Physics Department

Dr. Mursal, S.Si., M.Si

Position	Power Generation, Industrial Metrology (Bachelor's Degree Program in Electronic Engineering), Modern Physics, Research Methods, Materials Science, Semiconductors (Bachelor's Degree Program), Electrodynamics, Electronic Materials, Structure and Physical Properties of Materials (Master's Degree Program in Physics)
Academic Career	**Doctorate Course:** Department of Physics FMIPA Bandung Institute of Technology (ITB) **Magister Course**: Department of Physics FMIPA Bandung Institute of Technology (ITB) **Bachelor Course**: Physics (Syiah Kuala University)
Employment	Lecturer and researcher at Physics Department of Mathematics and Natural Science Faculty (FMIPA) Syiah Kuala University since 1997. Head of Bachelor Degree of Electronic Engineering Study Programme at Physics Dept., FMIPA, USK (2008-2010), Head of Magister Physics Study programme at Physics Dept., FMIPA, USK (2014-2020); Head of Physics Dept., FMIPA USK (2020-2023).
Research and development projects (last 5 years)	Investigation of the Photocatalytic Ability of Fe3O4-TiO2 Nanoparticles in the Degradation of Phenolic Compounds and Pesticide Waste, Doctoral Dissertation Research, PNBP (2023). Design and Manufacturing of Dye-Sensitized Solar Cell (DSSC) based on TiO2 and Natural Dyes, Research of Prospective Professor – PNBP (2020). Development of Wave Learning Media Using MEMS (Microelectromechanical Systems) Technology and Tracker Application Through the ISLE-based STEM Model Approach, Master's Thesis Research – DRPM (2020) Development of Mg Doped TiO2 Material as a Photoelectrode for Application in Dye-sensitized Solar Cell (DSSC), Research of Senior Lecturer – PNBP (2019). Study of Biocomposites from Coconut Shells Using Used Plastic as Adhesive in Efforts to Utilize Waste, World Class Research, (2019-2021).
Collaborations (last 5 years)	1. Study of the effect of adding lokan shell ash on the physical properties and compressive strength of mortar/PT. Solusi Bangun Andalas (SBA)/2025 2. The effect of variations in the addition of lokan shell ash and bagasse ash on the physical properties and compressive strength of mortar/PT. Solusi Bangun Andalas (SBA)/2025
Patents and proprietary rights	Books: **Mursal, Nurul Azmi**, 2022, *Fotovoltaik*, Banda Aceh, Syiah Kuala University Press, 978-623-264-605-6
Selective Publications (last 5 years)	1. Nengsih, S., Abdulmadjid, S. N., Mursal, M., & Jalil, Z. (2024). Photocatalytic performance of Fe3O4-TiO2 in the degradation of methylene blue dye: Optimizing the usability of natural iron sand. *Materials Science for Energy Technologies*, *7*, 374-380. 2. Nengsih, S., Madjid, S. N., Mursal, M., Idroes, R., & Jalil, Z. (2023). Magnetization study of iron sand from Sabang, Indonesia: The potential of magnetic materials in the photocatalytic field. *Bulletin of Chemical Reaction Engineering & Catalysis*, *18*(2), 344-352. 3. Ismail, I., Aini, Q., Maulida, C. R., Mursal, Jalil, Z., & Fadzullah, S. H. S. M. (2023, January). Thermal properties of spent coffee ground biocomposite using epoxy resin matrix. In *AIP Conference Proceedings* (Vol. 2613, No. 1, p. 020009). AIP Publishing LLC. 4. Nadia, N., Mursal, M., & Jalil, Z. (2022). Optical characterization of purple sweet potato (Ipomoea batatas) and carrot (Daucus carota L.) extracts for Dye Sensitized Solar Cell (DSSC) application. *Journal of Aceh Physics Society*, *11*(3), 80-84. 5. I. Ismail 1,*, Arliyani, Z. Jalil, Mursal, N. G. Olaiya, C. K. Abdullah, M. R. N. Fazita and H. P. S. Abdul Khalil (2020). Properties and Characterization of New Approach Organic Nanoparticle-Based Biocomposite Board. Polymers, 12, 2236. 6. M. Malahayati, Evi Yufita, I. Ismail, M. Mursal, Rinaldi Idroes, Zulkarnain Jalil (2021). Hydrogen Desorption Properties of MgH2 + 10 wt% SiO2 + 5 wt% Ni Prepared by Planetary Ball Milling. Bulletin of Chemical Reaction Engineering & Catalysis, 16 (2), 280-285. 7. Mursal, Malahayati, N Azmi, and S Fatmiyah (2021). Synthesis of TiO2-based photoelectrode and natural dye fordye sensitized solar cell (DSSC). Journal of Physics: Conference Series 1882 doi:10.1088/1742-6596/1882/1/012006 8. Mursal, Ismail, Viza Yuniar, and Evi Yufita (2020). Structural and Optical Properties of MgO-doped TiO2 Prepared by Sol-Gel Method. AIP Conference Proceedings 2221, 110007; https://doi.org/10.1063/5.0003185
Membership	Physical Society of Indonesia (PSI)/(2020/2025)
External Link	https://fsd.usk.ac.id/mursal/