

REFERENCES

- Adhikari, S., Fernando, S. D., & Haryanto, A. (2009). Hydrogen production from glycerol : An update. *Energy Conversion and Management*, 50(10), 2600–2604.
- Adhikari, S., Fernando, S., Gwaltney, S. R., Filip To, S. D., Mark Bricka, R., Steele, P. H., & Haryanto, A. (2007). A thermodynamic analysis of hydrogen production by steam reforming of glycerol. *International Journal of Hydrogen Energy*.
- Afsharzade, N., Papzan, A., Ashjaee, M., Delangizan, S., Passel, S. Van, & Azadi, H. (2016). Renewable energy development in rural areas of Iran. *Renewable and Sustainable Energy Reviews*, 65, 743–755.
- Ahmad, a. L., Yasin, N. H. M., Derek, C. J. C., & Lim, J. K. (2011). Microalgae as a sustainable energy source for biodiesel production: A review. *Renewable and Sustainable Energy Reviews*, 15(1), 584–593.
- Ajanovic, A. (2008). On the economics of hydrogen from renewable energy sources as an alternative fuel in transport sector in Austria. *International Journal of Hydrogen Energy*, 33(16), 4223–4234.
- Akorede, M. F., Hizam, H., Ab Kadir, M. Z. A., Aris, I., & Buba, S. D. (2012). Mitigating the anthropogenic global warming in the electric power industry. *Renewable and Sustainable Energy Reviews*, 16(5), 2747–2761.
- Alipour, Z., Rezaei, M., & Meshkani, F. (2014). Effect of alkaline earth promoters (MgO, CaO, and BaO) on the activity and coke formation of Ni catalysts supported on nanocrystalline Al₂O₃ in dry reforming of methane. *Journal of Industrial and Engineering Chemistry*, 20(5), 2858–2863.
- Allan, D., & Davis, P. E. (2007). Refining Review- A Look behind the fence. *Oilfield Review*, 14–21.
- Alvarez, J., Kumagai, S., Wu, C., Yoshioka, T., Bilbao, J., Olazar, M., & Williams, P. T. (2014). Hydrogen production from biomass and plastic mixtures by pyrolysis-gasification. *International Journal of Hydrogen Energy*, 39(21), 10883–10891.
- Anand, P., & Saxena, R. K. (2012). A comparative study of solvent-assisted pretreatment of biodiesel derived crude glycerol on growth and 1,3-propanediol production from *Citrobacter freundii*. *New Biotechnology*, 29(2), 199–205.
- Apak, S., Atay, E., & Tuncer, G. (2016). Renewable hydrogen energy and energy

- efficiency in Turkey in the 21st century. *International Journal of Hydrogen Energy*, Article in, 1–7.
- Asokan, P., Saxena, M., & Asolekar, S. R. (2005). Coal combustion residues - Environmental implications and recycling potentials. *Resources, Conservation and Recycling*, 43(3), 239–262.
- Auroux, A., Monaci, R., Rombi, E., Solinas, V., Sorrentino, A., & Santacesaria, E. (2001). Acid sites investigation of simple and mixed oxides by TPD and microcalorimetric techniques. *Thermochimica Acta*, 379(1-2), 227–231.
- Authayanun, S., Arpornwichanop, A., Paengjuntuek, W., & Assabumrungrat, S. (2010). Thermodynamic study of hydrogen production from crude glycerol autothermal reforming for fuel cell applications. *International Journal of Hydrogen Energy*, 35(13), 6617–6623.
- Ayodele, B. V., Safdar, S., Shiung, S., Osazuwa, O. U., Khan, M. R., & Kui, C. (2016). Journal of Natural Gas Science and Engineering Syngas production from CO₂ reforming of methane over neodymium sesquioxide supported cobalt catalyst. *Journal of Natural Gas Science and Engineering*, 34, 873–885.
- Bahari, M. B., Chin, B., Ji, T., Danh, H. T., Pham, T. L. M., Ainirazali, N., & Vo, D. N. (2016). Hydrogen-rich Syngas Production from Ethanol Dry Reforming on La-doped Ni / Al₂O₃ Catalysts : Effect of promoter loading. *Procedia Engineering*, 00, 654–661.
- Bahari, M. B., Phuc, N. H. H., Abdullah, B., Alenazey, F., & Vo, D. V. N. (2015). Ethanol dry reforming for syngas production over Ce-promoted Ni/Al₂O₃ catalyst. *Journal of Environmental Chemical Engineering*, (2015), 1–9.
- Balat, M. (2009). Global Status of Biomass Energy Use. *Energy Sources, Part A: Recovery, Utilization, and Environmental Effects*, 31(13), 1160–1173.
- Bartholomew, C. H. (2001). Mechanisms of catalyst deactivation. *Applied Catalysis A: General*, 212(1-2), 17–60.
- Basri, N. A., Ramli, A. T., & Aliyu, A. S. (2015). Malaysia energy strategy towards sustainability: A panoramic overview of the benefits and challenges. *Renewable and Sustainable Energy Reviews*, 42, 1094–1105.
- Boerrigter, H., & Rauch, R. (2006). Review of applications of gases from biomass gasification. *ECN Biomass, Coal and Environmental ...*, (June), 33.

- Brutschin, E., & Fleig, A. (2016). Innovation in the energy sector -The role of fossil fuels and developing economies. *Energy Policy*, *97*, 27–38.
- Buffoni, I. N., Pompeo, F., Santori, G. F., & Nichio, N. N. (2009). Nickel catalysts applied in steam reforming of glycerol for hydrogen production. *Catalysis Communications*, *10*(13), 1656–1660.
- Bujang, a. S., Bern, C. J., & Brumm, T. J. (2016). Summary of energy demand and renewable energy policies in Malaysia. *Renewable and Sustainable Energy Reviews*, *53*, 1459–1467.
- Chemia I Inżynieria Ekologiczna S. (2011). Ecological Chemistry and Engineering. *Society of Ecological Chemistry and Engineering*, *18*(6), 1–132.
- Chen, Y., Yu, J., & Kelly, P. (2014). Does the China factor matter: What drives the surge of world crude oil prices? *The Social Science Journal*, *53*(1), 1–12.
- Chong, C., Ni, W., Ma, L., Liu, P., & Li, Z. (2015). The use of energy in Malaysia: Tracing energy flows from primary source to end use. *Energies*, *8*(4), 2828–2866.
- Ciftci, A., Ligthart, D. a J. M., Sen, a. O., Van Hoof, A. J. F., Friedrich, H., & Hensen, E. J. M. (2014). Pt-Re synergy in aqueous-phase reforming of glycerol and the water-gas shift reaction. *Journal of Catalysis*, *311*, 88–101.
- Clomburg, J. M., & Gonzalez, R. (2013). Anaerobic fermentation of glycerol: A platform for renewable fuels and chemicals. *Trends in Biotechnology*, *31*(1), 20–28.
- Cook, K. M., Perez, H. D., Bartholomew, C. H., & Hecker, W. C. (2014). Effect of promoter deposition order on platinum-, ruthenium-, or rhenium-promoted cobalt Fischer-Tropsch catalysts. *Applied Catalysis A: General*, *482*, 275–286.
- da Silva Veras, T., Mozer, T. S., Da Costa, D., Messeder, R., Santos, D., Da, A., & Esar, S. C. (2016). Hydrogen: Trends, production and characterization of the main process worldwide, 1–16.
- da Silveira, V. R., Melo, D. M. A., Barros, B. S., Ruiz, J. A. C., & Rojas, L. O. A. (2016). Nickel-based catalyst derived from NiO–Ce_{0.75}Zr_{0.25}O₂ nanocrystalline composite: Effect of the synthetic route on the partial oxidation of methane. *Ceramics International*, *42*(14), 16084–16089.
- Das, T. K., Jacobs, G., Patterson, P. M., Conner, W. A., Li, J., & Davis, B. H. (2003).

- Fischer-Tropsch synthesis: Characterization and catalytic properties of rhenium promoted cobalt alumina catalysts. *Fuel*, 82(7), 805–815.
- Dave, C. D., & Pant, K. K. (2011). Renewable hydrogen generation by steam reforming of glycerol over zirconia promoted ceria supported catalyst. *Renewable Energy*, 36(11), 3195–3202.
- Demirbas. (2008). Comparison of transesterification methods for production of biodiesel from vegetable oils and fats. *Energy Conversion and Management*, 49(1), 125–130.
- Demirbas, A. (2009). Progress and recent trends in biodiesel fuels. *Energy Conversion and Management*, 50(1), 14–34.
- Demirbas, T., & Demirbas, a. H. (2010). Bioenergy, Green Energy. Biomass and Biofuels. *Energy Sources, Part A: Recovery, Utilization, and Environmental Effects*, 32(12), 1067–1075.
- Dias, J. A. C., & Assaf, J. M. (2003). Influence of calcium content in Ni/CaO/ γ -Al₂O₃ catalysts for CO₂-reforming of methane. *Catalysis Today*, 85(1), 59–68.
- dos Santos, K. G., Eckert, C. T., De Rossi, E., Bariccatti, R. A., Frigo, E. P., Lindino, C. A., & Alves, H. J. (2017). Hydrogen production in the electrolysis of water in Brazil, a review. *Renewable and Sustainable Energy Reviews*, 68(October 2016), 563–571.
- Ebshish, A., Yaakob, Z., Narayanan, B., & Bshish, A. (2011). The Activity of Ni-Based Catalysts on Steam Reforming of Glycerol for Hydrogen Production. *International Journal of Integrated Engineering*, 3(1), 5–8.
- Ebshish, A., Yaakob, Z., Narayanan, B., Bshish, A., & Wan Daud, W. R. (2012). Steam reforming of glycerol over Ni supported alumina xerogel for hydrogen production. *Energy Procedia*, 18, 552–559.
- Estellé, J. (2003). Comparative study of the morphology and surface properties of nickel oxide prepared from different precursors. *Solid State Ionics*, 156(1-2), 233–243.
- Estellé, J., Salagre, P., Cesteros, Y., Serra, M., Medina, F., & Sueiras, J. E. (2003). Comparative study of the morphology and surface properties of nickel oxide prepared from different precursors. *Solid State Ionics*, 156(1-2), 233–243.

- Fan, X., Burton, R., & Zhou, Y. (2010). Glycerol (Byproduct of Biodiesel Production) as a Source for Fuels and Chemicals - Mini Review. *The Open Fuels & Energy Science Journal*, 3, 17–22.
- Fernandez, Y., Arenillas, A., Bermudez, J. M., & Menendez, J. a. (2010). Comparative study of conventional and microwave-assisted pyrolysis, steam and dry reforming of glycerol for syngas production, using a carbonaceous catalyst. *Journal of Analytical and Applied Pyrolysis*, 88(2), 155–159.
- Fernández, Y., Arenillas, A., Díez, M. A., Pis, J. J., & Menéndez, J. A. (2009). Pyrolysis of glycerol over activated carbons for syngas production. *Journal of Analytical and Applied Pyrolysis*, 84(2), 145–150.
- Fernández, Y., & Menéndez, J. A. (2011). Influence of feed characteristics on the microwave-assisted pyrolysis used to produce syngas from biomass wastes. *Journal of Analytical and Applied Pyrolysis*, 91(2), 316–322.
- Foo, K. Y. (2015). A vision on the opportunities, policies and coping strategies for the energy security and green energy development in Malaysia. *Renewable and Sustainable Energy Reviews*, 51, 1477–1498.
- Fukuda, H., Kondo, A., & Noda, H. (2001). Biodiesel fuel production by transesterification of oils. *Journal of Bioscience and Bioengineering*, 92(5), 405–416.
- Gallo, A., Pirovano, C., Ferrini, P., Marelli, M., Psaro, R., Santangelo, S., Faggio, G., & Dal Santo, V. (2012). Influence of reaction parameters on the activity of ruthenium based catalysts for glycerol steam reforming. *Applied Catalysis B: Environmental*, 121-122, 40–49.
- Göransson, K., Söderlind, U., He, J., & Zhang, W. (2011). Review of syngas production via biomass DFBGs. *Renewable and Sustainable Energy Reviews*, 15(1), 482–492.
- Goula, M. A., Lemonidou, A. A., & Efstathiou, A. M. (1996). Characterization of Carbonaceous Species Formed during Reforming of CH₄ with CO₂ over Ni/CaO–Al₂O₃ Catalysts Studied by Various Transient Techniques. *Journal of Catalysis*, 161(2), 626–640.
- Guo, P., Wang, T., Li, D., & Zhou, X. (2016). How energy technology innovation affects transition of coal resource-based economy in China. *Energy Policy*, 92, 1–6.

- He, Q. (Sophia), McNutt, J., & Yang, J. (2017). Utilization of the residual glycerol from biodiesel production for renewable energy generation. *Renewable and Sustainable Energy Reviews*, 71, 63–76.
- Hirai, T., Ikenaga, N. O., Miyake, T., & Suzuki, T. (2005). Production of hydrogen by steam reforming of glycerin on ruthenium catalyst. *Energy and Fuels*, 19(4), 1761–1762.
- Holladay, J. D., Hu, J., King, D. L., & Wang, Y. (2009). An overview of hydrogen production technologies. *Catalysis Today*, 139(4), 244–260.
- Hu, D., Gao, J., Ping, Y., Jia, L., Gunawan, P., Zhong, Z., Xu, G., Gu, F., & Su, F. (2012). Enhanced Investigation of CO Methanation over Ni/Al₂O₃ Catalysts for Synthetic Natural Gas Production. *Industrial & Engineering Chemistry Research*, 51(13), 4875–4886.
- Huang, Z. Y., Xu, C. H., Meng, J., Zheng, C. F., Xiao, H. W., Chen, J., & Zhang, Y. X. (2014). Glycerol steam reforming to syngas over Ni-based catalysts on commercial Linde-type 5A zeolite modified by metal oxides. *Journal of Environmental Chemical Engineering*, 2(1), 598–604.
- International Energy Agency (IEA). (2015). CO₂ Emissions From Fuel Combustion-Highlights. Retrieved from <https://www.iea.org/publications/freepublications/publication/CO2EmissionsFromFuelCombustionHighlights2015.pdf> *Iea, S/V(IEA - STATISTICS)*, 1–139.
- International Energy Agency (IEA). (2016). *Key Coal Trends*. Retrieved from <https://www.iea.org/publications/freepublications/publication/coal-information---2016-edition---excerpt---key-coal-trends.html>.
- International Energy Agency. (2006). Hydrogen Production and Storage. R&D Priorities and Gaps. *Hydrogen Implementing Agreement*, 13, 392–392.
- Iriondo, A., Barrio, V. L., Cambra, J. F., Arias, P. L., Güemez, M. B., Navarro, R. M., Sánchez- Sánchez, M. C., & Fierro, J. L. G. (2008). Hydrogen production from glycerol over nickel catalysts supported on Al₂O₃ modified by Mg, Zr, Ce or La. *Topics in Catalysis*, 49(1-2), 46–58.
- Jacobs, G., Das, T. K., Zhang, Y., Li, J., Racoillet, G., & Davis, B. H. (2002). Fischer-Tropsch synthesis: Support, loading, and promoter effects on the reducibility of cobalt catalysts. *Applied Catalysis A: General*, 233(1-2), 263–281.

- Kalamaras, C. M., & Efstathiou, a. M. (2013). Hydrogen Production Technologies: Current State and Future Developments. *Conference Papers in Energy, 2013*, 9.
- Karemore, A. L., Vaidya, P. D., & Sinha, R. (2016). On the dry and mixed reforming of methane over Ni / Al₂O₃- Influence of reaction variables on syngas production. *International Journal of Hydrogen Energy*, 1–13.
- Kunkes, E. L., Simonetti, D. A., Dumesic, J. A., Pyrz, W. D., Murillo, L. E., Chen, J. G., & Buttrey, D. J. (2008). The role of rhenium in the conversion of glycerol to synthesis gas over carbon supported platinum – rhenium catalysts. *Journal of Catalysis, 260*(1), 164–177.
- Larimi, A. S., Kazemeini, M., & Khorasheh, F. (2016). Highly selective doped PtMgO nano-sheets for renewable hydrogen production from APR of glycerol. *International Journal of Hydrogen Energy, 41*(39), 17390–17398.
- Lean, H. H., & Smyth, R. (2014). Disaggregated energy demand by fuel type and economic growth in Malaysia. *Applied Energy, 132*, 168–177.
- Lee, H. C., Siew, K. W., Gim bun, J., & Cheng, C. K. (2013). Application of cement clinker as Ni-catalyst support for glycerol dry reforming. *Bulletin of Chemical Reaction Engineering and Catalysis, 8*(2), 137–144.
- Lee, H. C., Siew, K. W., Gim bun, J., & Cheng, C. K. (2014). Synthesis and characterisation of cement clinker-supported nickel catalyst for glycerol dry reforming. *Chemical Engineering Journal, 255*, 245–256.
- Lee, O. K., & Lee, E. Y. (2016). Sustainable production of bioethanol from renewable brown algae biomass. *Biomass and Bioenergy, 92*, 70–75.
- Leung, D. Y. C., Wu, X., & Leung, M. K. H. (2010). A review on biodiesel production using catalyzed transesterification. *Applied Energy, 87*(4), 1083–1095.
- Li, J., Jacobs, G., Zhang, Y., Das, T., & Davis, B. H. (2002). Fischer-Tropsch synthesis: Effect of small amounts of boron, ruthenium and rhenium on Co/TiO₂ catalysts. *Applied Catalysis A: General, 223*(1-2), 195–203.
- Lin, Y. C. (2013). Catalytic valorization of glycerol to hydrogen and syngas. *International Journal of Hydrogen Energy, 38*(6), 2678–2700.
- Lisboa, S., Santos, D. C. R. M., Passos, F. B., & Noronha, F. B. (2005). Influence of the addition of promoters to steam reforming catalysts, *101*, 15–21.

- Liu, S. K., & Lin, Y. C. (2014). Generation of syngas through autothermal partial oxidation of glycerol over LaMnO₃- and LaNiO₃-coated monoliths. *Catalysis Today*, 237, 62–70.
- Liu, S., Xu, L., Xie, S., Wang, Q., & Xiong, G. (2001). Partial oxidation of propane to syngas over nickel supported catalysts modified by alkali metal oxides and rare-earth metal oxides, 211, 145–152.
- Luo, N., Fu, X., Cao, F., Xiao, T., & Edwards, P. P. (2008). Glycerol aqueous phase reforming for hydrogen generation over Pt catalyst - Effect of catalyst composition and reaction conditions. *Fuel*, 87(17-18), 3483–3489.
- Mackaluso, J. D., & Mackaluso, J. D. (2007). The use of syngas derived from biomass and waste products to produce ethanol and hydrogen. *MMG 445 Basic Biotechnology eJournal*, 3, 98–103.
- Majewski, A. J., Wood, J., & Bujalski, W. (2013). Nickel-silica core@shell catalyst for methane reforming. *International Journal of Hydrogen Energy*, 38(34), 14531–14541.
- Marchetti, J. M., Miguel, V. U., & Errazu, a. F. (2007). Possible methods for biodiesel production. *Renewable and Sustainable Energy Reviews*, 11(6), 1300–1311.
- Martín, M., & Grossmann, I. E. (2014). Optimal simultaneous production of hydrogen and liquid fuels from glycerol: Integrating the use of biodiesel byproducts. *Industrial and Engineering Chemistry Research*, 53(18), 7730–7745.
- Marx, S. (2016). Glycerol-free biodiesel production through transesterification: A review. *Fuel Processing Technology*, 151, 139–147.
- Meshkani, F., & Rezaei, M. (2011). Ni catalysts supported on nanocrystalline magnesium oxide for syngas production by CO₂ reforming of CH₄. *Journal of Natural Gas Chemistry*, 20(2), 198–203.
- Mohammadi, M., Najafpour, G. D., Younesi, H., Lahijani, P., Uzir, M. H., & Mohamed, A. R. (2011). Bioconversion of synthesis gas to second generation biofuels: A review. *Renewable and Sustainable Energy Reviews*, 15(9), 4255–4273.
- Montzka, S. A., Dlugokencky, E. J., & Butler, J. H. (2011). Non-CO₂ greenhouse gases and climate change. *Nature*, 476(7358), 43–50.

- Moralesa, T. C., Olivab, V. R., & Velázquezc, L. F. (2014). Hydrogen from renewable energy in Cuba. *Energy Procedia*, 57, 867–876.
- Nagarajan, D., Lee, D.-J., Kondo, A., & Chang, J.-S. (2017). Recent insights into biohydrogen production by microalgae – From biophotolysis to dark fermentation. *Bioresource Technology*, 227(1), 373–387.
- Nasir, M., Shahirah, N., Ayodele, B. V, Gimbun, J., Lam, S. S., & Cheng, K. (2016). Renewable Syngas Production from Thermal Cracking of Glycerol over Praseodymium-Promoted Ni/Al₂O₃ Catalyst. *Applied Thermal Engineering*.
- Nor Shahirah, M. N., Abdullah, S., Gimbun, J., Ng, Y. H., & Cheng, C. K. (2016). A study on the kinetics of syngas production from glycerol over alumina-supported samarium-nickel catalyst. *International Journal of Hydrogen Energy*, 41(25), 10568–10577.
- Ong, C. H., Chan, H. J., & Cheng, C. K. (2015). Synthesis and characterisation of La-Co/MgO catalyst for methane dry reforming. *Journal of Engineering Science and Technology*, 10(Spec.issue3), 79–89.
- Ordin, P. M. (1997). Safety standard for hydrogen and hydrogen systems. Guidelines for Hydrogen System Design, Materials Selection, Operations, Storage, and Transportation. *National Aeronautics and Space Administration*, 1–389.
- Pairojpiriyakul, T., Croiset, E., Kiatkittipong, K., Kiatkittipong, W., Arpornwichanop, A., & Assabumrungrat, S. (2014). Catalytic reforming of glycerol in supercritical water with nickel-based catalysts. *International Journal of Hydrogen Energy*, 39(27), 14739–14750.
- Peres, A. P. G., Silva, N. de L. da, Maciel, M. R. W., & Filho, R. M. (2011). Syngas Production from Crude Glycerol Using Pyrolysis. *Journal. of Chemistry. & Chemical. Engineering.*, 5, 141–145.
- Phromprasit, J., Powell, J., Wongsakulphasatch, S., Kiatkittipong, W., Bumroongsakulsawat, P., & Assabumrungrat, S. (2016). Activity and stability performance of multifunctional catalyst (Ni/CaO and Ni/Ca₁₂Al₁₄O₃₃-CaO) for bio-hydrogen production from sorption enhanced biogas steam reforming. *International Journal of Hydrogen Energy*, 41(18), 7318–7331.
- Pompeo, F., Nichio, N. N., Souza, M. M. V. M., Cesar, D. V., Ferretti, O. A., & Schmal, M. (2007). Study of Ni and Pt catalysts supported on α -Al₂O₃ and ZrO₂ applied in methane reforming with CO₂. *Applied Catalysis A: General*, 316(2), 175–183.

- Profeti, L. P. R., Dias, J. A. C., Assaf, J. M., & Assaf, E. M. (2009). Hydrogen production by steam reforming of ethanol over Ni-based catalysts promoted with noble metals. *Journal of Power Sources*, 190(2), 525–533.
- Quincoces, C. E., Dicundo, S., Alvarez, A. M., & González, M. G. (2001). Effect of addition of CaO on Ni/Al₂O₃ catalysts over CO₂ reforming of methane. *Materials Letters*, 50(1), 21–27.
- Ramachandran & Menon. (1998). An overview of industrial uses of hydrogen. *International Journal of Hydrogen Energy*, 23(7), 593–598.
- Rezaei, M., Alavi, S. M., Sahebdehfar, S., Xinmei, L., & Qian, L. (2007). CO₂-CH₄ Reforming over Nickel Catalysts Supported on Mesoporous Nanocrystalline Zirconia with High Surface Area. *Energy*, 81(14), 581–589.
- Ritter, J. a., & Ebner, a D. (2006). Overview of hydrogen production technologies. 2006 *AIChE Spring Annual Meeting*, 49, 481–482. Retrieved from <http://www.scopus.com/inward/record.url?eid=2-s2.0-56549095649&partnerID=40&md5=760328e978795963e958f1681391d7a3>
- Robinson, a. B., Robinson, N. E., & Soon, W. (2007). Environmental effects of increased atmospheric carbon dioxide. *Journal of American Physicians and Surgeons*, 12(7), 79–90.
- Rosen, B. a., Gileadi, E., & Eliaz, N. (2016). Electrodeposited Re-promoted Ni foams as a catalyst for the dry reforming of methane. *Catalysis Communications*, 76, 23–28.
- Saad, J. M., Nahil, M. A., & Williams, P. T. (2014). Influence of process conditions on syngas production from the thermal processing of waste high density polyethylene. *Journal of Analytical and Applied Pyrolysis*, 138, 156–163.
- Sadanandam, G., Sreelatha, N., Sharma, M. V. P., Reddy, S. K., Srinivas, B., Venkateswarlu, K., Krishnu, T., Subrahmanyam, M., & Kumari, V. D. (2012). Steam Reforming of Glycerol for Hydrogen Production over Ni/SiO₂ Catalyst. *ISRN Chemical Engineering*, 2012, 1–10.
- Samiran, N. A., Jaafar, M. N. M., Ng, J. H., Lam, S. S., & Chong, C. T. (2016). Progress in biomass gasification technique - With focus on Malaysian palm biomass for syngas production. *Renewable and Sustainable Energy Reviews*, 62, 1047–1062.

- Sanchez, E. A., & Comelli, R. A. (2014). Hydrogen production by glycerol steam-reforming over nickel and nickel-cobalt impregnated on alumina. *International Journal of Hydrogen Energy*, 39(16), 8650–8655.
- Saraswat, S. K., & Pant, K. K. (2012). Thermo Catalytic Decomposition of Methane – A Novel Approach to Cox Free Hydrogen and Carbon Nanotubes Production over Ni / SiO₂ Catalyst, 1(2), 2–6.
- Seung-Hoon, K., Jae Sun, J., Eun Hyeok, Y., Kwan Young, L., & Dong Ju, M. (2014). Hydrogen production by steam reforming of biomass-derived glycerol over Ni-based catalysts. *Catalysis Today*, 228, 145–151.
- Shakeri, J., Hadadzadeh, H., & Tavakol, H. (2014). Photocatalytic reduction of CO₂ to CO by a dinuclear carbonyl polypyridyl rhenium(I) complex. *Polyhedron*, 78, 112–122.
- Shamsuddin, A. H. (2012). Development of Renewable Energy in Malaysia-Strategic Initiatives for Carbon Reduction in the Power Generation Sector. *Procedia Engineering*, 49(0), 384–391.
- Shao, S., Shi, A. W., Liu, C. L., Yang, R. Z., & Dong, W. S. (2014). Hydrogen production from steam reforming of glycerol over Ni/CeZrO catalysts. *Fuel Processing Technology*, 125, 1–7.
- Sharma, Y. C., & Singh, B. (2009). Development of biodiesel: Current scenario. *Renewable and Sustainable Energy Reviews*, 13(6-7), 1646–1651.
- Siew, K. W., Lee, H. C., Gimbin, J., & Cheng, C. K. (2013). Hydrogen production via glycerol dry reforming over La-Ni/Al₂O₃ catalyst. *Bulletin of Chemical Reaction Engineering and Catalysis*, 8(2), 160–166.
- Siew, K. W., Lee, H. C., Gimbin, J., & Cheng, C. K. (2014). Production of CO-rich hydrogen gas from glycerol dry reforming over La-promoted Ni/Al₂O₃ catalyst. *International Journal of Hydrogen Energy*, 39(13), 6927–6936.
- Singh, S. P., & Singh, D. (2010). Biodiesel production through the use of different sources and characterization of oils and their esters as the substitute of diesel: A review. *Renewable and Sustainable Energy Reviews*, 14(1), 200–216.
- Slinn, M., Kendall, K., Mallon, C., & Andrews, J. (2008). Steam reforming of biodiesel by-product to make renewable hydrogen. *Bioresource Technology*, 99(13), 5851–5858.

- Solarin, S. A., & Shahbaz, M. (2015). Natural gas consumption and economic growth: The role of foreign direct investment, capital formation and trade openness in Malaysia. *Renewable and Sustainable Energy Reviews*, 42, 835–845.
- Souza, G. de, Marcilio, N. R., & Perez-Lopez, O. W. (2014). Dry reforming of methane at moderate temperatures over modified Co-Al Co-precipitated catalysts. *Materials Research*, 17(4), 1047–1055.
- Sriram, N., & Shahidehpour, M. (2005). Renewable biomass energy. *IEEE Power Engineering Society General Meeting, 2005*, 1–6.
- Srivastava, N., Rawat, R., Singh Oberoi, H., & Ramteke, P. W. (2014). A Review on Fuel Ethanol Production From Lignocellulosic Biomass. *International Journal of Green Energy*, 12(9), 949–960.
- Suffredini, D. F. P., Thyssen, V. V., de Almeida, P. M. M., Gomes, R. S., Borges, M. C., Duarte de Farias, A. M., Assaf E. M., Fraga, A. M., & Brandão, S. T. (2016). Renewable hydrogen from glycerol reforming over nickel aluminate-based catalysts. *Catalysis Today*.
- Takeda, H., Koike, K., Inoue, H., & Ishitani, O. (2008). Development of an Efficient Photocatalytic System for CO₂ Reduction Using Rhenium(I) Complexes Based on Mechanistic Studies. *Journal of the American Chemical Society*, 130(6), 2023–2031.
- Tang, S. B., Qiu, F. L., & Lu, S. J. (1995). Effect of supports on the carbon deposition of nickel catalysts for methane reforming with CO₂. *Catalysis Today*, 24(3), 253–255.
- Tang, S., Lin, J., & Tan, K. L. (1998). Partial oxidation of methane to syngas over Ni/MgO, Ni/CaO and Ni/CeO₂. *Catalysis Lett*, 51, 169–175.
- Taufiq-Yap, Y. H., Sivasangar, S., & Salmiaton, A. (2012). Enhancement of hydrogen production by secondary metal oxide dopants on NiO/CaO material for catalytic gasification of empty palm fruit bunches. *Energy*, 47(1), 158–165.
- Therdthianwong, S., Therdthianwong, A., Siangchin, C., & Yongprapat, S. (2008). Synthesis gas production from dry reforming of methane over Ni/Al₂O₃ stabilized by ZrO₂. *International Journal of Hydrogen Energy*, 33, 991–999.
- Viswanadham, N., Kamble, R., Sharma, A., Kumar, M., & Saxena, a. K. (2008). Effect of Re on product yields and deactivation patterns of naphtha reforming catalyst. *Journal of Molecular Catalysis A: Chemical*, 282(1-2), 74–79.

- Wang, D., Czernik, S., & Chornet, E. (1998). Production of hydrogen from biomass by catalytic steam reforming of fast pyrolysis oils. *Fuel and Energy Abstracts*, 39(3), 188.
- Wang, H., Wang, X., Li, M., Li, S., Wang, S., & Ma, X. (2009). Thermodynamic analysis of hydrogen production from glycerol autothermal reforming. *International Journal of Hydrogen Energy*, 34(14), 5683–5690.
- Wang, W. (2010). Thermodynamic analysis of glycerol partial oxidation for hydrogen production. *Fuel Processing Technology*, 91(11), 1401–1408.
- Wei, J.-M., Xu, B., Li, J.-L., Cheng, Z.-X., & Zhu, Q. (2000). Highly Active and Stable Ni/ZrO₂ Catalyst for Syngas Production by CO₂ Reforming of Methane. *Applied Catalysis A: General*, 196(2), L167–L172.
- Wurzler, G. T., Rabelo-Neto, R. C., Mattos, L. V., Fraga, M. A., & Noronha, F. B. (2016). Steam reforming of ethanol for hydrogen production over MgO - Supported Ni-based catalysts. *Applied Catalysis A: General*, 518, 115–128.
- Yang, F., Hanna, M. a, & Sun, R. (2012). Value-added uses for crude glycerol-a byproduct of biodiesel production. *Biotechnology for Biofuels*, 5(1), 13.
- Yang, X., Wang, X., Gao, G., Wendurima, Liu, E., Shi, Q., Zhang, J., Han, C., Wang, J., Lu, H., Liu, J., & Tong, M. (2013). Nickel on a macro-mesoporous Al₂O₃@ZrO₂ core/ shell nanocomposite as a novel catalyst for CO methanation. *International Journal of Hydrogen Energy*, 38(32), 13926–13937.
- Yang, Y., Solgaard, H. S., & Haider, W. (2016). Wind, hydro or mixed renewable energy source: Preference for electricity products when the share of renewable energy increases. *Energy Policy*, 97, 521–531.
- Yu, S., Zhang, J., & Cheng, J. (2016). Carbon reduction cost estimating of Chinese coal-fired power generation units: A perspective from national energy consumption standard. *Journal of Cleaner Production*, 139, 612–621.
- Zabed, H., Sahu, J. N., Boyce, A. N., & Faruq, G. (2016). Fuel ethanol production from lignocellulosic biomass: An overview on feedstocks and technological approaches. *Renewable and Sustainable Energy Reviews*, 66, 751–774.

- Zain-Ahmed, A. (2008). Renewable energy, buildings and the fuel crisis. *International Conference on Construction and Building Technology*, (02), 13–24. Retrieved from [http://www.uniten.edu.my/newhome/uploaded/coe/iccbt/iccbt2008/conference f extract/UNITEN ICCBT 08 Renewable Energy, Buildings and the Fuel Crisis.pdf](http://www.uniten.edu.my/newhome/uploaded/coe/iccbt/iccbt2008/conference%20extract/UNITEN%20ICCBT%2008%20Renewable%20Energy,%20Buildings%20and%20the%20Fuel%20Crisis.pdf)
- Zangouei, M., Moghaddam, A. Z., & Arasteh, M. (2010). The influence of nickel loading on reducibility of NiO/Al₂O₃ catalysts synthesized by sol-gel method. *Chemical Engineering Research Bulletin*, 14(2), 97–102.
- Zhang, B., Tang, X., Li, Y., Xu, Y., & Shen, W. (2007). Hydrogen production from steam reforming of ethanol and glycerol over ceria-supported metal catalysts. *International Journal of Hydrogen Energy*, 32(13), 2367–2373.
- Zhang, Y., Xiong, G., Sheng, S., & Yang, W. (2000). Deactivation studies over NiO/ γ -Al₂O₃ catalysts for partial oxidation of methane to syngas. *Catalysis Today*, 63(2-4), 517–522.
- Zhu, J., Peng, X., Yao, L., Shen, J., Tong, D., & Hu, C. (2011). The promoting effect of La, Mg, Co and Zn on the activity and stability of Ni / SiO₂ catalyst for CO₂ reforming of methane. *International Journal of Hydrogen Energy*, 36(12), 7094–7104.