



Dr. Sanjit Kumar Swain, Ph.D.

Name: Sanjit Kumar Swain

Designation: Sr.Asst.Professor

Department: Department of Electronics & Communication
Engineering

(JOINED THE INSTITUTE IN 2007)

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RESEARCH INTERESTS

Analysis & characterization of sub micron and deep submicron field effect devices. It includes mathematical analysis and RF analysis of Advanced MOSFETs. Study of wideband gap compound semiconductor based AlGa_N/Ga_N MOSHEMT, InAlN/GaN HEMT and MOSHEMT.

RF & Analog performance Analysis of double gate nano MOSFETs. Mathematical modeling of different types of noises in underlap double gate MOSFETs. Several structural optimization of GaN based devices for better performance.

Academic Qualifications

Ph. D. (Engg), Jadavpur University, Kolkata, India

M. Tech. (Electronics & Telecommunication Engg), BPUT, Odisha

B.Tech. (Electronics & Telecommunication Engg), BPUT, Odisha

Specialisation: Nano Electronics & Device engg.

Teaching Experience/Industrial Experience/Research Experience

- ✓ Teaching experience-14 years
- ✓ Industry experience- 6 months (BSNL)
- ✓ Research experience-3years (Research Scholar in Jadavpur University)

PUBLICATIONS

JOURNAL & CONFERENCES:

- [1] High performance AlInN/AlN/GaN p-GaN Back Barrier Gate-Recessed Enhancement-Mode HEMT; Sarosij Adak, Arghyadeep Sarkar, **Sanjit Swain**, Hemant Pardeshi, Sudhansu Kumar

- Pati, Chandan Kumar Sarkar; *Superlattices and Microstructure (Elsevier)*, 2014, 75, 347–357. Impact Factor 2.12
- [2] Study of HfAlO/AlGaIn/GaN MOS-HEMT with source field plate structure for improved breakdown voltage; Sarosij Adak, **Sanjit Kumar Swain**, Avtar Singh, Hemant Pardeshi, Sudhansu Kumar Pati, Chandan Kumar Sarkar; *Physica E: Low-dimensional Systems and Nanostructures (Elsevier)*, 2014, 64, 152–157. Impact Factor 2.22
- [3] Impact of gate engineering in enhancement mode n++GaIn/AlIn/AlN/GaN HEMTs; Sarosij Adak, **Sanjit Kumar Swain**, Hafizur Rahaman, Chandan Kumar Sarkar; *Superlattices and Microstructure (Elsevier)*, 2016,100, 306-314. Impact Factor 2.12
- [4] Effect of Barrier Thickness on Linearity of Underlap AlInN/GaN DG-MOSHEMTs; Sarosij Adak, **Sanjit Kumar Swain**, Hemant Pardeshi, Hafizur Rahaman, Chandan Kumar Sarkar; *NANO: Brief Reports and Reviews (World Scientific Publishing Company)*; 2017,12, (01), 1750009. Impact Factor 1.26
- [5] Influence of Channel length and High-K oxide Thickness on Subthreshold DC Performance of Graded Channel and Gate stack DG-MOSFETs; Sarosij Adak, **Sanjit Kumar Swain**, Arka Dutta, Hafizur Rahaman, Chandan Kumar Sarkar; *NANO: Brief Reports and Reviews (World Scientific Publishing Company)* 2016, 11, (09), and 1650101. Impact Factor 1.26
- [6] Analysis of flicker and thermal noise in p-channel Underlap DG FinFET; **Sanjit Kumar Swain**, Sarosij Adak, Sudhansu Kumar Pati, Hemant Pardeshi, Chandan Kumar Sarkar; *Microelectronics Reliability (Elsevier)*; 2014, 54 (8), 26, 1549–1554. Impact Factor 1.37
- [7] Effect of Channel Thickness and Doping Concentration on Sub-Threshold Performance of Graded Channel and Gate Stack DG MOSFETs; **Sanjit Kumar Swain**, Sarosij Adak, Bikash Sharma, Sudhansu Kumar Pati, Chandan Kumar Sarkar; *Journal of Low Power Electronics (American Scientific Publishers)*; 2015, 11(10),1-7. Impact Factor 0.84
- [8] Influence of channel length and high-K oxide thickness on subthreshold analog/RF performance of graded channel and gate stack DG-MOSFETs; **Sanjit Kumar Swain**, Arka Dutta, Sarosij Adak, Sudhansu Kumar Pati, Chandan Kumar Sarkar; *Microelectronics Reliability (Elsevier)*; 2016, 61, 24-29. Impact Factor 1.37
- [9] Impact of InGaIn back barrier layer on performance of AlInN/AlIn/GaN MOS-HEMTs; **Sanjit Kumar Swain**, Sarosij Adak, Sudhansu Kumar Pati, Chandan Kumar Sarkar; *Superlattices and Microstructure (Elsevier)*, 2016, 97(20) , 258–267. Impact Factor 2.12
- [10] Performance study of GCGS DG-MOSFETs for Asymmetric Doping and High K Oxide Material Using NQS Method. **Sanjit Kumar Swain**, Sarosij Adak, Saradiya Parija, Chandan Kumar Sarkar, *J. of Active and Passive Electronic Devices, Vol. 00, pp. 1–15, 2017-18(Old City Publishing).(ESCI)*
- [11] Effect of AlN Spacer Layer Thickness on Device Performance of AlInN/AlIn/GaN MOSHEMT; Sarosij Adak, **Sanjit Kumar Swain**, Hemant Pardeshi, Hafizur Rahaman, and Chandan Kumar Sarkar; *International Conference on Computing Communication Control and Automation (ICCUBEA)*; 2015., 902-905. IEEE, (Best Paper Award)

- [12] Performance analysis of gate material engineering in enhancement mode n++ GaN/InAlN/AlN/GaN HEMTs; Sarosij Adak, **Sanjit Kumar Swain**, Godwin Raj, Hafizur Rahaman, and Chandan Kumar Sarkar; *3rd International Conference on Devices Circuits and Systems (ICDCS)*; 2016, 89-92. IEEE.
- [13] Impact of high K layer material on Analog/RF performance of forward and reversed Graded channel Gate Stack DG-MOSFETs; **Sanjit Kumar Swain**, Sarosij Adak, Arka Dutta, Godwin Raj, and Chandan Kumar Sarkar; *3rd International Conference on Devices, Circuits and Systems (ICDCS)*; 2016, pp. 98-102. IEEE, 2016.
- [14] Effect of Doping in p-GaN Gate on DC performances of AlGaIn/GaN Normally-off scaled HFETs; Sarosij Adak, **Sanjit Kumar Swain**, Hafizur Rahaman, Chandan Kumar Sarkar; *2nd international conference on Devices for Integrated Circuit (DevIC)*; pp. 372-375. IEEE, 2017.
- [15] Sub threshold Analog &RF Parameter extraction of GCGS DG- MOSFETs with High K material using NQS approach; **Sanjit Kumar Swain**, Sarosij Adak, Saradiya Parija, Chandan Kumar Sarkar; *2nd international conference on Devices for Integrated Circuit (DevIC)*; pp. 216-220. IEEE, 2017.
- [16] Performance analysis of T-Gate Enhancement mode n++GaIn/AlIn/AlN/GaN HEMT; Srishti Srivastava, **Sanjit Kumar Swain**, Chandan Kumar Sarkar, Sarosij Adak, *2016 International Conference on Innovations in information, Embedded and Communication Systems (ICIIECS)*. (IEEE XPLORE, In Press).
- [17] Microwave characteristics of 100nm AlGaIn back barrier Gate Recessed Enhancement mode InAlN/AlN/GaN HEMT; Srishti Srivastava, **Sanjit Kumar Swain**, Chandan Kumar Sarkar, Sarosij Adak, *2016 International Conference on Innovations in information, Embedded and Communication Systems (ICIIECS)*. (IEEE XPLORE, In Press).

ANY OTHER

Book Chapter
Conferences attended

1. Sarosij Adak, Arghyadeep Sarkar, **Sanjit Kumar Swain**, Nanotechnology Applications in Electron Devices, Nanotechnology: *Synthesis to Applications*, 2017 (CRC Press).
2. **Sanjit Kumar Swain**, Akshaya Kumar Sahu, Microwave Engineering, Engineers' Mind Publication, 2013 (ISBN: 81-7406-015-4).
3. **Sanjit Kumar Swain**, Akshaya Kumar Sahu, Satellite Communication Systems, Engineers' Mind Publication, 2013 (ISBN: 81-7406-014-6).
4. **Sanjit Kumar Swain**, Durga Prasad Mishra, Wireless Sensor Network, Engineers' Mind Publication, 2013 (ISBN: 81-7406-013-9).