

DAFTAR PUSTAKA

- Agassy, O., Saputro, B., Faturrahman, A., Dede, A., Jati, A., Lestari, A., Nuraeni, N., & Kurniawan, B. (2026). Development and characterization of a 3D-printed Gedong mango phantom for dose measurement in gamma ray phytosanitary irradiation. *Radiation Physics and Chemistry*, 245(March), 113880. <https://doi.org/10.1016/j.radphyschem.2026.113880>
- Ahmed, M. M., Abdalla, I. G., Salih, A. M., & Hassan, A. B. (2018). Effect of gamma radiation on storability and functional properties of sorghum grains (*Sorghum bicolor* L.). *Food Science and Nutrition*, 6(7), 1933–1939. <https://doi.org/10.1002/fsn3.752>
- Akbar, O. E., Hameed, K., Jaffar, H., Yousef, M., & Hashim, M. Al. (2025). Fabrication of low-cost heterogeneous anthropomorphic thyroid neck phantom for CT. *Radiation Physics and Chemistry*, 234(March). <https://doi.org/10.1016/j.radphyschem.2025.112752>
- ANYCUBIC. (n.d.). *High Clear Resin*. <https://store.anycubic.com/products/high-clear-resin>
- Arash, M., Mohammad Abu Hasan, K., & Golam, K. (2025). Assessing the environmental impact of building houses in remote areas: 3D printing vs. traditional construction techniques. *Journal of Building Engineering*, 102(December 2024), 111968. <https://doi.org/10.1016/j.jobbe.2025.111968>
- ASTM. (2015). *Standard Test Method for Tensile Properties of Plastics 1*. <https://doi.org/10.1520/D0638-14.1>
- Azevedo, A. M. de, da Silveira, P. H. P. M., Lopes, T. J., da Costa, O. L. B., Monteiro, S. N., Veiga-Júnior, V. F., Silveira, P. C. R., Cardoso, D. D., & Figueiredo, A. B. H. da S. (2025). Ionizing Radiation and Its Effects on Thermoplastic Polymers: An Overview. *Polymers*, 17(8), 1–36. <https://doi.org/10.3390/polym17081110>
- Barbosa, I. S. O., Manrique, Y. A., Paiva, D., Faria, J. L., Santos, R. J., & Silva, C. G. (2025). Efficient photocatalytic reactors via 3D printing: SLA fabrication and TiO₂ hybrid materials. *RSC Advances*, 15(4), 2275–2286. <https://doi.org/10.1039/d4ra07121b>

- Bouchareb, S., & Doufnoune, R. (2025). Effect of UV post-curing on the mechanical properties of photopolymer resin in stereo-lithographic 3D printing. *Materials Letters*, 394(April), 1–3. <https://doi.org/10.1016/j.matlet.2025.138587>
- Bushberg, J. T., Seibert, J. A., Leidholdt, E. M. J., & Boone, J. M. (2012). *The Essential Physics of Medical Imaging* (3rd ed.). LIPPINCOTT WILLIAMS & WILKINS.
- Campelo, O., Vasconcelos, D. M., José, G., Campos, B. De, Castro, J. De, Janet, B., Mederos, T., Tonetto, S., & Freitas, D. (2019). Postharvest Biology and Technology Development of an artificial fruit prototype for monitoring mango skin and flesh temperatures during storage and transportation. *Postharvest Biology and Technology*, 158(March), 110956. <https://doi.org/10.1016/j.postharvbio.2019.110956>
- Choi, H. H., Kim, E. H., Lee, H. J., Park, H. Y., Jung, Y. G., & Yang, S. C. (2022). Effect of the polymerization degree of photopolymers on the thermal and mechanical properties of ceramic cores. *Ceramics International*, 48(10), 14754–14760. <https://doi.org/10.1016/j.ceramint.2022.02.012>
- Creegan, A., Ruddy, B., & Taberner, A. (2025). A 3D phantom for EIT printed in a single part. *Medical Engineering and Physics*, 146(September). <https://doi.org/10.1016/j.medengphy.2025.104428>
- Fawaz, M., Amer, A., Abu, A., & Jaber, S. (2026). Journal of Radiation Research and Applied Sciences Development and assessment of the stability , elemental composition , and radiological equivalence for a tissue-equivalent phantom. *Journal of Radiation Research and Applied Sciences*, 19(2), 102454. <https://doi.org/10.1016/j.jrras.2026.102454>
- Gargett, M. A., Briggs, A. R., Booth, J. T., Sydney, N., Centre, C., North, R., & Hospital, S. (2020). Water equivalence of a solid phantom material for radiation dosimetry applications. *Physics and Imaging in Radiation Oncology*, 14(April), 43–47. <https://doi.org/10.1016/j.phro.2020.05.003>
- Hacker, L., Ivory, A. M., Joseph, J., Gröhl, J., Zeqiri, B., Rajagopal, S., & Bohndiek, S. E. (2023). A Stable Phantom Material for Optical and Acoustic

- Imaging. *Journal of Visualized Experiments*, 2023(196), 1–16.
<https://doi.org/10.3791/65475>
- Hada, T., Kanazawa, M., Miyamoto, N., Liu, H., Iwaki, M., Komagamine, Y., & Minakuchi, S. (2022). Effect of Different Filler Contents and Printing Directions on the Mechanical Properties for Photopolymer Resins. *International Journal of Molecular Sciences*, 23(4).
<https://doi.org/10.3390/ijms23042296>
- Hallman, G. J. (2012). Generic phytosanitary irradiation treatments. *Radiation Physics and Chemistry*, 81(7), 861–866.
<https://doi.org/10.1016/j.radphyschem.2012.03.010>
- Hasan, M. K., Staack, D., Pillai, S. D., Fifield, L. S., & Pharr, M. (2024). Connecting radiation-driven changes in structural, thermal, and mechanical properties in several medical device polymers. *Polymer Degradation and Stability*, 221(December 2023), 110677.
<https://doi.org/10.1016/j.polymdegradstab.2024.110677>
- Hill, R., Brown, S., & Baldock, C. (2008). Evaluation of the water equivalence of solid phantoms using gamma ray transmission measurements. *Radiation Measurements*, 43, 1258–1264.
<https://doi.org/10.1016/j.radmeas.2008.01.019>
- Husna, A., Ashrafi, S., Tomal, A. A., Tuli, N. T., & Bin Rashid, A. (2024). Recent advancements in stereolithography (SLA) and their optimization of process parameters for sustainable manufacturing. *Hybrid Advances*, 7(August).
<https://doi.org/10.1016/j.hybadv.2024.100307>
- Islam, M. T., Dominguez, A., Turley, R. S., Kim, H., Sultana, K. A., Shuvo, M. A. I., Alvarado-Tenorio, B., Montes, M. O., Lin, Y., Gardea-Torresdey, J., & Noveron, J. C. (2020). Development of photocatalytic paint based on TiO₂ and photopolymer resin for the degradation of organic pollutants in water. *Science of the Total Environment*, 704.
<https://doi.org/10.1016/j.scitotenv.2019.135406>
- Kavun, Y., Acikgoz, A., & Demircan, G. (2025). DLP 3D printing of Al₂O₃ and Bi₂O₃ reinforced photopolymer composites: Radiation shielding and

- mechanical properties. *Ceramics International*, 51(17), 23289–23301. <https://doi.org/10.1016/j.ceramint.2025.03.018>
- Kim, J., Rivadeneira, R. G., Castell-Perez, M. E., & Moreira, R. G. (2006). Development and validation of a methodology for dose calculation in electron beam irradiation of complex-shaped foods. *Journal of Food Engineering*, 74(3), 359–369. <https://doi.org/10.1016/j.jfoodeng.2005.03.008>
- Kim, Y. J., Kim, H. N., & Kim, D. Y. (2024). A study on effects of curing and machining conditions in post-processing of SLA additive manufactured polymer. *Journal of Manufacturing Processes*, 119(December 2023), 511–519. <https://doi.org/10.1016/j.jmapro.2024.03.112>
- Laurikaitiene, J., Urbonavicius, B. G., Milenkova, S., Milusheva, M., Dimitrova, T. L., Pikas, I., & Adliene, D. (2024). Deterioration of 3D printed multicomponent radiotherapy dosimetry phantom's properties upon high energy irradiation. *Nuclear Instruments and Methods in Physics Research, Section B: Beam Interactions with Materials and Atoms*, 547(December 2023), 165210. <https://doi.org/10.1016/j.nimb.2023.165210>
- Li, D., Bisel, T. T., Cooley, S. K., Ni, Y., Murphy, M. K., Spencer, M. P., Hasan, K., Fifield, L. S., Pharr, M., Staack, D., Huang, M., Pillai, S. D., Nichols, L., Parker, R., & Gustin, E. (2025). Gamma , electron beam and X-ray irradiation effects on polymers in an advanced bone cement mixer device. *Radiation Physics and Chemistry*, 226(September 2024), 112188. <https://doi.org/10.1016/j.radphyschem.2024.112188>
- Ma, W., D'Amato, A. R., & Wang, Y. (2025). Caffeine-catalyzed synthesis of photopolymers for digital light processing. *Green Chemistry*, 27(27), 8319–8332. <https://doi.org/10.1039/d5gc00177c>
- Madamesila, J., McGeachy, P., Villarreal Barajas, J. E., & Khan, R. (2016). Characterizing 3D printing in the fabrication of variable density phantoms for quality assurance of radiotherapy. *Physica Medica*, 32(1), 242–247. <https://doi.org/10.1016/j.ejmp.2015.09.013>
- McTaggart, R., Rankouhi, B., & Letcher, T. (2020). Effects of gamma irradiation on mechanical properties of 3D-printed carbon fiber-reinforced ABS.

- International Journal of Advanced Manufacturing Technology*, 111(7–8), 1917–1927. <https://doi.org/10.1007/s00170-020-06243-4>
- Medeiros, P. R. De, Araujo, P. L. B., Aquino, K. A. S., Araujo, E. S., & Fernandes, J. A. (2022). *Green Polyethylene in Harsh Environments: Gamma-irradiation Effects*.
- Monteiro, S. A., Scheid, C., Deon, M., & Merib, J. (2023). Fundamentals, recent applications, and perspectives of 3D printing in sample preparation approaches. *Microchemical Journal*, 195(July). <https://doi.org/10.1016/j.microc.2023.109385>
- Nabavian Kalat, M., Ziai, Y., Dziedzic, K., Gradys, A., Urbański, L., Zaszczynska, A., Díaz Lantada, A., & Kowalewski, Z. (2025). Experimental evaluation of build orientation effects on the microstructure, thermal, mechanical, and shape memory properties of SLA 3D-printed epoxy resin. *European Polymer Journal*, 228(January). <https://doi.org/10.1016/j.eurpolymj.2025.113829>
- Naikwadi, A. T., Sharma, B. K., Bhatt, K. D., & Mahanwar, P. A. (2022). Gamma Radiation Processed Polymeric Materials for High Performance Applications: A Review. *Frontiers in Chemistry*, 10(March), 1–15. <https://doi.org/10.3389/fchem.2022.837111>
- Nakao, M., Ozawa, S., Miura, H., Yamada, K., Habara, K., Hayata, M., Kusaba, H., Kawahara, D., Miki, K., Nakashima, T., Ochi, Y., Tsuda, S., Seido, M., Morimoto, Y., Kawakubo, A., Nozaki, H., & Nagata, Y. (2020). Development of a CT number calibration audit phantom in photon radiation therapy: A pilot study. *Medical Physics*, 47(4), 1509–1522. <https://doi.org/10.1002/mp.14077>
- Nayyeri, P., Platnick, Z., Zareinia, K., & Bougherara, H. (2025). Enhanced tensile properties of continuous fiber-reinforced composites using robotic coaxial photopolymer extrusion. *Composites Part A: Applied Science and Manufacturing*, 190(December 2024). <https://doi.org/10.1016/j.compositesa.2024.108701>
- Ono, K., & Asada, Y. (2025). Analysis of material composition and attenuation characteristics of anthropomorphic torso phantoms for dosimetry using dual energy CT technology. *Physical and Engineering Sciences in Medicine*, 48(2),

- 675–683. <https://doi.org/10.1007/s13246-025-01533-1>
- Podgorsak, E. B. (2005). *Radiation Oncology Physics : A Handbook for Teachers and Students*.
- Preoteasa, E. A., Preoteasa, E., & Suci, I. (2012). *A TOMIC AND NUCLEAR SURFACE ANALYSIS METHODS : A NOVEL PERSPECTIVE FOR THE CHARACTERIZATION OF*. Nova Science Publishers, Inc.
- Robakowska, M., Gibson, I., Akkerman, R., Wurm, F. R., & Gojzewski, H. (2023). Towards more homogeneous character in 3D printed photopolymers by the addition of nanofillers. *Polymer Testing*, 129(September). <https://doi.org/10.1016/j.polymertesting.2023.108243>
- Singh, M. (2025). *Nuclear and irradiation technology for agriculture sustainability and global food security*. 63–71. <https://doi.org/10.4103/rpe.rpe>
- Stepusin, E. J., Long, D. J., Marshall, E. L., & Bolch, W. E. (2017). Assessment of different patient-to-phantom matching criteria applied in Monte Carlo-based computed tomography dosimetry. *Medical Physics*, 44(10), 5498–5508. <https://doi.org/10.1002/mp.12502>
- Summerscales, O. (2026). *NDA Instruments of the Safeguards Training Program*. Los Alamos National Laboratory. <https://www.lanl.gov/media/publications/actinide-research-quarterly/25-2-nda-instruments>
- Teweldebrhan, B. T., Maghelal, P., & Galadari, A. (2022). Impact of 3D printing on car shipping supply chain logistics in the Middle East. *Asian Journal of Shipping and Logistics*, 38(3), 181–196. <https://doi.org/10.1016/j.ajsl.2022.06.003>
- West, C., McTaggart, R., Letcher, T., Raynie, D., & Roy, R. (2019). Effects of gamma irradiation upon the mechanical and chemical properties of 3D-printed samples of polylactic acid. *Journal of Manufacturing Science and Engineering, Transactions of the ASME*, 141(4). <https://doi.org/10.1115/1.4042581>
- Ye, C., Janssen, K., Schnelting, G. H. M., Voet, V. S. D., Folkersma, R., & Loos, K. (2025). Repairable 3D printable photopolymer resins based on low-

activation-energy adaptable covalent bonding. *Polymer*, 319(August 2024).

<https://doi.org/10.1016/j.polymer.2024.127997>

Zhao, J., Ma, J., Wu, M., Jiao, X., Wang, Z., Liang, F., & Zhan, G. (2017). Gamma radiation as a phytosanitary treatment against larvae and pupae of *Bactrocera dorsalis* (Diptera: Tephritidae) in guava fruits. *Food Control*, 72, 360–366.

<https://doi.org/10.1016/j.foodcont.2016.02.029>