

## Curriculum Vitae

**Sabah M. Mohammad, Ph.D**

**Senior Lecturer**

**Institute of Nano Optoelectronics Research and Technology  
(INOR), Universiti Sains Malaysia (USM)**

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## Personal Information

**Full Name:** Sabah M. Mohammad

**Present Position :** Senior Lecturer

Institute of Nano Optoelectronics Research and Technology (INOR),  
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Universiti Sains Malaysia, 11800 USM, Penang, Malaysia.

**Researcher ID:** F-4514-2019

**Scopus Author ID:** 56090950300

**Google Scholar:** <https://scholar.google.com/citations?user=7JLwuLsAAAAJ&hl=en>

**ResearchGate:** [https://www.researchgate.net/profile/Sabah\\_Mohammad](https://www.researchgate.net/profile/Sabah_Mohammad)

**ORCID** <https://orcid.org/0000-0002-7691-0508>

## Education

**Ph.D. Universiti Sains Malaysia (USM), Malaysia. (2017)**

Research area: Applied and Engineering Physics.

Field: Semiconductor Fabrication (Thin Film, Epitaxy, and Nano-Structures)

Title of thesis: Growth of ZnO Nanorods Using Hydrothermal and Modified  
Chemical Bath Deposition for Device Applications.

**Master Universiti Sains Malaysia (USM), Malaysia. (2013)**

Programme Mode: coursework

Master of Physics-solid state

Title of project: Metal Semiconductor Metal Photodetector

**Grade: 3.10**

**Bachelor Salahaddin University (SUI), Iraq. (1991)**

Bachelor's Degree of Science (Physics)

Ranked as the 9th top student out of 60.

## Work Experience

➤ **Senior Lecturer**                      **October/2018 – now**

Institute of Nano Optoelectronics Research and Technology (INOR), Universiti Sains Malaysia (USM).

➤ **Teaching Fellow**                      **Year: 15/02/2018-30/10/2018**

Institute of Nano Optoelectronics Research and Technology (INOR), Universiti Sains Malaysia (USM).

➤ **Researcher**                                **Year: 2013-2017**

Graduate research assistant (GRA) attached to the school of physics/USM/Pinang/Malaysia.

➤ **Researcher**                                **1993-1999**

Department head of the research group for the elector-glass department at Atomic Energy Commission, Iraq.

## CURRENT RESEARCH

- 1) Preparation and characterization of 1D, 2D and 3D semiconductor materials and metal nanoparticles such as GaN, ZnO, and other metal oxides.
- 2) Fabrication and characterization of optoelectronic and electronic devices such as LEDs, Solar cells, Photodetectors, gas sensors and other sensors based on nanostructures wide band gap semiconductor materials.
- 3) Synthesising and characterization of metal/metal oxides nanoparticles composite and their Composite nanostructures for sensing and optoelectronic device applications.
- 4) Fabrication and characterizations of porous semiconductors materials for application in optoelectronic and electronic devices.
- 5) Fabrication of hybrid organic/nanoparticles/inorganic optoelectronic devices.
- 6) Wide band-gap semiconductor nanomaterial synthesis using modified low-cost methods.

## Biography

Currently, Sabah M. Mohammad is a Senior Lecturer at the Institute of Nano Optoelectronics Research and Technology (INOR), Universiti Sains Malaysia (USM). During 2018, he worked as a Teaching fellow at Malaysia's INOR-Universiti Sains (USM). He has contributed to the Institute of Nano Optoelectronics Research and Technology's (INOR) development since its inception, and he continues to do so. He specialises in the preparation and characterization of 1D, 2D, and 3D semiconductor materials and metal nanoparticles, such as GaN, ZnO, and other metal oxides, for use in optoelectronic and electronic devices, as well as the fabrication and characterization of optoelectronic and electronic devices such as LEDs, Solar cells, Photodetectors, Gas sensors and other sensors based on nanostructures wide bandgap semiconductor materials. He is also a member of the Malaysian Solid State Science and Technology Society (MASS), OSA Membership, Advancing Optics and Photonics Worldwide, alumni Membership of Universiti Sains Malaysia (USM), and the Iraqi Society of Physics and Mathematics as well. Additionally, he has authored over 50 academic papers related to his research area. From 1993 to 1999, he served as department head of the research group for the electro-glass department at the Iraqi Atomic Energy Commission. Latter from 2001-2010. He worked as a Graduate Research Assistant (GRA) at the school of physics, USM, Malaysia, as part of his Ph.D. studies. His responsibility was to instruct undergraduate and graduate students on their project dissertations and research papers. In 1991, he graduated with A Bachelor of Science in Physics (BSc) from the school of physics at Salahaddin University in Iraq (SUI). In 2013, he obtained a degree (MSc) in solid-state at the school of physics, USM, through a coursework-based programme, with the title of his project being "Metal-Semiconductor-Metal photodetector." He completed his Ph.D. Degree in 2017, at the school of physics, USM. His doctorate was in the solid-state with the research area of "Applied and engineering physics", [Semiconductor of fabrication (thin Film, Epitaxy and Nano-Structured)]. The title of his thesis was "Growth of ZnO Nanorods Using Hydrothermal and Modified Chemical Deposition for Devices Applications". He believes that one of his most important career goals is to contribute all of his skills, knowledge, and professional experience in the field of modern solid-state physics and nanotechnology to the academic and research goals of the university, and to develop laboratories for teaching students how to learn most effectively so that they can relate learning to their world, thereby fostering the development of student's creative abilities and skills.

**List of Research Grants (PI: Principal Investigator; CR: CO-Researcher)**

No.	Year	Description (Pi, list of Co-I, grant title, amount, duration.	Category	Level	Status
1	2021	<b>Sabah M. Mohammad</b> , Mundzir Bin Abdullah, Naser Mahmoud Ahmed, Quah Hock Jin, Zainuriah Binti Hassan, Using Ultra-Long ZnO NRs-Metal Nanoparticles/GaN Hybrid Heterostructure to Improve the Performance of Optoelectronic Devices, RM42,062.00, 01/01/2021-31/12/2022	USM (Short Term)	University	Active
2	2021	<b>Sabah M. Mohammad</b> , Mundzir Bin Abdullah, Zainuriah Binti Hassan, Modify (Dhs-Mcbd) Method Of Fabricate High Aspect-Ratio Of Inorganic Oxides Materials, RM 20,297.00, 01/01/2021-31/12/2022	External Agencies	International (Japan)	Active
3	2019	<b>Sabah M. Mohammad</b> , Suvindraj A/L Rajamanickam , Fabrication of Self-Powered Ultraviolet Detectors Based on Wide Bandgap Semiconductor, RM22,900.00, 15/06/2019-31/10/2020	Bridging	University	Completed (Achieve KPIs)
4	2021	Quah Hock Jin, Lim Way Foong, <b>Sabah M. Mohammad</b> , Zainovia Binti Lockman, Zainuriah Binti Hassan, Preparation and Characterization of Solution Processed Ce-doped Ga <sub>2</sub> O <sub>3</sub> Passivation Layer for MOS-Based Device, RM37,999.00, 01/01/2021-31/12/2022	USM (Short Term)	University	Active
5	2019	Mundzir Bin Abdullah, GANESAN A/L KRISHNAN , Naser Mahmoud Ahmed, NUR ATHIRAH MOHD TAIB , <b>Sabah M. Mohammad</b> , Zainuriah Binti Hassan, Mechanism Of Optical Limiting Action Based On Inorganic-Organic Hybrid Perovskite Under Continuous Laser Irradiation, RM133,000.00, 01/09/2019-31/05/2023	Fundamental Research Grant Scheme	National	Active
6	2021	Mohd Zamir Bin Pakhuruddin, Faezah Binti Jasman, Lim Way Foong, Mohd Anas Bin Ahmad, Mohd Syamsul Nasyriq Bin Samsol Baharin, Mundzir Bin Abdullah, Ng Sha Shiong, Norzaini Zainal, Nur Atiqah Binti Hamzah, Quah Hock Jin, Rahil Izzati Binti Mohd Asri, <b>Sabah M. Mohammad</b> , GAN-ON-Gan Light Emitting Diodes (LEDs), RM620,200.00, 01/07/2021-31/12/2022	External Agencies	Industry	Active
7	2021	Mundzir Bin Abdullah, GANESAN KRISHNAN , <b>Sabah M. Mohammad</b> , Zainuriah Binti Hassan, Local-field	USM (Short Term)	University	Active

		Correction to the Nonlinear Optical Susceptibility of Dye-Incorporated Nanocomposite Materials Under Intense Laser Irradiation, RM44,620.00, 01/03/2021-28/02/2023			
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## List of Scientific Articles and Patent

Note: All articles are available at:

Google scholar: **Sabah M. Mohammad**

Web: <https://scholar.google.com/citations?user=7JLwuLsAAAAJ&hl=en>

ResearchGate: **Sabah M. Mohammad**

Web: [https://www.researchgate.net/profile/Sabah\\_Mohammad](https://www.researchgate.net/profile/Sabah_Mohammad)

### I. Patent

a) (2020) In the process as an international patent (Status: under review)

Filing Date: 31 March 2017.

PCT International Patent Application Number: PCT/MY2017/050013

Title: “*Direct heat substrate-modified chemical bath deposition system for growth of ultra long zinc oxide (ZnO) Nanorods and process for fabrication of a nano-size junction LED*”. Zainuriah Hassan, **Sabah M. Mohammad**, Naser Mahmoud Ahmed. Filing Date: 31 March 2017. <https://patents.google.com/patent/WO2017222364A1/en>

b) Malaysian Patent

Filing Date: 22 June 2016, MyIPO Application Number: PI 2016702309

Title: *Direct heat substrate-modified chemical bath deposition system for growth of ultra long zinc oxide (ZnO) Nanorods and process for fabrication of a nano-size junction LED*. Zainuriah Hassan, Sabah M. Mohammad, Naser Mahmoud Ahmed

Available at:

[http://ipjournal.myipo.gov.my/ipjournal/index.cfm?pg=publication/18month\\_details&id=12&year=2017&page=6](http://ipjournal.myipo.gov.my/ipjournal/index.cfm?pg=publication/18month_details&id=12&year=2017&page=6)

### II. Scientific Articles

1. A Muhammad, Z Hassan, **Sabah M Mohammad**, Suvindraj Rajamanickam, Ibrahim Garba Shitu, “Effect of trisodium citrate on morphological, structural, and optical properties of fluorine-doped ZnO structures” *Ceramics International*, <https://doi.org/10.1016/j.ceramint.2022.01.221>, (2022), [ISI], [Q1, IF= 5.532].
2. A Muhammad, Z Hassan, **Sabah M Mohammad**, Suvindraj Rajamanickam, Shireen Mohammed Abed, MGB Ashiq, “Realization of UV-C absorption in ZnO nanostructures

- using fluorine and silver co-doping”, Colloid and Interface Science Communications, <https://doi.org/10.1016/j.colcom.2022.100588>, (2022), [ISI], [Q1, IF= 4.527].
3. Mundzir Abdullah, MS Aziz, Ganesan Krishnan, Fauzan Ahmad, **Sabah M Mohammad**, Ibrahim Abdul Razak, Sulaiman Wadi Harun, “Large third-order optical nonlinear susceptibility in natural dye derived from Clitoria ternatea petal” Optik <https://doi.org/10.1016/j.jileo.2022.168752>, (2022), [ISI], [Q2, IF= 2.840].
  4. Hameed Naser, Z Hassan, **Sabah M Mohammad**, Haider Mohammed Shanshool, Nabeel Z Al-Hazeem, “Parameters Influencing the Absorbance of Gold-Silver Alloy Nanomaterials Using the Pulsed Laser Ablation in Liquid (PLAL) Approach: a Review, Brazilian Journal of Physics, <https://doi.org/10.1007/s13538-022-01072-0>, (2022), [ISI], [Q3, IF= 1.364].
  5. Aminu Muhammad, **Sabah M Mohammad**, Zainuriah Hassan, Suvindraj Rajamanickam, Shireen Mohammed Abed, MGB Ashiq, “Fabrication of fluorine and silver co-doped ZnO photodetector using modified hydrothermal method” Microelectronics International, <https://doi.org/10.1108/MI-03-2022-0045>, (2022), [ISI], [Q4, IF= 0.942].
  6. Nabeel Z Al-Hazeem, Z Hassan, **Sabah M Mohammad**, Naser M Ahmed,” Formation of titanium dioxide/poly (vinylpyrrolidone) nanostructure composite by changing the flow rate of polymer solution during electrospinning” Bulletin of Materials Science, <https://doi.org/10.1007/s12034-022-02656-x>, (2022), [ISI], [Q4, IF= 1.878].
  7. **Sabah M Mohammad**, Suvindraj Rajamanickam, Z Hassan, Mundzir Abdullah, AR Shafiq, Abdulsalam Abuelsamen,” Self-Powered UV Photodetector Performance Optimization based on Ag Nanoparticles-Encapsulated-ZnO Nanorods by Photo-deposition Method” Sensors and Actuators A: Physical, <https://doi.org/10.1016/j.sna.2021.113032>, (2021), [ISI], [Q2, IF= 3.407].
  8. Suvindraj Rajamanickam, **Sabah M Mohammad**, Z Hassan, Ahmad Fairuz Omar, Aminu Muhammad,”Investigations into Ag nanoparticles-carbon-poly (9, 9-di-n-octylfluorenyl-2, 7-diyl)(PFO) composite: morphological, structural, optical, and electrical characterization” Polymer Bulletin, <https://doi.org/10.1007/s00289-021-03938-w>, (2021), [ISI], [Q2, IF= 2.87].
  9. A Muhammad, Z Hassan, **Sabah M Mohammad**, Suvindraj Rajamanickam, “Enhanced sensitivity of low-cost fabricated fluorine doped ZnO metal semiconductor metal photodetector”, Optical Materials, <https://doi.org/10.1016/j.optmat.2021.111771>, (2021), [ISI], [Q2, IF= 3.08].
  10. A Muhammad, Z Hassan, **Sabah M Mohammad**, Suvindraj Rajamanickam, Ibrahim Garba Shitu, Fabrication of ultra-violet photodetector with enhanced optoelectronic parameters using low-cost F-doped ZnO nanostructures, Sensors and Actuators A: Physical, <https://doi.org/10.1016/j.sna.2021.113092>, (2021), [ISI], [Q1, IF= 3.407].
  11. Naser M Ahmed, Fayroz Arif Sabah, Naif H Al-Hardan, Munirah Almessiere, **Sabah M Mohammed**, Way Foong Lim, Maadh Jumaah, AKM Shafiqul Islam, Zainuriah Hassan, Hock Jin Quah, Naveed Afzal, “Development of EGFET-based ITO pH sensors using epoxy free membrane” Semiconductor Science and Technology,(2021), <https://doi.org/10.1088/1361-6641/abe914>, [ISI], [Q2, IF= 2.352].



12. Abdulsalam Abuelsamen, Shahrom Mahmud, Noor Haida Mohd Kaus, Omar F Farhat, **Sabah M Mohammad**, Fouad Saleih R Al-Suede, Amin Malik Shah Abdul Majid,” Novel Pluronic F-127-coated ZnO nanoparticles: Synthesis, characterization, and their in-vitro cytotoxicity evaluation”, *Polymers for Advanced Technologies*,.(2021), <https://doi.org/10.1002/pat.5285>, [ISI], [Q2, IF= 3.665].
13. **Sabah M. Mohammad**, Z. Hassan, Nabeel M. Abd-Alghafour, Amal Mohamed Ahmed Ali, Naser M. Ahmed, Raed Abdalrheem, F.K. Yam, Naveed Afzal.” Ultraviolet electroluminescence from flowers-like n-ZnO nanorods/p-GaN light-emitting diode fabricated by modified chemical bath deposition”. *Journal of Luminescence*.(2020), <https://doi.org/10.1016/j.jlumin.2020.117510> [ISI], [Q1, IF= 3.28].
14. Suvindraj a/l Rajamanickam, **Sabah M. Mohammad** and Z. Hassan” Effect of zinc acetate dihydrate concentration on morphology of ZnO seed layer and ZnO nanorods grown by hydrothermal method” *Colloid and Interface Science Communications*, <https://doi.org/10.1016/j.colcom.2020.100312>, [ISI], [Q2, IF= 2.831]. (2020),
15. Suvindraj a/l Rajamanickam, **Sabah M. Mohammad** and Z. Hassan,” Effect of Substrates on Structural, Morphological, Optical and Electrical Characteristics on Poly (9,9-di-n-octylfluorenyl-2,7-diyl) (PFO) Thin Films” *ECS Journal of Solid State Science and Technology* (2020): <https://doi.org/10.1149/2162-8777/ab6bc7> [ISI], [Q3, IF= 2.142].
16. NM Abd-Alghafour, Ghassan Adnan Naeem, Naveed Afzal, **Sabah M Mohammad**, Rasim Farraj Muslim “ Fabrication and characterization of ethanol gas sensor based on hydrothermally grown V2O5 nanorods”, *Optic* (2020) <https://doi.org/10.1016/j.jileo.2020.165441> [ISI], [Q2, IF= 2.187].
17. Khai Shenn Lau, Zainuriah Hassan, Way Foong Lim, **Sabah M Mohammad**, Hock Jin Quah.” Effect of microwave time on the structural and luminescence properties of YAG: Ce prepared by microwave solution combustion (MSC) synthesis” *Optik*, (2020): <https://doi.org/10.1016/j.jileo.2020.164437>, [ISI], [Q2, IF= 2.187].
18. **Sabah M Mohammad**, Nabeel M Abd-Alghafour, Z Hassan, Naser M Ahmed, Amal Mohamed Ahmed Ali, Raed Abdalrheem, Mundzir Abdullah, “Fabrication and Characterization of Light Emitting Diode Based on n-ZnO Nanorods Grown Via a Low-Temperature” Optical limiting behaviour of linear fused ring dichloro-substituent chalcone isomers” *Journal of Physics: Conference Series*, IOP Publishing (2020) <https://doi.org/10.1088/1742-6596/1535/1/012009> [Scopus].
19. NM Abd-Alghafour, Ghassan Adnan Naeem, **Sabah M Mohammad**.” Dependence of V2O5 Nanorods Properties on Substrate Type Prepared by Simple Hydrothermal Method” *Journal of Physics: Conference Series*, IOP Publishing (2020) <https://doi.org/10.1088/1742-6596/1535/1/012046> [Scopus].
20. Hayder Salah Naeem, Naser M Ahmed, **Sabah M Mohammad**, M Al Shafouri. “Investigation of Arabic gum optical properties as UV-Blue light down conversion for light emitting diode application” *Journal of Physics: Conference Series*, IOP Publishing (2020) <https://doi.org/10.1088/1742-6596/1535/1/012022>. [Scopus].
21. Amal Mohamed Ahmed Ali, Naser M Ahmed, Norlaili A Kabir, **Sabah M Mohammad**.” Investigation on the characteristics of ZnO and ZnO-Pb structure for gamma radiation

- detection” Journal of Physics: Conference Series, IOP Publishing (2020) <https://doi.org/10.1088/1742-6596/1535/1/012028>. [Scopus].
22. Mundzir Abdullah, Dian Alwani Zainuri, Suhana Arshad, Ibrahim Abdul Razak, Heng Han Yann, **Sabah M Mohammad**, Siti Nur’Adiilah Mohd Shazla.” Optical limiting behaviour of linear fused ring dichloro-substituent chalcone isomers” Journal of Physics: Conference Series, IOP Publishing (2020) <https://doi.org/10.1088/1742-6596/1535/1/012034>. [Scopus]. (2020),
23. Nabihah Kasim, Zainuriah Hassan, Way Foong Lim, **Sabah M Mohammad**, Hock Jin Quah.”Morphological and Structural Properties of Sol-Gel Derived ZnO Thin Films Spin-Coated on Different Substrates” Solid State Phenomena: : Conference Series.(2020) <https://doi.org/10.4028/www.scientific.net/SSP.301.35>. [Scopus].
24. Amal Mohamed Ahmed Ali, Naser M. Ahmed, **Sabah M. Mohammad**, Fayroz A. Sabah, Emad Kabaa, Ahmed Alsadig, A.Sulieman, Effect of gamma irradiation dose on the structure and pH sensitivity of ITO thin films in extended gate field effect transistor. Results in Physics. <https://doi.org/10.1016/j.rinp.2018.10.066> (2019), [ISI], [Q1, IF= 4.019].
25. Raed Abdalrheem, F K Yam, Abdul Razak Ibrahim, H S Lim, K P Beh, Ammar A Oglat, Naveed Afzal, Khaled M Chahrour and **Sabah M Mohammad**. Effect of Ni and Cu catalysts on graphene growth under different ethanol flow rates using atmospheric pressure chemical vapor deposition, Materials Research Express, <https://doi.org/10.1088/2053-1591/ab24fa> (2019), [ISI], [Q3, IF= 1.65].
26. N. M. Abd-Alghafour, **Sabah M. Mohammed**, Naser M. Ahmed, Z. Hassan, Munirah Abdullah Almessiere, Naveed Afzal, M. Bououdina, Optimization of Precursor Concentration for the Fabrication of V<sub>2</sub>O<sub>5</sub> Nanorods and their MSM Photodetector on Silicon Substrate. Journal of Electronic Materials, <https://doi.org/10.1007/s11664-019-07390-5> , (2019), [ISI], [Q3], IF= 1.774].
27. Raed Abdalrheem, F.K. Yam, Abdul Razak Ibrahim, H.S. Lim, K.P. Beh, Anas A. Ahmed, Ammar A. Oglat, Khaled M. Chahrour, Omar F. Farhat, Naveed Afzal, **Sabah M. Mohammad**, And M.Z. Mat Jafri, Improvement in Photodetection Characteristics of Graphene/pSilicon Heterojunction Photodetector by PMMA/Graphene Cladding Layer, Journal of Electronic Materials, <https://doi.org/10.1007/s11664-019-07170-1> , (2019), [ISI], [Q3], IF= 1.774].
28. **Sabah M. Mohammad**, Nabeel M. Abd-Alghafour, Rawnaq A. Talib, Z Hassan, Naser M. Ahmed, AA. Abuelsamen, and Naveed Afza.” *Influence of growth temperature and duration on different properties of ultra-long ZnO nanorods grown by modified chemical bath deposition method*”, Materials Research Express, <https://doi.org/10.1088/2053-1591/aad76b> (2018), [ISI], [Q3], IF= 1.65].
29. **Sabah M. Mohammad**, Z Hassan, Rawnaq A. Talib, Naser M. Ahmed, Mohammed A. Al-Azawi, Nabeel M. Abd-Alghafour, and C.W. Chin, N.H. Al-Hardan. "Fabrication of a highly flexible low-cost H<sub>2</sub> gas sensor using ZnO nanorods grown on an ultra-thin nylon substrate." Journal of Materials Science: Materials in Electronics: <https://doi.org/10.1007/s10854-016-4993-4> , (2016) (Vol 27, issue 9). ISI, [Q2, IF= 2.22].



30. **Sabah M. Mohammad**, Z Hassan, Naser M. Ahmed, N.H. Al-Hardan, and M. Bououdina "Fabrication of low cost UV photo detector using ZnO nanorods grown onto nylon substrate." *Journal of Materials Science: Materials in Electronics*, 26.3 (2015):1322-1331. <https://doi.org/10.1007/s10854-014-2542-6>, [ISI], [Q2, IF= 2.22].
31. **Sabah M. Mohammad**, Z Hassan, Naser M. Ahmed, Rawnaq A. Talib, Nabeel M. Abd-Alghafour, and A. F. Omar: "Hydrothermal growth and characterization of vertically well-aligned and dense ZnO nanorods on glass and silicon using a simple optimizer system". *AIP Conf. Proc.*, <https://doi.org/10.1063/1.4948850> Volume 1733, Issue 1, [Scopus and ISI Index].
32. Rawnaq A. Talib, Naser M. Ahmed, **Sabah M. Mohammad**, M.J. Abdullah, M. Bououdina "ZnO Nanorods/Polyaniline Heterojunction onto SiO<sub>2</sub> for Photosensor." *Journal of Nanoelectronics and Optoelectronics*, <https://doi.org/10.1166/jno.2018.2312>, Volume 13, Number 7, July (2018), pp. 1034-1040(7) [ISI], [Q4, IF= 0.771].
33. Mohammed A. Al-Azawi, Noriah Bidin, M. Bououdina, and **Sabah M. Mohammad**. "Preparation of gold and gold-silver alloy nanoparticles for enhancement of plasmonic dye-sensitized solar cells performance" *Solar Energy* 126" (2016): 93-104. DOI: <http://doi.org/10.1016/j.solener.2015.12.043> [ISI], [Q4, IF= 4.623].
34. M. Z. Mohd Yusoff, A. Mahyuddin, Z Hassan, H. Abu Hassan, M. J. Abdullah, M. Rusop, **S. M. Mohammad**, and Naser M. Ahmed. "AlN/GaN/AlN heterostructures grown on Si substrate by plasma-assisted MBE for MSM UV photodetector applications". *Materials Science in Semiconductor Processing* 29 (2015): 231-237. DOI: <http://doi.org/10.1016/j.mssp.2014.03.041> [ISI], [Q2, IF= 3.085].
35. Naif H. Al-Hardan, Muhammad Azmi Abdul Hamid, Naser M. Ahmed, Azman Jalar, Roslinda Shamsudin, Norinsan Kamil Othman, Lim Kar Keng, **Sabah M. Mohammed**. "A study on the UV photoresponse of hydrothermally grown zinc oxide nanorods with different aspect ratios." [10.1109/JSEN.2015.2464311](https://doi.org/10.1109/JSEN.2015.2464311), *IEEE Sensors Journal* 15.12 (2015): 6811-6818, [ISI], [Q2, IF= 3.073].
36. Rawnaq A. Talib, M.J. Abdullah, **Sabah M. Mohammad**, Naser M. Ahmed, Nageh K. Allam "ZnO nanorods/polyaniline-based inorganic/organic heterojunctions for enhanced light sensing applications." *ECS Journal of Solid State Science and Technology* 5.3 (2016): <https://doi.org/10.1021/jp903881d> [ISI], [Q3, IF= 2.142].
37. Rawnaq A. Talib, M.J. Abdullah, **Sabah M. Mohammad**, Naser M. Ahmed, Nageh K Allam". *Effect of the substrate on the photodetection characteristics of ZnO-PANI composites*". *ECS Journal of Solid State Science and Technology* 5.6 (2016): P305-P308. <https://doi.org/10.1007/s00339-015-9177-1>, [ISI], [Q3, IF= 2.142].
38. Rawnaq A. Talib, M.J. Abdullah, Husam S. Al-Salman, **Sabah M. Mohammad**, and Nageh K Allam "ZnO nanorods/polyaniline heterojunctions for low-power flexible light sensors." *Materials Chemistry and Physics* 181 (2016): 7-11. DOI: <http://doi.org/10.1016/j.matchemphys.2016.06.061>, [ISI], [Q2, IF= 3.408].
39. Rawnaq A. Talib, M.J. Abdullah, Husam S. Al-Salman, **Sabah M. Mohammad**, N. M. Ahmed, and M. Bououdina. "Effect of growth time on structure, optical and photo-response characteristics of ZnO nanorods deposited onto various substrates." *Journal of*

- Ovonic Research, <https://chalcogen.ro/index.php/journals>, Vol 12.3 (2016): 171-184[ISI], [Q4, IF= 0.687].
40. N.M. Abd-Alghafour, Naser M. Ahmed, Z Hassan, **Sabah M. Mohammad**, and M. Bououdina, M.K.M. Ali "Characterization of V<sub>2</sub>O<sub>5</sub> nanorods grown by spray pyrolysis technique." Journal of Materials Science: Materials in Electronics, 27.5 (2016): 4613-4621. <https://doi.org/10.1007/s10854-016-4338-3>, [ISI], [Q2, IF= 2.22].
  41. Rawnaq A. Talib, M.J. Abdullah, Naser M Ahmed, **Sabah M. Mohammad**, and M. Bououdina. "UV sensing of twinned ZnO–PANI composite". Applied Physics A 122.5 (2016): 1-9. <https://doi.org/10.1007/s00339-016-0060-5>, [ISI], [Q3, IF= 1.81].
  42. N.M. Abd-Alghafour, Naser Ahmed, Z Hassan, **Sabah M. Mohammad**, M. Bououdina, and M.K. M. Ali. "Structural, morphological and optical properties of V<sub>2</sub>O<sub>5</sub> nanorods grown using spray pyrolysis technique at different substrate temperature." Nanoscience and Nanotechnology Letters 8.2 (2016): 181-186. DOI: <https://doi.org/10.1166/nnl.2016.2062> [ISI], [Q4, IF= 1.128].
  43. Rawnaq A. Talib, M. J. Abdullah, and **Sabah M. Mohammad**. "Formation and analysis of ZnO-PANI hexagonal prisms composite prepared by the chemical method." AIP Conf. Proc Publishing, 2016. (IC-NET 2015). Vol. 1733. No. 1. DOI: <http://dx.doi.org/10.1063/1.4948849>, [Scopus and ISI Index].
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## Teaching Experience

- (INT501) PHYSICS AND TECHNOLOGY OF NANOMATERIALS
- (KAA500) RESEARCH METHODOLOGY
- Semiconductor Devices
- Semiconductor physics
- Modern physics
- Optics

- Solid state physics I, II
- Mathematics I, II

## Research Interests

- Solid State Physics, Nano-semiconductors
- Nano-technology.
- Light emitting diode (LEDs) devices.
- UV-light enhancement
- UV-VIS - PL spectroscopy.
- UV-VIS – detectors.
- Gas sensors.
- Graphene
- ZnO Nanorods.
- GaN material.
- Porous silicon and Porous GaN, and other materials.
- Photonic Materials and Devices

## Technical Skills

- Experience in Microsoft Office (Word, PowerPoint, Excel.....).
- Experience in other software applications such as Origen, Sigma, Edward Max, SketchUp, Viso and Nano-Scope Analysis.

## Membership And Awards

- OSA Membership, Advancing Optics and Photonics Worldwide.
- MASS Membership, Malaysian Solid-State Science and Technology Society.
- Alumni Membership, Universiti Sains Malaysia (USM).
- Member, Iraqi Society of Physics and Mathematics.
- Member, ARID, Arab Research ID
- Keynote Speaker (2020). International Scientific Symposium in Physics and E-Learning.
- Awarded the Best Scientific Oral Presentation for Research Paper titled “Near ultra-violet electroluminescence from ZnO Nanorods/p-GaN heterojunction light-emitting diode” at the 3rd Meeting of Malaysia Nitrides Research Group (MNRG 2016).