

## Abraham Elmushyakhi, PhD

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### Education

Ph.D. Materials Science Engineering, University of Dayton, Ohio, USA, 2017.

M.Sc. Materials Science Engineering, University of Dayton, Ohio, USA, 2013.

B.Sc. Mechanical Engineering, King Khalid University, Abha, Saudi Arabia, 2009.

### Academic experience

2009 – 2012: Full time Research, King Abdulaziz City for Science and Technology, Riyadh, Saudi Arabia.

2018 – 2022: Full time Assistant Professor, Mechanical Engineering, Northern Border University, Arar, Saudi Arabia.

2022 – Present: Full time Associate Professor, Mechanical Engineering, Northern Border University, Arar, Saudi Arabia.

### Publications of the Last Five Years:

#### Journal Papers

1. Elmushyakhi, Abraham, (2023), "*Sustainability Constituent of AM9085f Filament in Renewable Energy Applications Under Iosipescu Thermal Shock Stress*". *Strength of Materials*, 1-11.
2. Elmushyakhi, Abraham, et al. (2023), "*Designing of asymmetric non-fullerene based acceptor materials by re-modification of  $\pi$ -spacers with PCE > 20% for organic solar cell*". *Optik* 278, 170602.
3. Elmushyakhi, Abraham, et al. (2023), "*Efficient side-chain engineering of thieno-imidazole salt-based molecule to boost the optoelectronic attributes of organic solar cells: A DFT approach*". *Journal of Molecular Graphics and Modelling* 121, 108428.
4. Elmushyakhi, Abraham, et al. (2023), "*Wound dressing candidate materials based on casted films of cellulose acetate modified with zirconium oxide (ZrO<sub>2</sub>), and gallium oxide (Ga<sub>2</sub>O<sub>3</sub>)*". *Materials Today Communications* 34, 105299.
5. Elmushyakhi, Abraham, et al. (2023), "*Fabrication of Bio-Based Film Comprising Metal Oxide Nanoparticles Loaded Chitosan for Wound Dressing Applications*". *Polymers* 15 (1), 211.
6. Elmushyakhi, Abraham, et al. (2023), "*DFT study of enhancement in nonlinear optical response of exohedrally and endohedrally alkaline earth metals (Be, Mg, Ca) doped adamanzane*". *International Journal of Quantum Chemistry* 123 (6), e27060.
7. Elmushyakhi, Abraham, et al. (2023), "*Chemical, surface, and thermal studies of mixed oxides cupric oxide (CuO), lanthanum oxide (La<sub>2</sub>O<sub>3</sub>), and graphene oxide for dye degradation from aqueous solution*". *Journal of Materials Research and Technology* 23, 2263-2274.
8. Elmushyakhi, Abraham, et al. (2023), "*Cellulose-Acetate-Based Films Modified with Ag<sub>2</sub>O and ZnS as Nanocomposites for Highly Controlling Biological Behavior for Wound Healing Applications*". *Materials* 16 (2), 777.

9. Elmushyakhi, Abraham, et al. (2023), "*Theoretical study of [36] adamantane (36Adz) based alkalides with remarkable non-linear optical properties*". *Physica Scripta* 98 (2), 025504.
10. Elmushyakhi, Abraham, et al. (2023), "*Environmentally affable and highly efficient donor material based on cyclopentadithiophene (CPDT) framework for remarkable organic solar cells*". *Optical Materials* 135, 113316.
11. Elmushyakhi, Abraham, et al. (2023), "*Molecular engineering of bicarbazole-based donor molecules with remarkable photovoltaic parameters for organic solar cells*". *Optik* 281, 170818.
12. Elmushyakhi, Abraham, et al. (2023), "*Designing of Phenothiazine-Based Hole-Transport Materials with Excellent Photovoltaic Properties for High-Efficiency Perovskite Solar Cells (PSCs)*". *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy*, 122774.
13. Elmushyakhi, Abraham, et al. (2023), "*Role of end-capped acceptor moieties on optoelectronic properties of small molecules featuring B–N covalent bond-based organic solar cells*". *Journal of Computational Electronics*, 1-13.
14. Elmushyakhi, Abraham, et al. (2023), "*Preparation of afterglow and photochromic fibrous mats from polypropylene plastics to detect ultraviolet lights*". *Luminescence*, <https://doi.org/10.1002/bio.4445>.
15. Elmushyakhi, Abraham, et al. (2022), "*Highlighting the Compositional Changes of the Sm<sub>2</sub>O<sub>3</sub>/MgO-Containing Cellulose Acetate Films for Wound Dressings*". *Polymers* 14 (22), 4964.
16. Elmushyakhi, Abraham, et al. (2022), "*Bactericidal activities of Sm<sub>2</sub>O<sub>3</sub>/Sb<sub>2</sub>O<sub>3</sub>/graphene oxide loaded cellulose acetate film*". *Journal of Materials Research and Technology* 21, 4419-4427.
17. Elmushyakhi, Abraham, et al. (2022), "*Synthesis and Characterization of Chitosan-Containing ZnS/ZrO<sub>2</sub>/Graphene Oxide Nanocomposites and Their Application in Wound Dressing*". *Polymers* 14 (23), 5195.
18. Elmushyakhi, Abraham, et al. (2022), "*Biomedical domains of the as-prepared nanocomposite based on hydroxyapatite, bismuth trioxide and graphene oxide*". *Journal of Materials Research and Technology* 19, 3954-3965.
19. Elmushyakhi, Abraham, (2022), "*Freeze-thaw stabilization of fused deposition modeling 3D-printed SABIC structures*". *Journal of King Saud University-Engineering Sciences* 34 (2), 116-125.
20. Elmushyakhi, Abraham, (2021), "*Parametric characterization of nano-hybrid wood polymer composites using ANOVA and regression analysis*". *Structures* 29, 652-662.
21. Elmushyakhi, Abraham, (2020), "*Finite Element Modeling of Conventional and Hybrid Composite Driveshaft Performance*". *Journal of the North for Basic and Applied Sciences Volume 5* (1).
22. Elmushyakhi, Abraham, et al. (2019), "*Post-fire failure mechanisms of seawater-accelerated weathering composites for coastal and marine structures*". *Marine Structures* 63, 304-317.
23. Elmushyakhi, Abraham, (2019), "*Collapse mechanisms of out-of-plane preload composite sandwich beams under in-plane loading*". *Journal of Building Engineering* 26, 100875.

24. Elmushyakh, Abraham, et al. (2018), "*Effect of localized fire damage on failure mode shifts in sandwich structures*". 12th International Conference on Sandwich Structures ICSS-12: Proceedings.
25. Elmushyakh, Abraham, et al. (2017), "*Axial Fatigue Characterization of Core Joints in Sandwich Composite Structures*". Proceedings of the American Society for Composites " Thirty-second.
26. Elmushyakh, Abraham, et al. (2017), "*Post-Fire Residual Mechanical Properties of a Composite Laminate—Experimental Study*". FL, December, 11-14.
27. Elmushyakh, Abraham, et al. (2017), "*In-Plane Fatigue Characterization of Core Joints in Sandwich Composite Structures*". Ph. D. Thesis.
28. Elmushyakh, Abraham, et al. (2017), "*Influence of core joints in sandwich composites under in-plane static and fatigue loads*". Materials & Design 131, 102-111.

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