References

[1] R. Geyer, J. R. Jambeck, and K. L. Law, "Production, use, and fate of all plastics ever made," 2017. [Online]. Available: http://advances.sciencemag.org/

[2] J. N. Hahladakis, C. A. Velis, R. Weber, E. Iacovidou, and P. Purnell, "An overview of chemical additives present in plastics: Migration, release, fate and environmental impact during their use, disposal and recycling," *Journal of Hazardous Materials*, vol. 344. Elsevier B.V., pp. 179–199, Feb. 15, 2018. doi: 10.1016/j.jhazmat.2017.10.014.

[3] W. Wang *et al.*, "Current influence of China's ban on plastic waste imports," *Waste Disposal and Sustainable Energy*, vol. 1, no. 1. Springer, pp. 67–78, May 01, 2019. doi: 10.1007/s42768-019-00005-z.

[4] E. Kabir, R. Kaur, J. Lee, K. H. Kim, and E. E. Kwon, "Prospects of biopolymer technology as an alternative option for non-degradable plastics and sustainable management of plastic wastes," *Journal of Cleaner Production*, vol. 258. Elsevier Ltd, Jun. 10, 2020. doi: 10.1016/j.jclepro.2020.120536.

[5] P. Hou, Y. Xu, M. Taiebat, C. Lastoskie, S. A. Miller, and M. Xu, "Life cycle assessment of end-of-life treatments for plastic film waste," *J Clean Prod*, vol. 201, pp. 1052–1060, Nov. 2018, doi: 10.1016/j.jclepro.2018.07.278.

[6] S. Rhein and M. Schmid, "Consumers' awareness of plastic packaging: More than just environmental concerns," *Resour Conserv Recycl*, vol. 162, Nov. 2020, doi: 10.1016/j.resconrec.2020.105063.

[7] E. Kabir, R. Kaur, J. Lee, K. H. Kim, and E. E. Kwon, "Prospects of biopolymer technology as an alternative option for non-degradable plastics and sustainable management of plastic wastes," *Journal of Cleaner Production*, vol. 258. Elsevier Ltd, Jun. 10, 2020. doi: 10.1016/j.jclepro.2020.120536.

[8] A. Habibiyan, B. Ramezanzadeh, M. Mahdavian, and M. Kasaeian, "Facile size and chemistry-controlled synthesis of mussel-inspired bio-polymers based on Polydopamine Nanospheres: Application as eco-friendly corrosion inhibitors for mild steel against aqueous acidic solution," *J Mol Liq*, vol. 298, Jan. 2020, doi: 10.1016/j.molliq.2019.111974.

[9] M. Mehrpouya, H. Vahabi, M. Barletta, P. Laheurte, and V. Langlois, "Additive manufacturing of polyhydroxyalkanoates (PHAs) biopolymers: Materials, printing techniques, and applications," *Materials Science and Engineering: C*, vol. 127, p. 112216, Aug. 2021, doi: 10.1016/j.msec.2021.112216.

[10] N. Patel and P. Jain, "An investigation on mechanical properties in randomly oriented short natural fibre reinforced composites," in *Materials Today: Proceedings*, 2020, vol. 37, no. Part 2, pp. 469–479. doi: 10.1016/j.matpr.2020.05.452.

[11] A. da Silva Moura, R. Demori, R. M. Leão, C. L. Crescente Frankenberg, and R. M. Campomanes Santana, "The influence of the coconut fibre treated as reinforcement in PHB (polyhydroxybutyrate) composites," *Mater Today Commun*, vol. 18, pp. 191–198, Mar. 2019, doi: 10.1016/j.mtcomm.2018.12.006.

[12] D. Chandramohan and & K. Marimuthu, "A REVIEW ON NATURAL FIBRES," 2011. [Online]. Available: www.arpapress.com/Volumes/Vol8Issue2/IJRRAS_8_2_09.pdf

[13] O. v. Potadar and G. S. Kadam, "Preparation and Testing of Composites using Waste Groundnut Shells and Coir Fibres," in *Procedia Manufacturing*, 2018, vol. 20, pp. 91–96. doi: 10.1016/j.promfg.2018.02.013.

[14] K. Siva Nagu, K. Yoganandam, V. Mohanavel, and R. Deepak Joel Johnson, "Mechanical properties of a natural fibre reinforced with polylactic acid - Review," in *Materials Today: Proceedings*, 2020, vol. 33, pp. 3061–3062. doi: 10.1016/j.matpr.2020.03.511.

[15] S. K. Bhudolia, G. Gohel, K. F. Leong, and A. Islam, "Advances in Ultrasonic Welding of Thermoplastic Composites: A Review," Mar. 2020. doi: 10.3390/ma13061284.

[16] P. Kah, H. Väst, C. Magnus, R. Suoranta, and J. Martikainen, "Techniques for joining dissimilar materials: Metals and polymers Energy-efficient systems based on renewable energy for Arctic conditions (EFREA) View project Synthesis and Tribological Behaviour of MAX phases View project TECHNIQUES FOR JOINING DISSIMILAR MATERIALS: METALS AND POLYMERS." [Online]. Available: https://www.researchgate.net/publication/266672380

[17] L. R. R. Silva, E. A. S. Marques, and L. F. M. da Silva, "Polymer joining techniques state of the art review," *Welding in the World*, vol. 65, no. 10, pp. 2023–2045, Oct. 2021, doi: 10.1007/s40194-021-01143-x.

[18] S. Shimada *et al.*, "Ultrasonic welding of polymer optical fibres onto composite materials," *Electron Lett*, vol. 52, no. 17, pp. 1472–1474, Aug. 2016, doi: 10.1049/el.2016.0905.

[19] B. Jongbloed, J. Teuwen, R. Benedictus, and I. F. Villegas, "On differences and similarities between static and continuous ultrasonic welding of thermoplastic composites," *Compos B Eng*, vol. 203, Dec. 2020, doi: 10.1016/j.compositesb.2020.108466.

[20] H. J. Yeh, "Ultrasonic welding of medical plastics," in *Joining and Assembly of Medical Materials and Devices*, Elsevier Ltd., 2013, pp. 296–322. doi: 10.1533/9780857096425.3.296.

[21] J. Qiu, G. Zhang, M. Asao, M. Zhang, H. Feng, and Y. Wu, "Study on the novel ultrasonic weld properties of heterogeneous polymers between PC and PMMA," *Int J Adhes Adhes*, vol. 30, no. 8, pp. 729–734, Dec. 2010, doi: 10.1016/j.ijadhadh.2010.07.006.

[22] E. Tsiangou, S. Teixeira de Freitas, I. Fernandez Villegas, and R. Benedictus, "Investigation on energy director-less ultrasonic welding of polyetherimide (PEI)- to epoxy-based composites," *Compos B Eng*, vol. 173, Sep. 2019, doi: 10.1016/j.compositesb.2019.107014.

[23] G. Zhang, J. Qiu, E. Sakai, and Z. Zhou, "Interface investigation between dissimilar materials by ultrasonic thermal welding by the third phase," *Int J Adhes Adhes*, vol. 104, Jan. 2021, doi: 10.1016/j.ijadhadh.2020.102722.

[24] M. R. Choudhury and K. Debnath, "Analysis of tensile failure load of single-lap green composite specimen welded by high-frequency ultrasonic vibration," in *Materials Today: Proceedings*, 2019, vol. 28, pp. 739–744. doi: 10.1016/j.matpr.2019.12.290.

[25] G. Zhang, J. Qiu, L. Shao, M. Liu, M. Zhang, and Y. Wu, "Ultrasonic weld properties of heterogeneous polymers: Polylactide and poly (methyl methacrylate)," *J Mater Process Technol*, vol. 211, no. 8, pp. 1358–1363, Aug. 2011, doi: 10.1016/j.jmatprotec.2011.03.005.

[26] N. Stoehr, B. Baudrit, E. Haberstroh, M. Nase, P. Heidemeyer, and M. Bastian, "Ultrasonic welding of plasticized PLA films," *J Appl Polym Sci*, vol. 132, no. 4, Jan. 2015, doi: 10.1002/app.41351.

[27] C. Rajput, S. Kumari, V. Prajapati, Dinbandhu, and K. Abhishek, "Experimental investigation on peel strength during ultrasonic welding of polypropylene H110MA," in *Materials Today: Proceedings*, 2019, vol. 26, pp. 1302–1305. doi: 10.1016/j.matpr.2020.02.259.

[28] S.-J. Liu and I.-T. Chang, "Factors Affecting the Joint Strength of Ultrasonically Welded Polypropylene Composites," Feb. 2001. doi: 10.1002/pc.10525.

[29] G. Gohel, S. K. Bhudolia, J. Kantipudi, K. F. Leong, and R. J. Barsotti, "Ultrasonic welding of novel Carbon/Elium® with carbon/epoxy composites," *Composites Communications*, vol. 22, Dec. 2020, doi: 10.1016/j.coco.2020.100463.

[30] M. Nalbant, H. Gökkaya, and G. Sur, "Application of Taguchi method in the optimization of cutting parameters for surface roughness in turning," *Mater Des*, vol. 28, no. 4, pp. 1379–1385, 2007, doi: 10.1016/j.matdes.2006.01.008.

[31] W. H. Yang and Y. S. Tarng, "Design optimization of cutting parameters for turning operations based on the Taguchi method," 1998. doi: 10.1016/S0924-0136(98)00079-X.

[32] Åsa Nyflött, "Structure-Performance Relations of Oxygen Barriers for Food Packaging," 2017. [Online]. Available: https://www.researchgate.net/publication/312921215

[33] G. J. Park, T. H. Lee, K. H. Lee, and K. H. Hwang, "Robust design: An overview," *AIAA Journal*, vol. 44, no. 1. pp. 181–191, Jan. 2006. doi: 10.2514/1.13639.

Bibliography

[1] L. R. R. Silva, E. A. S. Marques, and L. F. M. da Silva, “Polymer joining techniques state of the art review,” *Welding in the World*, vol. 65, no. 10, pp. 2023–2045, Oct. 2021, doi: 10.1007/s40194-021-01143-x.

[2] P. Yang, H. Li, Q. Liu, H. Dong, Y. Duan, and J. Zhang, “Plasticization of Poly (lactic) acid Film as a Potential Coating Material,” in *IOP Conference Series: Earth and Environmental Science*, Jan. 2018, vol. 108, no. 2. doi: 10.1088/1755-1315/108/2/022062.

[3] A. da Silva Moura, R. Demori, R. M. Leão, C. L. Crescente Frankenberg, and R. M. Campomanes Santana, “The influence of the coconut fiber treated as reinforcement in PHB (polyhydroxybutyrate) composites,” *Mater Today Commun*, vol. 18, pp. 191–198, Mar. 2019, doi: 10.1016/j.mtcomm.2018.12.006.

[5] N. Patel and P. Jain, “An investigation on mechanical properties in randomly oriented short natural fiber reinforced composites,” in *Materials Today: Proceedings*, 2020, vol. 37, no. Part 2, pp. 469–479. doi: 10.1016/j.matpr.2020.05.452.

[6] A. Porras, A. Maranon, and I. A. Ashcroft, “Optimal tensile properties of a Manicaria-based biocomposite by the Taguchi method,” *Compos Struct*, vol. 140, pp. 692–701, Apr. 2016, doi: 10.1016/j.compstruct.2016.01.042.

[7] A. Mancinoa, G. Marannano, and B. Zuccarello, “Implementation of eco-sustainable biocomposite materials reinforced by optimized agave fibers,” in *Procedia Structural Integrity*, 2018, vol. 8, pp. 526–538. doi: 10.1016/j.prostr.2017.12.052.

[8] J. Wu, X. Du, Z. Yin, S. Xu, S. Xu, and Y. Zhang, “Preparation and characterization of cellulose nanofibrils from coconut coir fibers and their reinforcements in biodegradable composite films,” *Carbohydr Polym*, vol. 211, pp. 49–56, May 2019, doi: 10.1016/j.carbpol.2019.01.093.

[9] Q. Zhang, L. Shi, J. Nie, H. Wang, and D. Yang, “Study on poly(lactic acid)/natural fibers composites,” *J Appl Polym Sci*, vol. 125, no. SUPPL. 2, Sep. 2012, doi: 10.1002/app.36852.

[10] A. Manna and B. Bhattacharyya, “Taguchi and Gauss elimination method: A dual response approach for parametric optimization of CNC wire cut EDM of PRAlSiCMMC,” *International Journal of Advanced Manufacturing Technology*, vol. 28, no. 1–2, pp. 67–75, Feb. 2006, doi: 10.1007/s00170-004-2331-0.

[11] J. R. Gamage, A. K. M. DeSilva, D. Chantzis, and M. Antar, “Sustainable machining: Process energy optimization of wire electrodischarge machining of Inconel and titanium superalloys,” *J Clean Prod*, vol. 164, pp. 642–651, Oct. 2017, doi: 10.1016/j.jclepro.2017.06.186.

[12] Z. Kiss, T. Temesi, E. Bitay, T. Bárány, and T. Czigány, “Ultrasonic welding of all-polypropylene composites,” *J Appl Polym Sci*, vol. 137, no. 24, Jun. 2020, doi: 10.1002/app.48799.

[13] Y. Byun, S. Whiteside, R. Thomas, M. Dharman, J. Hughes, and Y. T. Kim, “The effect of solvent mixture on the properties of solvent cast polylactic acid (PLA) film,” *J Appl Polym Sci*, vol. 124, no. 5, pp. 3577–3582, Jun. 2012, doi: 10.1002/app.34071.

[14] J. Vogel, D. Grewell, M. R. Kessler, D. Drummer, and M. Menacher, “Ultrasonic and impulse welding of polylactic acid films,” *Polym Eng Sci*, vol. 51, no. 6, pp. 1059–1067, Jun. 2011, doi: 10.1002/pen.21919.

[15] J. W. Rhim, A. K. Mohanty, S. P. Singh, and P. K. W. Ng, “Effect of the processing methods on the performance of polylactide films: Thermocompression versus solvent casting,” *J Appl Polym Sci*, vol. 101, no. 6, pp. 3736–3742, Sep. 2006, doi: 10.1002/app.23403.

[16] K. Siva Nagu, K. Yoganandam, V. Mohanavel, and R. Deepak Joel Johnson, “Mechanical properties of a natural fiber reinforced with polylactic acid - Review,” in *Materials Today: Proceedings*, 2020, vol. 33, pp. 3061–3062. doi: 10.1016/j.matpr.2020.03.511.

[17] L. Zhang *et al.*, “Synthesis and characterization of antibacterial polylactic acid film incorporated with cinnamaldehyde inclusions for fruit packaging,” *Int J Biol Macromol*, vol. 164, pp. 4547–4555, Dec. 2020, doi: 10.1016/j.ijbiomac.2020.09.065.

[18] S. A. Varghese, H. Pulikkalparambil, S. M. Rangappa, S. Siengchin, and J. Parameswaranpillai, “Novel biodegradable polymer films based on poly(3-hydroxybutyrate-co-3-hydroxyvalerate) and Ceiba pentandra natural fibers for packaging applications,” *Food Packag Shelf Life*, vol. 25, Sep. 2020, doi: 10.1016/j.fpsl.2020.100538.

[19] P. J. Jandas, S. Mohanty, and S. K. Nayak, “Surface treated banana fiber reinforced poly (lactic acid) nanocomposites for disposable applications,” *J Clean Prod*, vol. 52, pp. 392–401, 2013, doi: 10.1016/j.jclepro.2013.03.033.

[20] P. Kerdlap, A. R. Purnama, J. S. C. Low, D. Z. L. Tan, C. Y. Barlow, and S. Ramakrishna, “Environmental evaluation of distributed versus centralized plastic waste recycling: Integrating life cycle assessment and agent-based modeling,” in *Procedia CIRP*, 2020, vol. 90, pp. 689–694. doi: 10.1016/j.procir.2020.01.083.

[21] M. S. Islam, N. A. B. Hasbullah, M. Hasan, Z. A. Talib, M. Jawaid, and M. K. M. Haafiz, “Physical, mechanical and biodegradable properties of kenaf/coir hybrid fiber reinforced polymer nanocomposites,” *Mater Today Commun*, vol. 4, pp. 69–76, Sep. 2015, doi: 10.1016/j.mtcomm.2015.05.001.