Curriculum Vitae

Personal Data:

Name: Bandar Ali Al-Asbahi

Academic Ranking: Full Professor

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Present Address:

Department of Physics and Astronomy, College of Science, King Saud University, Riyadh 11451, Saudi Arabia.

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Educational Data:

1- Ph.D. in Physics, School of Applied Physics, Faculty of Science and Technology, Universiti Kebangsaan Malaysia (UKM), Malaysia, 26/6/2013. The title of thesis:

"PHOTOPHYSICAL AND OPTOELECTRONIC PROPERTIES OF POLY (9,9'-DI-N-OCTYLFLUORENYL- 2.7-DIYL) (PFO)/FLUOROL 7GA/TiO_2 NANOCOMPOSITES FOR ORGANIC LIGHT EMITTING DIODES"

2- M.Sc. in Physics, Department of Physics and Astronomy, College of Science, King Saud University, Riyadh, Saudi Arabia, 30/6/2009. The title of thesis:

"SPECTRAL PROPERTIES AND LASER EMISSION FROM CONJUGATED (PDEHF) POLYMER"

3- Bachelor in Physical & Chemical Science, Department of Physics and Chemistry, Faculty of Science, Damascus University, Syria, 17/9/2002 (The top in my batch).

Professional Experience:

1. 12/2024: Full professor at Dept. of Physics and Astronomy, College of Science, King Saud University, Riyadh, Saudi Arabia.

2. 10/2019– 12/2023: Associate professor at Dept. of Physics and Astronomy, College of Science, King Saud University, Riyadh, Saudi Arabia.

3. 9/2019 – 9/2021: Member of creativity & innovation center at College of Science, King Saud University, Riyadh, Saudi Arabia.

4. 10/2018 – present: Member of development and quality Committee at Dept. of Physics and Astronomy, College of Science, King Saud University, Riyadh, Saudi Arabia.

5. 9/2018 – 9/2020: Coordinator of the course 110 Phys. at Dept. of Physics and Astronomy, College of Science, King Saud University, Riyadh, Saudi Arabia.

6. 9/2018 – present: Coordinator of the course 101 Phys. at Dept. of Physics and Astronomy, College of Science, King Saud University, Riyadh, Saudi Arabia.

7. 2/2018 – 9/2022: Member of Postgraduate and Research Committee at Dept. of Physics and Astronomy, College of Science, King Saud University, Riyadh, Saudi Arabia.

8. 2/2018 – present: Coordinator of the Statistics Committee at Dept. of Physics and Astronomy, College of Science, King Saud University, Riyadh, Saudi Arabia.

9. 2/2016 – 9/2022: Member of Laboratories and Safety Committee at Dept. of Physics and Astronomy, College of Science, King Saud University, Riyadh, Saudi Arabia.

10. 1/2016 – 9/2019: Assistant professor at Dept. of Physics and Astronomy, College of Science, King Saud University, Riyadh, Saudi Arabia.

11. 12/2014: Assistant professor at Dept. of Physics, Faculty of Science, Sana'a University, Sana'a, Yemen.

12. 8/2014-12/2015: Assistant professor at Faculty of Engineering, University of Science & Technology, Sana’a, Yemen.

13. 8/2013 – 8/2014: Post-doctoral, School of Applied Physics, Faculty of Science and Technology, Universiti Kebangsaan Malaysia (UKM), Malaysia.

14. 2/2011-5/2013: Research Assistant, School of Applied Physics, Faculty of Science and Technology, Universiti Kebangsaan Malaysia (UKM), Malaysia.

15. 10/2005 – 6/2009: demonstrator in Physics labs (during my study in KSU) at Dept. of Physics, College of Science, King Saud University, Riyadh, Saudi Arabia.

16. 12/2002 – 6/2005: Instructor in Physics labs at Dept. of Physics, Faculty of Science, Sana'a University, Sana 'a, Yemen.

17. 10/2002 – 9/2005 : Assistant lecturer (General Physics for engineering, Statics, & Dynamics) at Faculty of Science and Engineering, University of Science & Technology, Sana’a, Yemen.

Community services

- 15/3/2022 – 30/11/2022: Guest Editor for special Issue in ***Crystals*** (Q2, IF: 2.589) https://www.mdpi.com/journal/crystals/special_issues/Polymer_Metal_Oxide_Nanocomposite_Optoelectronic
- During the period 2016-2024, I have participated as peer reviewer for a lot of manuscripts in 14 ISI journals, namely: materials (MDPI), energies (MDPI), molecules (MDPI), electronics (MDPI), Journal alloys and compounds (Science direct), Heliyon (Science direct), Chemical Physics Letters (Science direct), Journal of Magnetism and Magnetic Materials (Science direct), Polymer Testing (Science direct), Next Nanotechnology (Science direct), Materials Science in Semiconductor Processing (Science direct), Physica Scripta (IOP), ACS Applied Nano Materials (American Chemical Society), and ACS Omega (American Chemical Society).
- Participate as a member of the Graduate Projects Evaluation Committee at Dept. of Physics and Astronomy, College of Science, King Saud University, Riyadh, Saudi Arabia: Until now, more than 35 graduation projects were evaluated and supervised.

Teaching courses

- Thermodynamics, Modern Physics, Atomic Physics, General Physics (I), General Physics (II), Wave Physics Lab, Classical Mechanics, Statics & Dynamics, Thesis Proposal Preparation, M.Sc. Thesis, ….etc.

Awards

- One Scientist in Stanford's list of top 2% most-cited scientists in the word, announced on 10th October 2022. https://elsevier.digitalcommonsdata.com/datasets/btchxktzyw/4
- Best presenter award in 11th Postgraduate Colloquium at the Faculty of Science and Technology. 6-7 July 2011, Malaysia.
- Full PhD scholarship in Applied Physics, at Faculty of Science and Technology, Universiti Kebangsaan Malaysia (UKM), Malaysia, 9/2010.
- Full MSc scholarship in Physics at College of Science, King Saud University, Riyadh, Saudi Arabia, 9/2005.
- Excellence Award in Teaching Performance for the Academic Year 2004/2005, Faculty of Science and Engineering, University of Science & Technology, Sana'a, Yemen.
- Excellence Award in Teaching Performance for the Academic Year 2002/2003, Faculty of Science and Engineering, University of Science & Technology, Sana'a, Yemen.
- The highest-ranking student in BSc degree in Physical & Chemical Science at Faculty of Science, Damascus University, Syria 2002.

- Full BSc scholarship in Physical & Chemical Science at Faculty of Science, Damascus University, Syria, 9/1998.

RESEARCH BUCKGROUND

My main research interests include:

- Preparation of nanocomposite thin films: metal oxides nanostructures, polymer/metal oxide, polymer/perovskite,…..etc.
- Investigation of energy transfer in donor/acceptor systems
- Fabrication and characterization of optoelectronic devices like OLEDs and solar cells
- Investigation of photophysical & optoelectronic properties of nanocomposite thin films
- Laser emission…etc.

Selected Publications

1. Ahmad S., Khan M.B., Yadav P., **Al-Asbahi B.A.**, Kumar K.D., Khan Z.H. **2024**. Rapid PL enhancement in Cd doped Alq_3 nanowires. ***Physica B: Condensed Matter***. 11:415675

2. Ijaz M., Hafeez U., **Al-Asbahi B.A.**, Khan M.U., Abbas Z., Asif S.U. **202**4. Co-precipitation method followed by ultrafast sonochemical synthesis of aluminium doped M type $BaFe_{11.4-x}Al_xCo_{0.6}O_{19}$ hexaferrites for various applications. ***Journal of Magnetism and Magnetic Materials.*** 589: 171559.

3. **Al-Asbahi B.A. 2023**. Tailoring optoelectronic properties of ZnO nanoparticles via incorporation of Multiwalled Carbon Nanotube Contents on of ZnO/MWCNT nanocomposites. ***ECS Journal of Solid State Science and Technology***. 12:121002.

4. **Al-Asbahi B. A. 2023**. Studying the Optoelectronic Properties and Emission Quenching Dynamics of Poly-TPD by Incorporating ZnO Nanoparticles and Multiwalled Carbon Nanotubes. ***Journal of Applied Polymer Science.*** 141(5):e54882.

5. **Al-Asbahi B. A. 2023**. Hybrid of conjugated polymers with incorporation of metal oxide nanocomposites for improving optoelectronic properties. ***Physica Status Solidi A: Applications and Materials Science.*** 220:12.

6. **Al-Asbahi B. A. 2023**. Charge Transfer Investigation in the Nanocomposite of ZnO Nanoparticles Modified by Multiwalled Carbon Nanotube. ***Journal of Inorganic and Organometallic Polymers and Materials***. 22:1-9.

7. **Al-Asbahi B. A. 2023**. Effect of Multiwalled Carbon Nanotube Contents on photophysical Properties of Poly-TPD/MWCNT nanocomposites. ***Journal of Inorganic and Organometallic Polymers and Materials***. 33: 2552-2561.

8. **Al-Asbahi B. A. 2023**. Förster Resonance Energy Transfer Characterization in hybrid of Poly-TPD/MDMO-PPV-DMP. ***Physica Scripta***. 98: 095908.

9. **Al-Asbahi B. A.,** Arwa A. Alanezi, Nassar N Asemi, Qaid S.M.H., AlSalhi M. S. **2023**. Influence of ZnO/TiO_2 nanocomposite on optical and structural properties of OC1C10–PPV–DMP thin film. ***Physica Scripta***. 98: 065927.

10. **Al-Asbahi B. A.**, El-Shamy A.G. **2023**. The thermoelectric power function of new composite Poly (3,4-ethylenedioxythiophene):poly(styrene sulfonate)/carbonyl iron films: A new exploration. ***Synthetic Metals.*** 293: 117280.

11. **Al-Asbahi B. A.**, Qaid S.M.H., Ahmed A. A. A., El-Shamy A.G. **2023**. Smart electromagnetic interference shields based on flexible PEDOT:PSS/Bi_2Te_3 films. ***Materials Chemistry and Physics.*** 293:126922.

12. Mandal G., Choudhary R.B., **Al-Asbahi B.A**., Ahmed A.A. **2023**. WS_2 incorporated PANI-rGO nanocomposites tailored for inflated thermal, optical and electrical properties used as ETL for OLEDs. ***Optical Materials***. 146: 114379.

13. Nayak D., Choudhary R.B., **Al-Asbahi B.A**., Ahmed A.A. **2023**. Synergistic influence of FRET on high quantum yield π- conjugate Polycarbazole-ZnS composite thin film. ***ACS Omega***. 8: 45369-45383.

14. Sreekanth, T.V.M., Babu, P.S., **Al-Asbahi, B.A.**, Reddy, V.R.M. and Kim, W.K., **2023**. Well-integrated bismuth trioxide nanotriangles on carbon cloth as a flexible faradic electrode for supercapacitor applications. ***Diamond and Related Materials.*** 139: 110406.

15. Kumar A., Sujith M, Valarmathi K., Kumar R., **Al-Asbahi B. A.,** Ahmed A. **2023**. Double absorber CZTS/Sb2Se3 Architecture for high-efficiency Solar Cell Devices. ***Physica Status Solidi A: Applications and Materials Science***. 220:11.

16. Prabu R. T., Malathi S. R., Kumar A., **Al-Asbahi B. A.,** Laref A. **2023**. Bandgap Assessment of Compositional Variation for Uncovering High-Efficiency Improved Stability All Inorganic Lead-Free Perovskite Solar Cell. ***Physica Status Solidi A: Applications and Materials Science.*** 220:2200791.

17. Rosaiah P., Divya P., Prakash N. G., Dhananjaya M. ,Sambasivam S., **Al -Asbahi B. A.**, Dadamiah P.M.D. , Tae J. K. **2023**. Ultra -long MnO_2 nanowire -entrenched reduced graphene oxide composite electrodes for energy storage. ***Diamond & Related Materials.*** 133: 109709.

18. **Al-Asbahi B. A. 2022.** Tuning photophysical properties of PFO conjugated polymer for enhancing polymer light emitting diode performance via addition of SiO_2@TiO_2 nanocomposite. ***Journal of Molecular Structure***. 1261: 132946.

19. **Al-Asbahi B. A. 2022.** Tuning photophysical properties of ZnO/TiO_2 nanocomposite thin films by controlling anatase titania content. ***ECS Journal of Solid State Science and Technology***. 11: 043008.

20. **Al-Asbahi B. A.,** Arwa A. Alanezi, M. S. AlSalhi. **2022.** Photophysical Characteristics of Multicolor Emitting MDMO-PPV–DMP/ZnO Hybrid Nanocomposites. ***molecules***. 27: 843.

21. **Al-Asbahi B. A.,** Arwa A. Alanezi, M. S. AlSalhi. **2022.** Enhancing photophysical properties of MDMO-PPV–DMP conjugated polymer via incorporation anatase titania nanoparticles. ***Journal of Inorganic and Organometallic Polymers and Materials***. 32**:** 3556-3563.

22. **Al-Asbahi B. A.,** Abdelkaderb M., Alkashef M., A. A. A. Ahmed, El-Shamy A.G. **2022.** Embedding Of Zinc Peroxide (ZnO_2) Nano-particles into PEDOT: PSS for fabricating a new PEDOT: PSS/ZnO_2 system with Promising Thermoelectric Functions. ***Materials Science in Semiconductor Processing.*** 146:106678.

23. **Al-Asbahi B. A.,** M. S. AlSalhi**,** Amanullah Fatehmulla, Hj Jumali M. H., Saif M.H. Qaid**,** W. M. Mujamammi, Hamid M. Ghaithan. **2022.** Conjugated polymers-based ternary hybrid toward unique photophysical properties. ***Molecules***. 27:7011.

24. Y. A. Kumar, A. A. Yadav, **Al-Asbahi B. A.,** Seok-Won Kang, Md. Moniruzzaman. **2022.** Interfacial engineering of sulfur nanoparticle-decorated nickel cobalt sulfide hetero-nanostructures with enhanced energy storage for high-performance supercapacitors. ***Molecules.*** 27: 7458.

25. Mola B. A., Pallavolu, M. R., **Al-Asbahi B. A.**, Noh Y., Jilcha S. K., Kumar Y. A. **2022.** Design and construction of hierarchical $MnFe_2Ce_4$@$MnNiCe_4$ nanosheets on Ni foam as an advanced electrode for battery-type supercapacitor applications. ***Journal of Energy Storage***. 51:104542.

26. Kumar Y. A., **Al-Asbahi B. A.**, Pallavolu, M. R., et. al. **2022.** Multiple structural defects in poor-crystalline Nickel-doped tungsten disulfide nanorods synergistically and remarkably enhance supercapacitor performance. ***International Journal of Energy Research.*** 1-13.

27. Saif M.H.Q.**,** Hamid M. G., **Al-Asbahi B. A.,** Al-Dwayyan A. S. **2022.** Solvent Effects on the Structural and Optical Properties of $MAPbI_3$ Perovskite Thin Film for Photovoltaic Active Layer. ***Coatings***. 12:549.

28. Salem A. S. Qaid, M. A. A. Issa, A. M. Hassib, **Al-Asbahi B. A.**, E. M. Abuassaj, Ahmed A. A. A. **2022.** A novel method for improving the microstructure and electrical properties of Pr_6O_{11}-based ZnO varistor. ***Journal of the Korean Ceramic Society*.** 59: 796–802.

29. Salem A. S. Qaid, M. A. A. Issa, A. M. Hassib, **Al-Asbahi B. A.**, E. M. Abuassaj, Ahmed A. A. A. **2022.** The Effect of Sintering conditions on the Superconducting Properties of Melanin Doped MgB_2. ***Journal of Magnetism and Magnetic Materials***. 552:169213.

30. Al-Hada N.M., Kasmani R., Kasim H., Al-Ghaili A.M., Saleh M. A., **Al-Asbahi B. A.,** et. al. **2022**. Up-scalable synthesis of size-controlled NiSe nanoparticles using single step technique. ***Journal of Materials Research and Technology***. 18: 4918-4929.

31. Saif M.H. Qaid**,** Hamid M. Ghaithan, Khulod K AlHarbi, Abrar F. Bin Ajaj, **Al-Asbahi B. A.,** Al-Dwayyan A. S. **2022.** Investigation of Threshold Carrier Densities in Optically Pumped Amplified Spontaneous Emission of Formamidinium Lead Bromide Perovskite Using Different Excitation Wavelengths. ***Photonics.*** 9:4**.**

32. Ghaithan H. M.**,** Saif M.H. Qaid, Khulod K AlHarbi, Abrar F. Bin Ajaj, **Al-Asbahi B. A.,** Al-Dwayyan A. S. **2022.** Amplified Spontaneous Emission from Thermally Evaporated High Quality Thin Films of $CsPb(Br_{1-x}Y_x)_3$ (Y=I, Cl) Perovskites. ***Langmuir.*** 38(28): 8607–8613.

33. Albati S., Ibtehaj K., Alqallab O. N., Poh Choon Ooi, **Al-Asbahi B., A.,** Ahmed A. A. A, Hj Jumali M. H. **2022.** Effect of Solvent on Optical Properties and Surface Topography of Nanocomposite Conjugated Polymer Thin Film. ***ECS Journal of Solid State Science and Technology***. 11: 056002.

34. **Al-Asbahi B. A.,** M. S. AlSalhi**,** Amanullah Fatehmulla, Hj Jumali M. H., Saif M.H. Qaid**,** W. M. Mujamammi, Hamid M. Ghaithan. **2021.** Controlling the Emission Spectrum of Binary Emitting Polymer Hybrids by a Systematic Doping Strategy via Förster Resonance Energy Transfer for White Emission. ***micromachines***. 12:1371.

35. **Al-Asbahi B. A.**, Qaid S.M.H., El-Shamy A.G. **2021**. Flexible Conductive Nanocomposite PEDOT:PSS/Te Nanorod Films for Superior Electromagnetic Interference (EMI) Shielding: A New Exploration. ***Journal of Industrial and Engineering Chemistry.*** 100: 233-247.

36. **Al-Asbahi B. A.,** Saif M.H. Qaid**,** Hamid M. Ghaithan, Arwa A. Alanezi. **2021.** Influence of SiO_2/TiO_2 Nanocomposite on Dual Resonance Förster Energy Transfer in Ternary Hybrid Thin-Films. ***Results in Physics***. 24:104142.

37. **Al-Asbahi B. A. 2021.** Dual Förster resonance energy transfer in ternary PFO/MEH-PPV/F7GA hybrid thin films for white organic light-emitting diodes. ***Dyes and Pigments***. 186:109011.

38. **Al-Asbahi B. A.,** Saif M.H. Qaid**,** Hamid M. Ghaithan, W.A. Farooq. **2021.** Enhancing the Optical and Optoelectronic Properties of MEH-PPV-Based Light-Emitting Diodes by Adding SiO_2/TiO_2 Nanocomposites. ***Journal of Non-Crystalline Solids***. 552:120429.

39. **Al-Asbahi B. A.,** Hj Jumali M. H., M. S. AlSalhi**,** Saif M.H. Qaid**,** Amanullah Fatehmulla, W. M. Mujamammi, Hamid M. Ghaithan. **2021.** Tuning Photophysical Properties of Donor/Acceptor Hybrid Thin- Film via Addition of SiO_2/TiO_2 Nanocomposites. ***polymers***. 13:611.

40. A. A. A. Ahmed, A. A. Al-Mushki, **Al-Asbahi B. A.,** et. al. **2021.** Effect of ethylene glycol concentration on the structural and optical properties of multi metal oxide CdO-NiO-Fe_2O_3 nanocomposites for antibacterial activities. ***Journal of Physics and Chemistry of Solids***. 155:110113.

41. Albati S., Hj Jumali M. H., Ibtehaj K., **Al-Asbahi B. A. 2021.** Förster Energy Transfer Mechanism and Color Tunability in Three Binary Conjugated Polymer Blends. ***Optical Materials***. 116:111085.

42. Saif M.H. Qaid**,** Hamid M. Ghaithan, **Al-Asbahi B. A.,** Al-Dwayyan A. S. **2021.** Tuning of Amplified Spontaneous Emission Wavelength for Green and Blue Light Emission Through the Tunable Composition of $CsPb(Br1\text{-}xClx)_3$ Inorganic Perovskite Quantum Dots. ***The Journal of Physical Chemistry C***. 125: 9441−9452.

43. Al-Hada N. M., Kasmani R., Kasim H., […], **Al-Asbahi B. A.,** and Wang J. **2021**. The Effect of Precursor Concentration on the Particle Size, Crystal Size, and Optical Energy Gap of $Ce_xSn_{1-x}O_2$ Nanofabrication. ***Nanomaterials***. 11: 2143.

44. A. A. A. Ahmed, A. A. Al-Mushki, **Al-Asbahi B. A.,** et. al. **2021.** Improvement of the optical properties of Cadmium Sulfide (CdS) thin films using dual doping (Ag and Co) for Solar Application. ***Optik***. 246:167824.

45. Albati S., Hj Jumali M. H., Ibtehaj K., **Al-Asbahi B. A. 2021.** Effect of TiO_2 nanoparticles on energy transfer mechanism in ternary nanocomposite conjugated polymer blend. ***Optik***. 245: 167718.

46. Saif M.H. Qaid**,** Hamid M. Ghaithan, Khulod K AlHarbi, **Al-Asbahi B. A.,** Al-Dwayyan A. S. **2021.** Enhancement of Light Amplification of CsPbBr3 Perovskite Quantum Dot Films via Surface Encapsulation by PMMA Polymer. ***polymers.*** 13: 2574.

47. Saif M.H. Qaid**, Al-Asbahi B. A.,** Hamid M. Ghaithan, Al-Dwayyan A. S. **2021.** Tuning the optical properties of MEH–PPV/PFO hybrid thin-films via the incorporation of CsPbBr3 quantum dots. ***Coating.*** 11:154.

48. Saif M.H. Qaid**,** Hamid M. Ghaithan, **Al-Asbahi B. A.,** Al-Dwayyan A. S. **2021.** Achieving Optical Gain of the CsPbBr3 Perovskite Quantum Dots and Influence of the Variable Stripe Length Method. ***ACS Omega.*** 6,8: 5297–5309.

49. Saif M.H. Qaid**,** Hamid M. Ghaithan, **Al-Asbahi B. A.,** Al-Dwayyan A. S. **2021.** Investigation of the Surface Passivation Effect on the Optical Properties of CsPbBr3 Perovskite Quantum Dots. ***Journal*** **Surfaces and Interfaces.** 23: 100948.

50. **Al-Asbahi B. A.,** Saif M.H. Qaid**,** Al-Dwayyan A. S. **2020.** Effect of donor-acceptor concentration ratios on non-radiative energy transfer in Zero-dimensional Cs_4PbBr_6 perovskite /MEH-PPV nanocomposite thin films. ***polymers***. 12:444.

51. **Al-Asbahi B. A.** Saif M.H. Qaid**,** Mahmoud Hezam, Idriss Bedja, Hamid M. Ghaithan Al-Dwayyan, A. S. **2020.** Effect of Deposition Method on the Structural and Optical Properties of $CH_3NH_3PbI_3$ Perovskite Thin Films. ***Optical Materials***. 103:109836.

52. **Al-Asbahi B. A.,** Saif M.H. Qaid**,** Hamid M. Ghaithan, Al-Dwayyan A. S.**2020.** Triplet Energy Transfer Mechanism of Ternary Organic Hybrid Thin Films of PFO/MEH-PPV/$CsPbBr_3$ Perovskite Quantum Dots. ***Nanomaterials***. 10:2094.

53. Saif M.H. Qaid**,** Hamid M. Ghaithan, **Al-Asbahi B. A.,** Al-Dwayyan A. S. **2020.** Ultra-stable Polycrystalline CsPbBr3 Perovskite–Polymer Composite Thin Disk for Light-emitting Applications. ***Nanomaterials***. 10:2382.

54. Saif M.H. Qaid**,** Hamid M. Ghaithan, **Al-Asbahi B. A.,** Abdulaziz Alqasem, Al-Dwayyan A. S. **2020.** Fabrication of Thin Films from Powdered Cesium Lead Bromide (CsPbBr3) Perovskite Quantum Dots for Coherent Green Light Emission. ***ACS Omega.*** 5, 46**:**30111–30122.

55. Saif M.H. Qaid**,** Hamid M. Ghaithan, **Al-Asbahi B. A.,** Al-Dwayyan A. S. **2020.** Single-Source Thermal Evaporation Growth and the Tuning Surface Passivation Layer Thickness Effect in Enhanced Amplified Spontaneous Emission Properties of $CsPb(Br_{0.5}Cl_{0.5})_3$ Perovskite Films. ***Polymers***. 12**:** 2953.

56. Albati S., Hj Jumali M. H., **Al-Asbahi B. A.,** Ibtehaj K., Yap C. C., Saif M.H. Qaid, Hamid M. Ghaithan, W.A. Farooq. **2020.** Improving Photophysical Properties of White Emitting Ternary Conjugated Polymer Blend Thin Film via Additions of TiO2 Nanoparticles. ***Polymers***. 12**:** 2154.

57. Albati S., Hj Jumali M. H., **Al-Asbahi B. A.** Saif M. H. Qaid, Yap C. C. **2020.** Photophysical properties and energy transfer mechanism in PFO/TiO_2/MEH-PPV nanocomposite thin films. ***Sains Malaysiana***. 49(11)**:**2801-2809.

58. M. Hafeez, **Al-Asbahi B. A.** et. al. **2020.** Critical role of defect states on visible luminescence from ZnS nanostructures doped with Au, Mn and Ga. ***Materials Science in Semiconductor Processing***. 117:105193.

59. Saif M.H. Qaid**, Al-Asbahi B. A.,** Hamid M. Ghaithan, AlSalhi M. S., Al-Dwayyan A. S. **2020.** Optical and structural properties of $CsPbBr_3$ perovskite quantum dots/PFO polymer composite thin films. ***Journal of Colloid and Interface Science.*** 563:426–434.

60. Fuzi S. A., Hj. Jumali M. H., **Al-Asbahi B. A.,** Saif M.H. **2019.** Photophysical and energy transfer mechanism studies of PFO/F7GA/MEH-PPV ternary organic blend films. ***Thin Solid Films***. 683: 90-96.

61. **Al-Asbahi B. A.,** Saif M.H. Qaid**,** Hj. Jumali M. H, AlSalhi, M. S., Al-Dwayyan, A. S. **2019.** Long-range dipole–dipole energy transfer enhancement via addition of SiO_2/TiO_2 nanocomposite in PFO/MEH-PPV hybrid thin films. ***Journal of Applied Polymer Science***. 47845: 1-11.

62. **Al-Asbahi B. A. 2018.** Influence of SiO_2/TiO_2 Nanocomposite on the Optoelectronic Properties of PFO/MEH-PPV-Based OLED Devices. ***Polymers***. *10(7)800.*

63. **Al-Asbahi B. A. 2017**. Energy transfer mechanism and optoelectronic properties of (PFO/ TiO2)/Fluorol 7GA nanocomposite thin films. ***Optical Materials***. 72: 644-649.

64. Fuzi S. A., Haji Jumali M. H., **Al-Asbahi B. A.,** Kok. K. Y.& Saidin, N. U. **2017.** Photoluminescence study of Poly (9,9-di-n-octylfluorenyl-2,7-diyl)/Flourol7GA/ Poly[2-methoxy-5-(2-ethylhexyloxy)-1,4-phenylenevinylene] blends. ***AIP Publishing***. *1838: 020021.*

65. Fuzi S. A., Haji Jumali M. H., **Al-Asbahi B. A.,** Kok. K. Y.& Saidin, N. U. **2017.** Modification of Optophysical Properties of Poly[(9,9-Di-N-Octylfluorenyl-2,7-Diyl)- Alt-(Benzo[2,1,3]Thiadiazol-4,8-Diyl)] Thin Film via Additions of TiO_2 Nanoparticles. ***Materials Science Forum***. *888:357-361.*

66. Abumosa R. A., **Al-Asbahi B. A.** & AlSalhi M. S. **2017.** Optical properties and amplified spontaneous emission of novel MDMO-PPV/C500 hybrid. ***Polymers***. 9(2)71.

67. **Al-Asbahi B. A. 2017.** Influence of anatase titania nanoparticles content on optical and structural properties of amorphous silica. ***Materials Research Bulletin***. 89: 286-291.

68. **Al-Asbahi B. A.**, Haji Jumali M. H. & AlSalhi M. S. **2016.** Enhanced Optoelectronic Properties of PFO/Fluorol 7GA Hybrid Light Emitting Diodes via Additions of TiO_2 Nanoparticles. ***Polymers***. 8: 334-343.

69. Fuzi S. A. A., Jumali M. H. H., & **Al-Asbahi B. A. A. 2015.** Enhanced optophysical properties of poly [(9, 9-di-n-octylfluorenyl-2, 7-diyl)-alt-(benzo [2, 1, 3] thiadiazol-4, 8-diyl)] via addition of TiO_2 nanoparticles. **AIP Publishing**. 1678: 040009.

70. **Al-Asbahi B. A.,** Haji Jumali, M. H. & Al-Gaashani, R. **2014**. Efficient Charge Transfer in Polyfluorene/ZnO Nanorods Composite Thin Films. ***Journal of Nanomaterials***. 2014:87-95.

71. **Al-Asbahi B. A.** and Haji Jumali M. H. **2014**. Enhancement optical properties of poly(9,9'-di-n-octylfluorenyl-2.7-diyl) in conjugated polymer/TiO_2 nanocomposites**.** ***Canadian Journal of Physics***. 92: 1021-1025.

72. **Al-Asbahi B. A.,** Haji Jumali M. H., Yap, C. C. & Salleh, M. M. **2013**. Enhancement of Poly (9,9'-di-n-octylfluorenyl-2.7-diyl) Optoelectronic Properties in Novel Conjugated Polymer/Laser Dye Hybrid OLEDs. ***Materials Science Forum.*** 756:281-288.

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Research grands:

1 **Principle investigator in the research group No.:** RG-1440-037
Approval date: Dec-2018
Agency: Deanship of Scientific Research at King Saud University
Title: Nanocomposite thin films and OLED devices

2 **Co. Investigator in the research group No.:** RG-1440-038
Approval date: Dec-2018
Agency: Deanship of Scientific Research at King Saud University
Title: Photonics Studies

3 **Principle investigator in the project No.:** 2-17-01-001-0037
Approval date: June-2020
Agency: The National Plan for Science, Technology and Innovation
Title: Enhancement of Photophysical and Optoelectronic properties of PFO/MDMO-PPV/MEH-PPV)/(SiO_2/TiO_2) Nanocomposite Thin Films for unique Performance White Organic Light Emitting Diode.

4 **Co. Investigator in the project No.:** 15-ELE3793-02
Approval date: May-2020
Agency: The National Plan for Science, Technology and Innovation
Title: Fabrication of Perovskites-Based Coherent Light Source.

5 **Principle investigator in the project No.:** RSP-2021/348
Approval date: June-2021
Agency: Researchers Supporting Project, Deanship of Scientific Research at King Saud University.
Title: Physical properties of nanocomposite materials and their application.

6 **Principle investigator**
Approval date: Sep-2023
Agency: King Abdullah City for Atomic and Renewable Energy (K.A.CARE) Collaboration Program with King Saud University.
Title: The fabrication of hierarchical nanostructure for use in high-performance energy storage applications.