuan Ze University, Taiwan. (Oral presentation)
2. **H. Abdullah**, Gultom, N.S., and D.-H. Kuo, Utilization of hydrazine-modified Zn(O,S) nanoparticles for photocatalytic reduction of CO₂. The 13th National Conference on Hydrogen Energy and Fuel Cell, The 5th Taiwan Energy Association Annual Meeting - HEFC2018, O_P_1, 10/19~ 10/20, Yuan Ze University, Taiwan. (Poster presentation)
3. **H. Abdullah**, Gultom, N.S., and D.-H. Kuo, Synthesis of Zn(O,S) Nanoparticles for Photocatalytic Hydrogen Evolution Reaction. The 107th annual meeting of Materials Research Society Taiwan (MRST)-2018, P010038, 11/16~11/17, Feng Chia University, Taiwan. (Poster presentation)

INSTRUMENTS HANDLED:

1. UV-Visible Spectrophotometry - Jasco
2. Photoluminescence (PL) spectrophotometry - Jasco
3. Zeta Sizer potential – Nano ZS90 Malvern, United Kingdom
4. Thermo Gravimetric Analyser - Perkin Elmer
5. FTIR / ATR-IR Spectrophotometer - Jasco
6. X-Ray diffractometer – Bruker D2
7. Field Emission Scanning Electron Microscope – JEOL
8. I-V measurement - KIKUSUI, Japan
9. Hall Measurement – Ecopia, Korea
10. Gas chromatograph (GC-TCD) – GC 1000, China
11. Gas chromatograph (GC-FID) – Chrom Tech GC 9800, China
12. Raman spectroscopy, HR 550, Horiba scientific

13. HPLC – Hewlett Packard (HP)

14. Photo electro chemical (PEC) measurements- BioLogic SP-300

REFERENCES

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