



PERSONAL INFORMATION:

Full Name: Mahdi Mashkour

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EDUCATION:

Ph.D., 2011. Natural Resources Engineering-Wood and Paper Science and Technology, University of Tehran, Iran

MSc, 2007. Natural Resources Engineering-Wood and Paper Science and Technology, University of Tehran, Iran

BSc, 2005. Natural Resources Engineering-Wood and Paper Science and Technology, Gorgan University of Agricultural Science and Natural Resources

RESEARCH INTEREST:

Functional cellulose nanofibers (CNF) and nanocrystals (CNC), Wood nanotechnology, Directed assembly of CNC, Birefringent inks based on CNC, Self-reinforced cellulose and lignocellulose nanocomposites, Magnetic wood and paper nanocomposites, Wood-polymer composites and nanocomposites, Wood nanotechnology for sustainable electronics, Laser-induced graphitization and biomass-derived carbon nanostructures, Biomass-derived materials for energy storage.

PUBLICATION:

1. Kaffashsaei, E., Yousefi, H., Nishino, T., Matsumoto, T., Mashkour, M. and Madhoushi, M., 2023. Simultaneous/direct chemomechanical densification and downsizing of weak paulownia wood to produce a strong, unidirectional, all-wooden nanocomposite. *Polymer Journal*, pp.1-12.
2. Kaffashsaei, E., Yousefi, H., Nishino, T., Matsumoto, T., Mashkour, M. and Madhoushi, M., 2023. Binderless Self-densified 3 mm-Thick Board Fully Made from (Ligno) cellulose Nanofibers of Paulownia Sawdust. *Waste and Biomass Valorization*, pp.1-13.
3. Ahangarkolaei, H.F., Mashkour, M. and Rasouli, D., Superparamagnetic wood-polypropylene nanocomposite made using magnetic wood flour with a nanoparticle-free surface. *Journal of Applied Polymer Science*, p.e53531.

4. Rasouli, D., Yousefi, H. and Mashkour, M., 2022. A study on the protective effect of nano zinc oxide against weathering of wood-polypropylene composite. *Iranian Journal of Wood and Paper Science Research*, 37(1).
5. Mashkour, M., Rasouli, D., Yousefi, H. and Rajabi, A., 2022. Furfurylated Superparamagnetic Poplar Wood: Morphological, Physical, and Mechanical Properties. *Journal of Wood and Forest Science and Technology*, 29(3), pp.15-34.
6. Kaffashsaie, E., Yousefi, H., Nishino, T., Matsumoto, T., Mashkour, M., Madhoushi, M., & Kawaguchi, H. (2021). Direct conversion of raw wood to TEMPO-oxidized cellulose nanofibers. *Carbohydrate Polymers*, 262, 117938.
7. Mashkour, M., & Mashkour, M. (2021). A Simple and Scalable Approach for Fabricating High-Performance Superparamagnetic Natural Cellulose Fibers and Papers. *Carbohydrate Polymers*, 256, 117425.
8. Mashkour, M., Rahimnejad, M., Mashkour, M., & Soavi, F. (2021). Increasing bioelectricity generation in microbial fuel cells by a high-performance cellulose-based
9. Izee, S., Yousefi, H., Mashkour, M., & Rasouli, D. (2020). Fabrication and properties evaluation of three-layered transparent nanocomposite reinforced with cellulose and chitin nanofibers. *Iranian Journal of Wood and Paper Industries*, 10(4), 495-505.
10. Yousefi, H., Afra, E., Rasouli, D., & Mashkour, M. (2020). Characterization of water-repellent cellulose paper and nanopaper using silane. *Iranian Journal of Wood and Paper Science Research*, 35(1), 22-32.
11. Akbarnezhad, M., Rasouli, D., Yousefi, H., & Mashkour, M. (2020). Weathering Performance of Beech Wood Coated with Acrylic Paint Containing UV Stabilizers of Dihydroxy Benzophenone and Nano Zinc Oxide. *Drvna industrija: Znanstveni časopis za pitanja drvne tehnologije*, 71(4), 403-409.
12. Mashkour, M., Rahimnejad, M., Mashkour, M., & Soavi, F. (2020). Electro-polymerized polyaniline modified conductive bacterial cellulose anode for supercapacitive microbial fuel cells and studying the role of anodic biofilm in the capacitive behavior. *Journal of Power Sources*, 478, 228822.
13. Keshtegar, B. A., Madhoushi, M., Rashidi, A., & Mashkour, M. (2019). The influence of reinforcement of polyvinyl acetate adhesive (PVAc) with carbon nanofiber (CNF) on the bending moment capacity of the corner joint of the furniture. *Iranian Journal of Wood and Paper Science Research*, 34(2), 242-254.

14. Keshtegar, B. A., Madhoushi, M., Rashidi, A. M., & Mashkour, M. (2019). Effect of adding modified carbon nanofiber on mechanical and thermal properties of polyvinyl acetate adhesive. *Forest and Wood Products*, 72(2), 147-158.
15. Mashkour, M., Kimura, T., Mashkour, M., Kimura, F., & Tajvidi, M. (2019). Printing Birefringent Figures by Surface Tension-Directed Self-Assembly of a Cellulose Nanocrystal/Polymer Ink Components. *ACS applied materials & interfaces*, 11(1), 1538- 1545.
16. Mashkour, M., Sharifinia, M., Yousefi, H., & Afra, E. (2018). MWCNT-coated cellulose nanopapers: Droplet-coating, process factors, and electrical conductivity performance. *Carbohydrate polymers*, 202, 504-512.
17. Izee, S., Yousefi, H., Mashkour, M., & Rasouli, D. (2018). Comparative study on the properties of nanopapers prepared from cellulose and chitin nanofibers. *Journal of Wood & Forest Science and Technology*, 25 (3), 61-72.
18. Sheykhnazari, S., Tabarsa, T., Mashkour, M., Khazaeian, A., & Ghanbari, A. (2018). Multilayer bacterial cellulose/resole nanocomposites: Relationship between structural and electro-thermo-mechanical properties. *International Journal of Biological Macromolecules*. <https://doi.org/10.1016/j.ijbiomac.2018.09.047>
19. Ghanbari, A., Tabarsa, T., Ashori, A., Shakeri, A., & Mashkour, M. (2018). Thermoplastic starch foamed composites reinforced with cellulose nanofibers; Thermal and mechanical properties. *Carbohydrate Polymers*. <https://doi.org/10.1016/j.carbpol.2018.06.017>
20. Yousefi, H., Azad, S., Mashkour, M., & Khazaeian, A. (2018). Cellulose nanofiber board. *Carbohydrate polymers*, 187, 133-139.
21. Mashkour, M., & Ranjbar, Y. (2018). Superparamagnetic Fe₃O₄@ wood flour/polypropylene nanocomposites: Physical and mechanical properties. *Industrial Crops and Products*, 111, 47-54.
22. Ghanbari, A., Tabarsa, T., Ashori, A., Shakeri, A., & Mashkour, M. (2018). Preparation and characterization of thermoplastic starch and cellulose nanofibers as green nanocomposites: Extrusion processing. *International journal of biological macromolecules*, 112, 442-447.
23. Tabarsa, T., Sheykhnazari, S., Ashori, A., Mashkour, M., & Khazaeian, A. (2017). Preparation and characterization of reinforced papers using nano bacterial cellulose. *International journal of biological macromolecules*, 101, 334-340.

- 24.** Mashkour, M., Moradabadi, Z., & Khazaeian, A. (2017). Physical and tensile properties of epoxy laminated magnetic bacterial cellulose nanocomposite films. *Journal of Applied Polymer Science*, 134(30), 45118.
- 25.** Mashkour, M., Rahimnejad, M., Mashkour, M., Bakeri, G., Luque, R., & Oh, S. E. (2017). Application of wet nanostructured bacterial cellulose as a novel hydrogel bioanode for microbial fuel cells. *ChemElectroChem*, 4(3), 648-654.
- 26.** Norouzi, M., Yousefi, H., Mashkour, M. (2017). Comparison of drying of bacterial cellulose nanofiber film using jet drier, vacuum oven, and oven. *Journal of Wood & Forest Science and Technology*, 24 (4), 13-26
- 27.** Rasouli, D., Mashkour, M., & Hojati, Z. (2017). Effect of nano zinc oxide on physical and mechanical properties of wood plastic composites. *Iranian Journal of Wood and Paper Industries*, 8(1), 15-24
- 28.** Sheykhnazari, S., Tabarsa, T., Mashkour, M., & Khazaeian, A. (2017). Investigation of dielectric properties of bacterial cellulose-thermoset resin nanobiocomposite. *Journal of Wood & Forest Science and Technology*, 24 (2), 157-170.
- 29.** Mashkour, M., Rahimnejad, M., & Mashkour, M. (2016). Bacterial cellulose- polyaniline nano-biocomposite: a porous media hydrogel bioanode enhancing the performance of microbial fuel cell. *Journal of Power Sources*, 325, 322-328.
- 30.** Aghababaei, K. M., Mashkour, M., Yousefi, H., & Rezaei, H. (2016). Utilization of wood flour in the fabrication of a carbon-ceramic composite and its evaluation for cadmium adsorption from aqueous solutions. *Journal of Wood & Forest Science and Technology*, 23(3), 289-308.
- 31.** Sheykhi, Z., Tabarsa, T., Mashkour, M. (2016). Effects of nano-cellulose and resin on MDF properties produced from recycled MDF using electrolysis method. *Journal of Wood & Forest Science and Technology*, 23(3), 271-288.
- 32.** Azad, S., Yousefi, H., Mashkour, M., & Khazaeian, A. (2016). Nanocellulose Board: Study on the performance of cold pre-pressing and physical properties of the board. *Journal of Wood & Forest Science and Technology*, 23(2), 281-302.
- 33.** Yahyavi, M., Khazaeian, A., & Mashkour, M. (2015). Studying the Properties of Polyvinyl Alcohol/Cellulose Nanofiber/Hydroxyapatite Hybrid Nanocomposite. *Iranian Journal of Polymer Science and Technology*, 28(2), 91-99.

- 34.** Yousefi, H., Mashkour, M., & Yousefi, R. (2015). Direct solvent nanowelding of cellulose fibers to make all-cellulose nanocomposite. *Cellulose*, 22(2), 1189-1200.
- 35.** Tabar, M. M., Tabarsa, T., Mashkour, M., & Khazaeian, A. (2015). Using silicon dioxide (SiO₂) nano-powder as reinforcement for walnut shell flour/HDPE composite materials. *Journal of the Indian Academy of Wood Science*, 12(1), 15-21.
- 36.** Mazandarani, M., Ghasemian, A., Saraiyan, A. R., Mashkour, M., & Petroudy, S. R. J. (2015). Optimum production of cellulose nanocrystal from cotton stalk under acidic hydrolysis conditions. *Iranian Journal of Wood and Paper Science Research*, 30(1), 1-13.
- 37.** Mashkour, M., Afra, E., Resalati, H., & Mashkour, M. (2015). Moderate surface acetylation of nanofibrillated cellulose for the improvement of paper strength and barrier properties. *RSC Advances*, 5(74), 60179-60187.
- 38.** Mashkour, M., Tajvidi, M., Kimura, F., Yousefi, H., & Kimura, T. (2014). Strong highly anisotropic magnetocellulose nanocomposite films made by chemical peeling and in situ welding at the interface using an ionic liquid. *ACS applied materials & interfaces*, 6(11), 8165-8172.
- 39.** Mashkour, M., Kimura, T., Kimura, F., Mashkour, M., & Tajvidi, M. (2014). One-dimensional core-shell cellulose-akaganeite hybrid nanocrystals: synthesis, characterization, and magnetic field induced self-assembly. *RSC Advances*, 4(94), 52542-52549.
- 40.** Mashkour, M., Kimura, T., Kimura, F., Mashkour, M., & Tajvidi, M. (2013). Tunable self-assembly of cellulose nanowhiskers and polyvinyl alcohol chains induced by surface tension torque. *Biomacromolecules*, 15(1), 60-65.
- 41.** Khozeini, A., Tabarsa, T., & Mashkour, M. (2014). A novel method for manufacturing wood flour/PP composites with better fire retardancy and mechanical properties. *International Journal of Lignocellulosic Products*, 1(2), 121-133.
- 42.** Habibzade, S., Omidvar, A., Farahani, M. R. M., & Mashkour, M. (2014). Effect of nano-ZnO on decay resistance and artificial weathering of wood polymer composite. *Journal of Nanomaterials & Molecular Nanotechnology*, 3(3), 1-5.
- 43.** Mazandarani, M., Ghasemian, A., Saraiyan, A. R., Mashkour, M., & Petroudy, S. R. J. (2013). Evaluation of drying methods of cellulose. *Quarterly Journal of Nano (In Persian)*, 9(31), 10-15.

44. Khozeini, A., Tabarsa, T., & Mashkour, M. (2013). Fire-retardant nanomaterials for wood-plastic composite industry, *Quarterly Journal of Nano (In Persian)*, 9(31), 40-46.

45. Mashkour, M., Tajvidi, M., Kimura, T., Kimura, F., & Ebrahimi, G. (2011). Fabricating unidirectional magnetic papers using permanent magnets to align magnetic nanoparticle-covered natural cellulose fibers. *BioResources*, 6(4), 4731-4738.

ACADEMIC TEACHING EXPERIENCE:

- Undergraduate level:
 - Evaluation and Grading of Wood
 - Foundations of Wood-Plastic Composites
- Graduate level:
 - Wood-Polymer Composites
 - Polymer Materials
 - Advanced Instrumental Analysis
 - Lignocellulosic Nanocomposites

AWARDS:

- University Outstanding Teaching Award, 2023, Gorgan University of Agricultural Sciences and Natural Resources, Iran.
- Iran's National Elites Foundation (INEF) Research Grant, 2022.
- Iran National Science Foundation (INSF) Research Grant, 2022.
- University Outstanding Research Award, 2022, Gorgan University of Agricultural Sciences and Natural Resources, Iran.
- University Outstanding Teaching Award, 2021, Gorgan University of Agricultural Sciences and Natural Resources, Iran.
- Iran's National Elites Foundation (INEF) Research Grant, 2021.
- Iran National Science Foundation (INSF) Research Grant, 2021.
- University Outstanding Research Award, 2015, Gorgan University of Agricultural Sciences and Natural Resources, Iran.
- Gorgan University of Agricultural Sciences and Natural Resources Ph.D. Fellowship, 2008-2011.
- Second rank, National Master's Entrance Examination, 2004.

LANGUAGES:

Persian (native); English