

DAFTAR PUSTAKA

- Akhadi, M. (2006). Analisis Unsur Kelumit Melalui Pancaran Sinar-X Karakteristik. *Buletin Alara*, 8(1), 11–19.
- Akhtar, K., Khan, S. A., Khan, S. B., and Asiri, A. M. (2018). Scanning electron microscopy: Principle and applications in nanomaterials characterization. In *Handbook of Materials Characterization*. https://doi.org/10.1007/978-3-319-92955-2_4
- Ali, A., Chiang, Y. W., and Santos, R. M. (2022). X-Ray Diffraction Techniques for Mineral Characterization: A Review for Engineers of the Fundamentals, Applications, and Research Directions. *Minerals*, 12(2). <https://doi.org/10.3390/min12020205>
- Allison-Bruce, S. A., and Abumere, O. E. (2015). Microwave Assisted Hydrothermal Synthesis of LiFePO₄/C Composite Cathode Material for Lithium-Ion Batteries. *Department of Physics, University of Port Harcourt. Port Harcourt, September 2016*.
- Amin, R., Lin, C., Peng, J., Weichert, K., Acartürk, T., Starke, U., and Maier, J. (2009). Silicon-doped LiFePO₄ single crystals: Growth, conductivity behavior, and diffusivity. *Advanced Functional Materials*, 19(11), 1697–1704. <https://doi.org/10.1002/adfm.200801604>
- Bard, A. J., and Faulkner, L. R. (2001). Electrochemical Methods: fundamentals and applications 2nd ed. In *John Wiley & Sons, Inc.* <https://doi.org/10.4324/9780203645444-14>
- Chen, L., Feng, W., Su, W., Li, M., and Song, C. (2019). Biosynthesis of LiFePO₄ /C cathode materials by a sol-gel route for use in lithium ion batteries. *International Journal of Electrochemical Science*, 14(3), 2846–2856. <https://doi.org/10.20964/2019.03.21>
- Chen, Y., Xiang, K., Zhou, W., Zhu, Y., Bai, N., and Chen, H. (2018). LiFePO₄/C ultra-thin nano-flakes with ultra-high rate capability and ultra-long cycling life for lithium ion batteries. *Journal of Alloys and Compounds*, 749, 1063–1070. <https://doi.org/10.1016/j.jallcom.2018.03.265>
- Chikkannanavar, S. B., Bernardi, D. M., and Liu, L. (2014). A review of blended cathode materials for use in Li-ion batteries. *Journal of Power Sources*, 248(February 2014), 91–100. <https://doi.org/10.1016/j.jpowsour.2013.09.052>
- Dan, S., Material, K., Co, L., Metode, D., Tahap, K. S., Yudha, C. S., Hasanah, L. M., and Muzayanha, S. U. (2019). *BATERAI LI-ION using One-Step Co-Precipitation Method for Li-Ion Batteries*. 4(3), 134–144.
- Erickson, E. M., Schipper, F., Penki, T. R., Shin, J., Erk, C., Chesneau, F., Markovsky, B., and Aurbach, D. (2017). Review — Recent Advances and Remaining Challenges for Lithium. 164(1). <https://doi.org/10.1149/2.0461701jes>

- Etacheri, V. (2017). *Sol-Gel Processed Cathode Materials for Lithium-Ion Batteries*. https://doi.org/10.1007/978-3-319-50144-4_6
- Fang, K., Zhu, J., Xie, Q., Men, Y., Yang, W., Li, J., and Yu, X. (2021). *Synthesis of Fe²⁺ Substituted High-Performance LiMn_{1-x}Fe_xPO₄/C (x = 0, 0.1, 0.2, 0.3, 0.4) Cathode Materials for Lithium-Ion Batteries via Sol-Gel Processes*. 1–12.
- Franger, S., Le Cras, F., Bourbon, C., and Rouault, H. élène. (2003). Comparison between different LiFePO₄ synthesis routes and their influence on its physico-chemical properties. *Journal of Power Sources*, 119–121, 252–257. [https://doi.org/10.1016/S0378-7753\(03\)00242-8](https://doi.org/10.1016/S0378-7753(03)00242-8)
- Hamida, H. N., and Munasir,). (2023). Review : Studi Kinerja Dan Modifikasi Doping Pada Material Lifepo₄ Sebagai Katoda Baterai Li-Ion 1). *Jurnal Inovasi Fisika Indonesia (IFI)*, 12, 56–65.
- Hernowo dan Iis Nurhasanah, A. (2019). Kristalinitas dan Ukuran Nanopartikel ZnO yang Dikalsinasi pada Temperatur 100oC dan 200oC. *Berkala Fisika*, 22(4), 125–131.
- Huang, S., Lin, W., Li, L., Liu, P., and Huang, T. (2023). Progress in Natural Science: Materials International Pathway for high-energy density LiMnFePO₄ cathodes. *Progress in Natural Science: Materials International*, 33(1), 126–131. <https://doi.org/10.1016/j.pnsc.2023.01.003>
- Isnen, Y. (2022). *Optimasi Performansi Baterai Li-Ion Dengan Penambahan Surfaktan Pluronic P123 Pada Katoda Baterai LiMnFeCoPO₄/C* [Univeritas Jenderal Soedirman]. http://repository.unsoed.ac.id/id/eprint/18310%0Ahttp://repository.unsoed.ac.id/18310/9/DAFTAR_PUSTAKA-Yazid_Zainur_Isnen-K1C018060-Skripsi-2022.pdf
- Jabbar, A., and Sartika, Z. (2022). *Electrical Properties Analysis of Magnetite (Fe₃ O₄) Nanoparticles Doped with PVDF / rGO as Lithium-Ion Battery Electrode Material Application Analisis Sifat Listrik Nanopartikel Magnetite (Fe₃ O₄) Didoping PVDF / rGO Sebagai Aplikasi Material Ele.* 3(2), 7–12.
- Jiang, K., Wang, F., Liu, M., Fan, Y., Chen, Z., Li, G., Li, P., Shi, X., and Hong, W. (2024). First principles study of the electronic structure and Li-ion diffusion properties of co-doped LiFex-1MxPyNy-1O₄ (M=Co/Mn, N[dbnd]S/Si) Li-ion battery cathode materials. *Micro and Nanostructures*, 196(September), 207988. <https://doi.org/10.1016/j.micrna.2024.207988>
- Kim, T., Choi, W., Shin, H. C., Choi, J. Y., Kim, J. M., Park, M. S., and Yoon, W. S. (2020). Applications of voltammetry in lithium ion battery research. *Journal of Electrochemical Science and Technology*, 11(1), 14–25. <https://doi.org/10.33961/jecst.2019.00619>

- Leinonen, J. (2023). *Synthesis of modified lithium iron phosphate and its electrochemical properties*.
- Li, C., Li, G., and Guan, X. (2018). Synthesis and electrochemical performance of micro-nano structured $\text{LiFe}_{1-x}\text{Mn}_x\text{PO}_4/\text{C}$ ($0 \leq x \leq 0.05$) cathode for lithium-ion batteries. *Journal of Energy Chemistry*, 27(3), 923–929. <https://doi.org/10.1016/j.jechem.2017.08.006>
- Li, G., Azuma, H., and Tohda, M. (2002a). LiMnPO_4 as the cathode for lithium batteries. *Electrochemical and Solid-State Letters*, 5(6), 135–138. <https://doi.org/10.1149/1.1475195>
- Li, G., Azuma, H., and Tohda, M. (2002b). Optimized $\text{LiMn}_{1-y}\text{Fe}_y\text{PO}_4$ as the Cathode for Lithium Batteries. *Journal of The Electrochemical Society*, 149(6), A743. <https://doi.org/10.1149/1.1473776>
- Li, J., Yao, S. H., Zhou, H. M., and Geng, W. J. (2014). Preparation of $\text{LiMn}_0.4\text{Fe}_0.6\text{PO}_4/\text{C}$ composite by a new route combining solid-state reaction with hydrothermal synthesis. *Wuji Cailiao Xuebao/Journal of Inorganic Materials*, 29(4), 443–448. <https://doi.org/10.3724/SP.J.1077.2014.13672>
- Lv, Z., Li, M., Lin, J., Luo, J., Wu, B., Hong, R., and Cao, S. C. (2024). First-principles study on $\text{LiMn}_0.5\text{Fe}_0.5\text{PO}_4$ doping to decrease the Jahn-Teller effect. *Journal of Solid State Electrochemistry*, 28(2), 577–587. <https://doi.org/10.1007/s10008-023-05705-5>
- Lyczko, N., Nzihou, A., Sharrock, P., Germeau, A., and Toussaint, C. (2012). Characterization of LiFePO_4/C cathode for lithium ion batteries. *Industrial and Engineering Chemistry Research*, 51(1), 292–300. <https://doi.org/10.1021/ie201799x>
- Magar, H. S., Hassan, R. Y. A., and Mulchandani, A. (2021). Electrochemical impedance spectroscopy (Eis): Principles, construction, and biosensing applications. *Sensors*, 21(19). <https://doi.org/10.3390/s21196578>
- Mahendra, A., and Supardi, Z. A. I. (2021). Sebuah Review: Spektroskopi Impedansi Elektrokimia Dan Aplikasinya Dalam Baterai Lithium-Ion. *Inovasi Fisika Indonesia*, 10(2), 59–67. <https://doi.org/10.26740/ifi.v10n2.p59-67>
- Mizushima, K., Jones, P. C., Wiseman, P. J., and Goodenough, J. B. (1980). LiCoO_2 ($0 < x < 1$): A NEW CATHODE MATERIAL FOR BATTERIES OF HIGH ENERGY DENSITY. *Materials Research Bulletin*, 15(6), 783–789. <https://doi.org/10.1143/jjap.42.6131>
- Mutalib, M. A., Rahman, M. A., Othman, M. H. D., Ismail, A. F., and Jaafar, J. (2017). Chapter 9 - Scanning Electron Microscopy & SEM; and Energy-Dispersive X-Ray & EDX; Spectroscopy. In *Membrane Characterization*. Elsevier B.V. <https://doi.org/10.1016/B978-0-444-63776->

5.00009-7

- Padhi, A. K., Nanjundaswamy, K. S., and Goodenough, J. B. (1997). Phospho-olivines as Positive-Electrode Materials for Rechargeable Lithium Batteries. *Journal of The Electrochemical Society*, 144(4).
- Perdana, F. A. (2021). Baterai Lithium. *INKUIRI: Jurnal Pendidikan IPA*, 9(2), 113. <https://doi.org/10.20961/inkuiiri.v9i2.50082>
- Prihandoko, B., and Simaremare, M. M. (2022). Synthesis of Cathode Active Material $\text{LiMn}_{0.5}\text{Fe}_{0.5}\text{PO}_4\text{F/C}$ with Sintering Time Variation. *Journal of Technomaterial Physics*, 4(1), 36–45.
- Rachmanto, M. K. A., Wibowo, L. T., and Paramitha, T. (2020). Review : Metode Sintesis Katoda LiFePO_4 Baterai Lithium-Ion. *Equilibrium Journal of Chemical Engineering*, 3(2), 75. <https://doi.org/10.20961/equilibrium.v3i2.42833>
- Rudiyansah, R., S, A. Z., and Prihandoko, B. (2023). Sintesis Dan Karakterisasi Material Katoda $\text{LiMn}_{0.7}\text{Fe}_{0.3-x}\text{Ni}_x\text{PO}_4\text{/C}$ Dengan $0 \leq X \leq 0,2$ Dalam Aplikasi Baterai Litium-Ion. *Jurnal Eltek*, 21(2), 109–118. <https://doi.org/10.33795/eltek.v21i2.4393>
- Satriady, A., Alamsyah, W., Saad, H. I., and Hidayat, S. (2016). PENGARUH LUAS ELEKTRODA TERHADAP KARAKTERISTIK BATERAI LiFePO_4 . *Jurnal Material Dan Energi Indonesia*, 06(02), 43–48.
- Scholz, F. (2010). Electroanalytical methods: Guide to experiments and applications. In *Electroanalytical Methods: Guide to Experiments and Applications*. <https://doi.org/10.1007/978-3-642-02915-8>
- Scimeca, M., Bischetti, S., Lamsira, H. K., Bonfiglio, R., and Bonanno, E. (2018). Energy Dispersive X-ray (EDX) microanalysis: A powerful tool in biomedical research and diagnosis. *European Journal of Histochemistry*, 62(2841), 89–99. <https://doi.org/10.4081/ejh.2018.2841>
- Shu, H., Wang, X., Wu, Q., Hu, B., Yang, X., Wei, Q., Liang, Q., Bai, Y., Zhou, M., Wu, C., Chen, M., Wang, A., and Jiang, L. (2013). Improved electrochemical performance of $\text{LiFePO}_4\text{/C}$ cathode via Ni and Mn co-doping for lithium-ion batteries. *Journal of Power Sources*, 237, 149–155. <https://doi.org/10.1016/j.jpowsour.2013.03.035>
- Sivia, D. S. (2011). *Elementary Scattering Theory For X-ray and neutron users* (pp. 1–214). Oxford University Press.
- Subhan, A. (2011). Fabrikasi dan Karakteristik $\text{Li}_4\text{Ti}_5\text{O}_{12}$ untuk Bahan Anoda Baterai Litium Keramik. *Universitas Indonesia Library*, 1, 24–30. <https://lontar.ui.ac.id/detail?id=20172094>
- Sumadiyasa, M., and Manuaba, I. B. S. (2018). Determining Crystallite Size Using Scherrer Formula. *Buletin Fisika*, 19(1), 28–35.

- Tilli, M., and Haapalinna, A. (2020). Properties of silicon. In *Handbook of Silicon Based MEMS Materials and Technologies*. INC. <https://doi.org/10.1016/B978-0-12-817786-0.00001-3>
- Trinh, D. V., Nguyen, M. T. T., Dang, H. T. M., Dang, D. T., Le, H. T. T., Le, H. T. N., Tran, H. V., and Huynh, C. D. (2021). Hydrothermally synthesized nanostructured $\text{LiMn}_x\text{Fe}_{1-x}\text{PO}_4$ ($x = 0-0.3$) cathode materials with enhanced properties for lithium-ion batteries. *Scientific Reports*, 11(1). <https://doi.org/10.1038/s41598-021-91881-1>
- Triwibowo, J. (2011). *Universitas Indonesia Rekayasa Bahan Li X Timn Y Fe Z (Po 4) 3 Sebagai Katoda Solid Polymer Battery (Spb) Lithium.Tesis.*
- Vorokh, A. S. (2018). Scherrer formula: estimation of error in determining small nanoparticle size. *Nanosystems: Physics, Chemistry, Mathematics*, 9(3), 364–369. <https://doi.org/10.17586/2220-8054-2018-9-3-364-369>
- Waluyo, H., Teknik, J., Industri, F. T., and Sepuluh, I. T. (2014). *Pengaruh Temperatur Hydrothermal terhadap Baterai Ion Lithium Type Aqueous Elektrolit*. 3(2), 2–7.
- Wang, S., Zhang, J., Gharbi, O., Vivier, V., and Orazem, M. E. (2021). *Electrochemical impedance spectroscopy To cite this version :*
- Warner, J. T. (2019). The Cathodes. *Lithium-Ion Battery Chemistries*, 99–114. <https://doi.org/10.1016/b978-0-12-814778-8.00005-3>
- Woosung, C., Shin, H.-C., Kim, J. M., Choi, J.-Y., and Won, S. Y. (2020). Modeling and Applications of Electrochemical Impedance Spectroscopy (EIS) for Lithium-ion Batteries. *Journal of Electrochemical Science and Technology*, 11(1), 1–13. <https://doi.org/10.1109/ITEC.2018.8450161>
- Xiao, J., Li, Q., Bi, Y., Cai, M., Dunn, B., Glossmann, T., Liu, J., Osaka, T., Sugiura, R., Wu, B., Yang, J., Zhang, J. G., and Whittingham, M. S. (2020). Understanding and applying coulombic efficiency in lithium metal batteries. *Nature Energy*, 5(8), 561–568. <https://doi.org/10.1038/s41560-020-0648-z>
- Xu, B., Qian, D., Wang, Z., and Meng, Y. S. (2012). Recent progress in cathode materials research for advanced lithium ion batteries. *Materials Science and Engineering R: Reports*, 73(5–6), 51–65. <https://doi.org/10.1016/j.mser.2012.05.003>
- Yuniarti, E., Triwibowo, J., Suharyadi, D. E., and Fisika, J. (2013). *Endah Yuniarti, dkk., Pengaruh pH, Suhu dan Waktu pada Sintesis... Pengaruh pH, Suhu dan Waktu pada Sintesis LiFePO4/C dengan Metode Sol-Gel Sebagai Material Katoda untuk Baterai Sekunder Lithium*. 218–228.
- Zhao, J. (2023). *Lithium Manganese Iron Phosphate (Lmfp) Batteries Receiving Renewed Attention in China-Expected To Be Installed Mainly in Middle-Class Evs*. August, 1–6. <https://www.batterydesign.net/lithium-ion/>

Zhao, J. W., Zhao, S. X., Wu, X., Cheng, H. M., and Nan, C. W. (2017). Double role of silicon in improving the rate performance of LiFePO_4 cathode materials. *Journal of Alloys and Compounds*, 699, 849–855. <https://doi.org/10.1016/j.jallcom.2016.12.430>

