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Journal Publications:

1. K.Husna Hamza and **D. Nirmal**"A review of GaN HEMT broadband power amplifiers",*International Journal of Electronics and Communications (AEU)*, Vol 116, (2020) DOI: 10.1016/j.aeue.2019.153040(**Impact factor: 2.853**)

2. D.Godfrey,**D. Nirmal**L. Arivazhagan, R.Rathes kannan, P.Issac Nelson, S.Rajesh, B.Vidhya and N.Mohankumar " A novel ZnPc nanorod derived piezoelectric nanogenerator for energy harvesting"*Physica E Vol.118* (2020)(**Impact factor: 3.176**)

3. S.Angen, J. Grace jency and **D. Nirmal**"A wearable energy storage capacitor using graphene oxide and magnesuim oxide as electrodes"*Physica E 115* (2020)(**Impact factor: 3.176**)

4. A.S. Augustine Fletcher,**D. Nirmal**L. Arivazhagan, J. Ajayan and Varghese, A, " Enhancement of Johnson figure of merit in III-V HEMT combined with discrete field plate and AlGa_N blocking layer", *International Journal of RF and Microwave Computer-Aided Engineering*, vol 30, Issue 2(2020).(Impact factor: 1.472)

5. Rani, C.S.H., Bagan, K.B.,**D. Nirmal**and Roach, R.S., " Enhancement of Performance in TFET by Reducing High-K Dielectric Length and Drain Electrode Thickness" *Silicon*doi:10.1007/s12633-019-00328-w (2019)(**Impact factor: 1.210**)

6. M.Manikandan,**D. Nirmal**J.Ajayan, P.Mohankumar, P.Prajoon and L.Arivazhagan "A review of blue light emitting diodes for future solid state lighting and visible light communication applications", *Superlattices and Microstructures* 136 (2019)., [https://doi.org/ 10.1016/j.spmi. 2019.106294](https://doi.org/10.1016/j.spmi.2019.106294),(**Impact factor: 2.385**)

7. J.Ajayan,**D. Nirmal**Dheena Kurian, P.Mohankumar, L.Arivazhagan , A.S. Augustine Fletcher ,T.D.Subash and M.Saravanan" Investigation of impact of gate underlap/overlap on the analog/RF performance of composite channel double gate MOSFETs" *Journal of Vacuum Science & Technology, B* 37, 062201 (2019); <https://doi.org/10.1116/1.5116199>(**Impact factor: 1.351**)

8. J.Ajayan,**D. Nirmal**P.Mohankumar, Dheena Kurian, A.S. Augustine Fletcher , L.Arivazhan and B.Santhosh kumar“ GaAs metamorphic high electron mobility transistors for future deep space-biomedical-military and communication system applications: A review”*Microelectronics journal*, <https://doi.org/10.1016/j.mejo.2019.104604> Vol 108, (2019)(**Impact factor: 1.284**)

9. J.Ajayan,**D. Nirmal**P.Mohankumar, and L.Arivazhan, “ Investigation of Impact of Passivation Materials on the DC/RF Performances of InP-HEMTs for Terahertz Sensing and Imaging”*Silicon*, doi.org/10.1007/s12633-019-00226-1 (2019) pp 1-6(**Impact factor: 1.210**)

10. L. Arivazhagan,**D. Nirmal**D.Godfrey, J. Ajayan, P.Prajoon A.S. Augustine Fletcher, A.Amir Anton Jone and J.S.Raj Kumar, "Improved RF and DC performance in AlGaIn/GaN HEMT by P-type doping in GaN buffer for millimetre-wave applications",*International Journal of Electronics and Communications (AEU)*, Vol 108, (2019) Pg 189-194.(**Impact factor: 2.853**)

11. A.S. Augustine Fletcher, **D. Nirmal** and L. Arivazhagan, "Analysis of AlGaIn/GaN HEMT using discrete field plate technique for high power and high frequency applications",*International Journal of Electronics and Communications (AEU)*, Vol 99, (2019) Pg 325-330(**Impact factor: 2.853**)

12. Suresh Subramanian, B. Sundarambal and **D. Nirmal** "Investigation on Simulation-Based Specific Absorption Rate in Ultra-Wideband Antenna for Breast Cancer Detection",*IEEE Sensors Journal* Vol 18 No.24, 20 Dec 2018(**Impact factor: 2.617**)

13. D. Gracia **D. Nirmal** and D. Jackuline Moni, "Impact of Leakage Current in Germanium Channel based DMDG TFET using Drain-gate underlap technique"*International Journal of Electronics and Communications (AEU)*, Vol 96, (2019) Pg 164-169(**Impact factor: 2.853**)

14. P. Vanitha, T.S. Arun Samuel and **D. Nirmal** "A New 2D Mathematical Modeling of Surrounding Gate Triple material Tunnel FET using Halo Engineering for Enhanced Drain Current"*International Journal of Electronics and Communications (AEU)*, Vol 99, (2019) Pg 34-39.(**Impact factor: 2.115**)

15. J.Ajayan, T.Ravichandran, P.Mohankumar, P.Prajoon, J.Charles Pravin and**D. Nirmal** “Investigation of DC and RF Performance of Novel MOSHEMT on Silicon Substrate for Future Submillimeter Wave Applications” *Semiconductors* vol. 52,No.16,(2018) pp 1191-1997(**Impact factor: 0.672**)

16. R.Ratheskumar,P.Isaac Nelson, S.Rajesh, T.Ponmudi selvi, A.Mohan , B.Vidhya, **D. Nirmal** and Arivazhan, “Curtailed recombination rate and fast carrier transport in ZnPc/Ga As/ Zn Pc Stacked hybrid structure” *Optical Materials* vol. 85,(2018) pp 287-294 (**Impact factor: 2.320**)

17. D.Gracia**D. Nirmal** and D.Jackuline Moni, “ Impact of leakage current in germanium channel based DMDG TFET using drain- gate underlap technique” *International Journal of Electronics and Communications (AEÜ)*, vol.96,(2018) pp 164-169 (**Impact factor: 2.115**)
18. J. Ajayan and **D. Nirmal**, “InP high electron mobility transistors for submillimeter wave and terahertz frequency applications: A review” *International Journal of Electronics and Communications (AEÜ)* vol.94,(2018) pp 199-214 (**Impact factor: 2.115**)
19. J. Hengsteler and **D. Nirmal**, “Analysis of High Efficiency InGaN Multiple-Quantum-Well Light-Emitting-Diodes Using InGaN Step-Graded Barriers” *Journal of Nanoelectronics and Optoelectronics* vol.13,(2018) pp 939-943 (**Impact factor: 1.019**)
20. J. Ajayan and **D. Nirmal**, “Investigation of breakdown performance in $L_g = 20$ nm novel asymmetric InP HEMTs for future high-speed high-power applications” *Journal of Computational Electronics* vol.17,(2018) pp 265-2723 (**Impact factor: 1.431**)
21. J. Ajayan and **D. Nirmal**, “Investigation of DC-RF and breakdown behaviour in $L_g = 20$ nm novel asymmetric GaAs MHEMTs for future submillimetre wave applications” *International Journal of Electronics and Communications (AEÜ)* vol.84,(2018) pp 387-393 (**Impact factor: 2.115**)
22. J. Charles Pravin and **D. Nirmal**, “Nanoscale High-k Dielectrics for Junctionless Nanowire Transistor for Drain Current Analysis” *Journal of ELECTRONIC MATERIALS* <https://doi.org/10.1007/s11664-018-6075-2> (**Impact factor: 1.573**)
23. P. Prajoon and **D. Nirmal**, “Investigation of efficiency enhancement in InGaN MQW LED with compositionally step graded GaN/InAlN/GaN multi-layer barrier” *Superlattices and Microstructures* DOI:10.1016/j.spmi.2018.02.008 (**Impact factor: 2.123**)
24. **D. Nirmal** and Arivazhagan, “Current collapse modeling in AlGaIn/GaN HEMT using small signal equivalent circuit for high power application” *Superlattices and Microstructures* <https://doi.org/10.1016/j.spmi.2017.12.027> (**Impact factor: 2.123**)
25. J. Ajayan and **D. Nirmal**, “Analysis of nanometer-scale InGaAs/InAs/InGaAs composite channel MOSFETs using high-K dielectrics for high speed applications”, *International Journal of Electronics and Communications (AEÜ)* vol.79,(2017)pp 151-157. (**Impact factor: 1.147**)
26. A.S. Augustine Fletcher and **D. Nirmal**, “A survey of Gallium Nitride HEMT for RF and highpower applications”, *Superlattices and Microstructures* DOI: 10.1016/j.spmi.2017.05.042,2017. (**Impact factor: 2.123**)

-
27. P. Murugapandiyan and **D. Nirmal**, "DC and microwave characteristics of 20 nm T-gate InAlN/GaN high electron mobility transistor for high power RF applications", *Superlattices and Microstructures* DOI: 10.1016/j.spmi.2017.05.060,2017. (**Impact factor: 2.123**)
-
28. D. Gracia and **D. Nirmal**, "Investigation of Ge based Double Gate Dual Metal Tunnel FET Novel Architecture using Various Hetero dielectric Materials", *Superlattices and Microstructures* DOI: 10.1016/j.spmi.2017.04.045,2017. (**Impact factor: 2.123**)
-
29. J. Ajayan and **D. Nirmal**, "20 nm In_{0.75}Ga_{0.25}As channel-based HEMTs on Inp/GaAs substrates for future THz applications ", *Journal of semiconductors* Vol 38, No.4(2017)pp1-6 (**Impact factor:**)
-
30. Charles Pravin and **D. Nirmal**, "Investigation of 6T SRAM memory circuits using high-k dielectrics based nano scale junctionless transistor ", *Superlattices and Microstructures* DOI: 10.1016/j.spmi.2017.03.012,2017. (**Impact factor: 2.117**)
-
31. J. Ajayan and **D. Nirmal**, "20 nm high performance enhancement mode InP HEMT with heavily doped S/D regions for future THz applications ", *Superlattices and Microstructures* DOI: 10.1016/j.spmi.2016.10.011,2016. (**Impact factor: 2.117**)
-
32. P.Prajoon, **D. Nirmal**, Anuja Menokey and J.Charlespravin, "Temperature dependant efficiency droop analysis of In GaN MQW light emitting diode with modified ABC model.", *J Comput Electron* , 10.1007/s10825-016-0904-4, (2016). (**Impact factor – 1.104**)
-
33. J. Ajayan and **D. Nirmal**, "20-nm enhancement-mode metamorphic HEMT with highly doped InGaAs source/drain regions for high frequency applications" *International Journal of Electronics* DOI: 10.1080/00207217.2016.1218066,2016. (**Impact factor:0.414**)
-
34. J. Ajayan and **D. Nirmal**, "20-nm T-gate composite channel enhancement-mode metamorphic HEMT on GaAs substrates for future THz applications" *J Comput Electron* DOI: 10.1007/s10825-016-0884-4, 2016. (**Impact factor:1.104**)
-
35. Charles Pravin J, **D.Nirmal** , Prajoon P and Anuja Menokey M., "A New Drain Current Model for Dual Metal Junctionless Transistor for Enhanced Digital Circuit Performance" *IEEE Trans. Electron Devices*, VOL. 63, NO. 9 pp 3782-3789. (**Impact Factor – 2.207**).
-
36. Prajoon P, **D.Nirmal**, AnujaMenokey M, J Charles Pravin "Efficiency Enhancement of InGaN MQW LED Using Compositionally Step Graded InGaN Barrier on SiC Substrate" Accepted in *IEEE J. Display Technology*, DOI: 10.1109/JDT.2016.2570814, (2016). (**Impact Factor – 1.925**).
-

37. P.Prajoon, **D .Nirmal**, AnujaMenokey and J.Charlespravin, “A Modified ABC Model in InGaN MQW LED Using Compositionally Step Graded Alternating Barrier for Efficiency Improvement”, *Superlattices and Microstructures*, 96 (2016) 155-163. (**Impact factor – 2.097**).
-
38. J. Charles Pravin, **D.Nirmal**, P. Prajoon and J. Ajayan, “Implementation of nanoscale circuits using dual metal gate engineered Nanowire MOSFET with high-k dielectrics for low power applications” *Physica E* 83 (2016) 95–100. (Impact Factor: 2.00).
-
39. J. Ajayan and **D. Nirmal**, “A review of InP/InAlAs/InGaAs based transistors for high frequency applications” *Superlattices and Microstructures* 86 (2015) 1–19. (**Impact factor: 2.097**)
-
40. Binola k Jebalin, Shobha Rekh, Prajoon, N.Mohankumar and **D.Nirmal** “The influence of high-k passivation layer on breakdown voltage of schottky AlGaIn/GaN HEMTs” *Microelectronics Journal*.doi:10.1016/j.mejo.2015.04.006. (Impact factor: 0.924)
-
41. B. Padmanaban, R. Ramesh, **D. Nirmal** and S. Sathiyamoorthy “Numerical modeling of triple material gate stack gate all-around (TMGSGAA) MOSFET considering quantum mechanical effects” *Superlattices and Microstructures* 82 (2015) 40–54.(Impact factor: 1.979)
-
42. Binola k Jebalin, Shobha Rekh, Prajoon, Godwin raj, N.Mohankumar and **D.Nirmal** “Unique model of polarization engineered AlGaIn/GaN Based HEMTs for high power applications” *superlattices and Microstructures* 78(2015)210-223.(Impact factor: 1.979)