

## Student's publications

### a) **International Journal(s)**

1. Khwairakpam Dayananda Singh, Puspa Devi Pukhrabam; Vandana Wangkheirakpam "Device Physics Based Analytical Modeling and Simulation Study of electrical characteristics of ISFET pH-Sensor", Silicon, SCON-D-21-01228R2, 2022
2. Khwairakpam Dayananda Singh, and Puspa Devi Pukhrabam, "Sensitivity optimization of a Double-Gated ISFET pH-sensor with HfO<sub>2</sub>/SiO<sub>2</sub> gate dielectric stack." *Microelectronics Journal*, vol. 118, pp 105282, December 2021.
3. J. Panda, K. Jena, R. Swain, **T. R. Lenka**, "Modeling on Oxide Dependant 2DEG Sheet Charge Density and Threshold Voltage in AlGa<sub>N</sub>/Ga<sub>N</sub> MOSHEMT," *Journal of Semiconductors*, 2015. (*IOP Science*). DOI:10.1088/issn.1674-4926, Print ISSN: 1674-4926.
4. R. Swain, J. Panda, K. Jena and **T. R. Lenka**, "Modeling and Simulation of Oxide Dependent 2DEG Sheet Charge Density in AlGa<sub>N</sub>/Ga<sub>N</sub> MOSHEMT," *Journal of Computational Electronics (Springer)*, Vol.14, No. 3, pp. 754-761, 2015. [IF: 1.520 (2014), JCR-Clarivate Analytics, SCIE]
5. Saurabh Agarwal, Richik Kashyap, Koushik Guha, and S. Baishya, "Modeling and analysis of capacitance in consideration of the deformation in RF MEMS shunt switch, Superlattices and Microstructures, vol 101, pp. 567-574, May 2017. DOI: <http://dx.doi.org/10.1016/j.spmi.2016.10.022> (SCI)
6. S. Baishya, Debarun Borthakur, Richik Kashyap, and Amitabh Chatterjee, "A High Precision Lumped Parameter Model for Piezoelectric Energy Harvesters," *IEEE Sensors Journal*, vol. 17, no. 24, pp. 8350-8355, December 2017. DOI: 10.1109/JSEN.2017.2764165 (SCI-E)
7. K. Guha, N.M.Laskar, H. J. Gogoi, S. Chanda, K. L. Baishnab, K. Srinivasa Rao. "An Improved Analytical Model for Static Pull-in Voltage of a Flexured MEMS Switch", *Microsystem Technologies*, Springer, April 2018. DOI: 10.1007/s00542-018-3911-5.(SCI)
8. K.Guha, N.M.Laskar, H.J.Gogoi, K.L.Baishnab, K. Srinivasa Rao, "A New Analytical Model for Switching Time of a Perforated MEMS Switch", *Microsystem Technologies*, Springer, March 2018. DOI: 10.1007/s00542-018-3803-8. (SCI).
9. Guha, Koushik., Laskar, N. M., Gogoi, H., Borah, A., Baishnab, K. L., Baishya, S.: "Novel analytical model for optimizing the pull-in voltage in a Flexured MEMS switch incorporating beam perforation effect", *Solid-State Electronics*, Elsevier 137 (2017) 85–94. (SCI).
10. Agarwal, Saurabh., Kashyap, Richik., Guha, Koushik., Baishya, S.: "Modeling and analysis of capacitance in consideration of the deformation in RF MEMS shunt switch", *Superlattices and Microstructures*, Elsevier, Volume 101, January 2017, Pages 567-574. (SCI).
11. Guha, Koushik., Kumar, Mithlesh., Parmar, Ajay., Baishya, S.: 'Performance Analysis of RF MEMS Capacitive Switch with Non Uniform Meandering Technique' *Journal of Microsystem Technologies*, Springer, November 2016, Volume 22, Issue 11, pp 2633–2640. (SCI).
12. Guha, Koushik., Kumar, Mithlesh., Agarwal, Saurabh., Baishya, S.: "A modified capacitance model of RF MEMS shunt switch incorporating fringing field effects of perforated beam" *Journal of Solid State Electronics*, Elsevier, Volume 114, December 2015, Pages 35–42. (SCI).
13. V.Devi, B.Bhowmick, "Optimization of Pocket doped Junctionless TFET and its Application in digital Inverter, " *IET Micro Nano letters*, Sept, 2018, doi: 10.1049/mnl.2018.5086

14. K. Vanlalawmpuia, B.Bhowmick, M.Choudhury, "Optimization of fully depleted SiGe channel with raised source/drain buried oxide nMOSFET", accepted in International Journal of Nano particles, Sept 2018.
15. K. Vanlalawmpuia, R.Saha, B.Bhowmick, "Performance Evaluation of Heterostacked TFET for variation in lateral straggle and its application as digital inverter, Applied Physics A, Springer, Sept 2018, doi.org/10.1007/s00339-018-2121-4
16. S.K.Mitra, R.Goswami, B.Bhowmick "A hetero-dielectric stack gate SOI-TFET with back gate and its application as a digital inverter", Vol.92, pp 37-51, April 2016, Superlattices Microstructure.

#### **b) International Conference(s)**

1. Pulumati Chidananda, Chappa Vinay Kumar, Rajan Singh and Mummaneni Kavicharan, "Optimized RTL design of a vending machine through FSM using Verilog HDL" 2nd International Conference on Micro/Nanoelectronics Devices, Circuits, and Systems (MNDCS 2022) at NIT Silchar, Assam, India during 29-31 Jan 2022.
2. Pragya Pandey, Kajal Kumari, Malvika, Addanki Prathima, Kavicharan Mummaneni, "Optimized design of ALU using Reversible Gate" International Conference on Computational Intelligence & Sustainable Technologies (ICoCIST-2021), NIT Sikkim.
3. R. Paswan, D. K. Panda and **T. R. Lenka**, "Dielectric Modulated AlGaAs/GaAs HEMT for Label Free Detection of Biomolecules," *XIX International Workshop on the Physics of Semiconductor Devices 2017 (IWPSD 2017)*, 12-15 Dec 2017.
4. D. K. Panda, Anuj Kumar, **T. R. Lenka**, "Gate Current Low Frequency Noise Model for High-K GaN MOS-HEMT," *IEEE Nanofim 2017*, 16-17 Nov 2017, India. ([IEEE Xplore](#))
5. J. Panda, R. Swain, G. S. Rao, **T. R. Lenka**, "Realization of Improved Transconductance and Capacitance Characteristics in Al<sub>0.3</sub>Ga<sub>0.7</sub>N/AIN/GaN HEMT," *2015 IEEE International Conference on Electrical Electronics Signal Communication Optimization (EESCO 2015)*, 24-25 Jan 2015. ([IEEE Xplore](#)). DOI: 10.1109/EESCO.2015.7253989.
6. J. Panda, **T. R. Lenka**, "Comparative Analysis of GaN based MOSHEMT Devices for RF Applications," *2015 IEEE International conference on Electrical Computer and Communication Technologies (ICECCT 2015)*, 5-7 Mar 2015. DOI: [10.1109/ICECCT.2015.7226141](#). ([IEEE Xplore](#))
7. Pankaj Kumar, Saurav Roy, and S. Baishya, "Gate-overlapped-source heterojunction tunnel tri-gate FinFET," in Proc. 2017 Devices for Integrated Circuit (DevIC), pp. 561-564, Oct. 2017. DOI: 10.1109/DEVIC.2017.8074013.
8. Debarun Borthakur, S. Baishya, and Sweta Chander, "Optimization of Piezoelectric Energy Harvesting Structure by Segmenting the Piezoelectric Layer(s)," in Proc. 2017 IEEE Nanotechnology Material and Devices Conference, pp. 13-14, October 2-4, 2017, Singapore. DOI: 10.1109/NMDC.2017.8350485
9. G.Kalyan Chakravarthy, N.M.Laskar, S.Nath, S.Chanda, K.L.Baishnab, " Flipped Voltage Follower based High Dynamic Range Current Mirror," DevIC-2017, March, 2017, Kalyani , India
10. N.M.Laskar, S.Chanda, K.Guha, U. Pandey, K.L.Baishnab, K.S.Rao, " Realization of Low Power Gm-C Filters using High Swing Self-biased Cascode Current Mirror Load based Operational Transconductance Amplifier," NanoFim, 2017.

11. N.M.Laskar, S.Chanda, K.Guha, U. Pandey, K.L.Baishnab, K. Srinivasa Rao, "Realization of Low Power Gm-C Filters using High Swing Self-biased Cascode Current Mirror Load based Operational Transconductance Amplifier", presented in NANOfIM 2017 conference held on 16-17th Nov, 2017 in India.
12. D. Borthakur, S. Chander, K. Guha, S. Baishya: "Optimization of Piezoelectric Energy Harvesting Structure by Segmenting the Piezoelectric Layer(s)", in IEEE Conference on Nanotechnology Materials and Device Conference (NMDC 2017), Singapore, 2-4th October 2017.
13. K. Guha, K.L.Baishnab, H. J. Gogoi, A. K. Borah, N.M. Laskar, "Closed form Model for Switching Time of a Meander Hinged MEMS Switch with Beam Perforation Effect", in IEEE Conference on Nanotechnology Materials and Device Conference (NMDC 2017), Singapore, 2-4th October 2017.
14. Koushik Guha, Srimanta Baishya, Ananta Kumar Borah and K. Srinivasa Rao, "New Analytical Model of Switching Capacitance for MEMS Shunt Perforated Switch", in IEEE Conference on Nanotechnology Materials and Device Conference (NMDC 2017), Singapore, 2-4th October 2017.
15. Guha. K, Laskar, N.M., Gogoi, H.J., Borah, A.K., Baishnab, K.L. : 'Pull-in Analysis of a Flexure Based MEMS Shunt Capacitive Switch', presented in 4th INTERNATIONAL CONFERENCE on Microelectronics, Circuits and Systems MICRO 2017, held in Darjeeling, West Bengal, India, 3-4th June 2017.
16. Baishnab. K.L., Guha, K., Lukose, C., Laskar, N.M., Nath, S., Kumar, S. : 'A Low Noise Narrowband VCO with Tail Filtering Circuit', presented in 4th INTERNATIONAL CONFERENCE on Microelectronics, Circuits and Systems MICRO 2017, held in Darjeeling, West Bengal, India, 3-4th June 2017.
17. Guha,K., Gogoi,H.J., Borah,A.K.,Laskar,N.M., Baishnab, K.L., Rao, K. Srinivasa.: 'Novel Switching Time Model of a Flexure Type MEMS Switch Incorporating Beam Perforation Effect', presented in 4th INTERNATIONAL CONFERENCE on Microelectronics, Circuits and Systems MICRO 2017, held in Darjeeling, West Bengal, India, 3-4th June 2017(2nd prize in Best paper award).
18. Haldar, Ritwik., Guha, Koushik., Baishya, Srimanta.: 'Effect on Pull-in Voltage and Current in NEMFET by Scaling Channel Length', Proc. in IEEE Explore, pp. 1-4, 2015 (presented in IEEE TENCON 2015 Conference held on 1-4th Nov, 2015 in MACAU).
19. Chakrabarty, Pralay., Guha, Koushik., Baishya, Srimanta.: 'Performance Analysis of 3D Flexure FET with Meandering Gate for Higher Sensitivity', Proc. in IEEE Explore, pp. 1-5, 2015 (presented in IEEE TENCON 2015 Conference held on 1-4th Nov, 2015 in MACAU).
20. Kumar, Mithlesh., Guha, Koushik., Nath, Sandipan., Dutta, Anup., Rabha. Rajeswar., Baishya, Srimanta.: 'Static and Electromagnetic Analysis of RF MEMS Shunt Capacitive Switch', Proc. in IEEE Explore, pp. 1-6, 2015 (presented in IEEE TENCON 2015 Conference held on 1-4th Nov, 2015 in MACAU).
21. Agarwal, Saurabh., Kumar, Mithlesh., Guha, Koushik., Baishya, Srimanta.: 'RF Analysis of MEMS Shunt Capacitive Switch with Gold and Aluminum Beam'. Proc. IEEE Sponsored International Conference on ADVANCES IN COMPUTER ENGINEERING AND APPLICATIONS - 2015, Ghaziabad, Uttar Pradesh, India, 19th – 20th March, 2015; DOI: 10.1109/ICACEA.2015.7164713; Publisher: IEEE; Page(s):267 – 271.

22. Chakrabarty, Pralay., Guha, Koushik., Krishna, Gautam., Baishya, Srimanta.: ‘Comparative Analysis of 3D Flexure Gate FET with Different Metal and Gate Structure’. Proc. IEEE Sponsored 2nd International Conference on Innovations in Information Embedded and Communication Systems, Karpagam College of Engineering, Coimbatore, Tamil Nadu, India, 19th – 20th March.
23. U.Pandey, K. Guha, K.L.Baishnab, B.Bhowmick, “Ferroelectric FET as a low power device with reduced SCEs and RDF effect,” presented in 5th Micro Conference, 19-20th May, 2018.
24. Vikas Kumar, Rajesh Saha, Rajashree Das, BrindaBhowmick, Srimanta Baishya, "Comparison between Square and Right Angle Triangle Grain Due to WFV in Metal Gate and Implication of WFV in FinFET" NANOFILM 2017, 16-17 Nov, 2017, IEEE.
25. V. Devi, B.Bhowmick, " Optimization of N+ hetero pocket doped Dual metal Vertical TFET" proceedings of 2nd International Conference on Computing Methodologies and Communication (ICCMC 2018), IEEE.
26. Shashikumar M, Bhaskar Jyoti Das, Jagritee Talukdar, Kavicharan Mummaneni, Radix-10 Multiplier Implementation with Carry skip adder using Verilog, International conference on micro/nanoelectronics Devices, Circuits and Systems, NIT Silchar, 29-31 January 2021.
27. Makumsibou R Zeliang, Malvika and Kavicharan Mummaneni, Efficient Full Adder Design based on New Reversible Tuned Fredkin Gate (TFG), International conference on micro/nanoelectronics Devices, Circuits and Systems, NIT Silchar, 29-31 January 2021.
28. Hariprasad Ganji, Ravindra Kumar Maurya, Kavicharan Mummaneni, Design of High-Speed 32-Bit Vedic Multiplier Using Verilog HDL, International conference on micro/nanoelectronics Devices, Circuits and Systems, NIT Silchar, 29-31 January 2021.
29. Anusmita Kakati, Ganaraj Shankar, Koushik Guha and M Kavicharan, “Design and Analysis of MEMS Varactor for Ka Band Applications” 2nd International Conference on Micro/Nanoelectronics Devices, Circuits, and Systems (MNDCS 2022) at NIT Silchar, Assam, India during 29-31 Jan 2022.
30. K.Putea, M.Choudhury, B.Bhowmick “ Optimization of Electrical parameters in SiGe channel nMOS” Devices for Integarted Circuits (DevIC 2017)”, Kalyani Government Engineering College, March 23-24, 2017
31. R.Goswami, B.Bhowmick “Circular Gate Tunnel FET: optimization and noise analysis” International Conference on Advances in Computing and Communications, Elsevier (ICACC-2016), Kerala.
32. S. K. Mitra, Rupam Goswami, and B. Bhowmick “Dual Buried Oxide SOI Hetero Dielectric TFET”, International Conference on Mathematical Computer Engineering - 2015 (ICMCE-2015), December, 2015, Chennai, India
33. Abhishek Zade, Sumit Kumar Singha, Jagritee Talukdar, Addanki Prathima, Kavicharan Mummaneni, “Implementation of Arithmetic Logic Unit using Area Efficient Adder” International Conference on Computational Intelligence & Sustainable Technologies (ICoCIST-2021), NIT Sikkim.
34. S.Mitra, R.Goswami, B.Bhowmick “Optimization and Scaling of a SOI TFET with Back Gate Control“Proceedings of International Conference Recent Developments on Control, Automation and Power Engineering (IEEE), Noida, India, 12-13 March 2015.

35. S.Mitra, R.Goswami, B.Bhowmick, "A Dual Dielectric Step-Gate SOI n-Tunnel FET,"  
Proceed. Of 2ndInternational Conference on Electrical, Electronics, Engineering Trends,  
Communication, Optimization and Sciences (E3COS),AP, India, 28th - 30th March-2015

