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I have 9+ year of research experience in Delhi University as Research associate and wish to pursue carrier in device design

INTERESTS AND SKILLS

Simulators, Design Tools and Languages ATLAS Device Simulator, MINIMOS-NT, PISCES-II, SPICE, ModelSim, Active HDL, MathCAD/MatLAB and C/C++ [Mathematical Modeling (FDM), computer interfacing/software designing for DSO, microcontroller programming], VHDL

μ p/ μ C and Assembler 8085, 8086, Z80, Debug, x51/52, AT89C55WD, TASM, ASM

EDUCATIONAL QUALIFICATION

Ph.D. in Electronic Science from Delhi University, India in 2003

Thesis: " *Modeling, Characterization and Optimization of InAlAs/InGaAs Heterojunction, InP based High Electron Mobility Transistor (HEMT) for Microwave and Millimeter Wave Frequency Applications*"

M.Sc. in Physics from Delhi University, India in 1999; Specialization: **Electronics**

B.Sc. Honors in Physics from Delhi University, India in 1994

PROJECTS/WORK EXPERIENCE

Modeling, Simulation & Characterization of Modified Different Gate Geometric Double Gate High Electron Mobility Transistor for High Power and High Frequency Applications with Two Separate/Common Gate Control **3/2008 – Present**

Affiliation: DST/Delhi University

Publications: 4

Designation: Research Associate

Skills: C/C++, ATLAS, MATHCAD, Microsoft Office, Device Modeling/Optimization

Physics Based Modeling, Simulation and Electrical Characterization of a Novel Device Architecture: Silicon on Nothing (SON) MOSFET for Sub-100 nm Device Dimensions **5/2007 – 10/2007**

Affiliation: DRDO/Delhi University

Publications: 1

Designation: Research Associate

Skills: C/C++, ATLAS, MATHCAD, Microsoft Office, Device Modeling/Optimization

Modeling, characterization and Optimization of HEMT **4/2004 - 4/2007**

Affiliation: CSIR/Delhi University

Publications: 7

Designation: Research Associate

Skills: C/C++, ATLAS, MATHCAD, Microsoft Office, Device Modeling/Optimization

Two Dimensional Temperature and Bias Dependent Noise Analysis and improved equipment circuit model of InP HEMTs **4/2002 – 4/2004**

Affiliation: DRDO/Delhi University

Publications: 9

Designation: Senior Research Fellow

Skills: C/C++, ATLAS, MATHCAD, Microsoft Office, Device Modeling/Optimization

Modulating Frequency & scattering dependent optically controlled electrical characteristics of Si/GaAs OPFET at 77k – 350k for its potential applications in optical communication systems **11/1999 – 3/2002**

Affiliation: DRDO/Delhi University

Publications: 7

Designation: Junior Research Fellow

Skills: C/C++, ATLAS, MATHCAD, Microsoft Office, Device Modeling/Optimization

Digital Storage Oscilloscope (DSO)

1/1999 - 6/1999

Hardware: A/D and D/A Converter, Graphics LCD 128 x 64 (KS0108), AT89C55WD, Printer port

Programming language: C, (Turbo-C and SDCC)

Feature of Program

- ✓ Multichannel Oscilloscope, Interface with hardware
- ✓ Collecting, smoothening, storing and displaying the input signal
- ✓ Automatic measurements, Fourier transformation, Addition/Subtraction of signal etc of the input signal

PUBLICATIONS (31) (PUBLISHED: 29) (COMMUNICATED: 2) (JOURNAL: 20) (CONFERENCE: 9)

(Year of publication 2009)

1. "Metal Insulator Gate Geometric HEMT: Novel Attribute and Design Consideration for High Speed Analog Applications".
Paper communicated to "**Solid State Electronics**" in 2009.
2. "Improvement of f_{max} with f_T in sub-100 nm Double-Gate HEMT and Single-Gate HEMT: Physical Analysis, Modeling of Channel Thickness Variation and Short Channel Effects".
Paper communicated to "**IEEE Trans Electron Devices**" in 2009.
3. "Dynamic Performance of Graded Channel DG FD SOI n-MOSFET for Minimizing the Gate Misalignment Effect".
Paper to be published in "**Microelectronics Reliability**" in 2009.
4. "Dual Material Double Gate SOI n-MOSFET: Gate Misalignment Analysis".
Paper to be published in "**IEEE Trans Electron Devices**" in June 2009.
5. "T-gate Geometric (Solution for Submicrometer Gate Length) HEMT: Physical Analysis, Modeling and Implementation as Parasitic Elements and its usage as Dual Gate for Variable Gain Amplifiers".
Paper published in "**Superlattice and Microstructures** Vol. 45, pp. 105-116, 2009".

(Year of publication 2008)

6. "Comparative Subthreshold Analysis for Channel Thickness Variation on Sub-100 nm Double Gate with Single-Gate HEMT"
Presented at "**2008 International Conference on Recent Advancements in Microwave Theory and Applications** in 2008".
7. "Graded Channel Architecture: the Solution for Misaligned DG SOI n-MOSFETs".

Paper published in "**Semiconductor Science and Technology** Vol. 23, no.7, 075041 (14pp) July 2008".

(Year of publication 2007)

8. "Short Channel Analytical Model for High Electron Mobility Transistor to obtain High Cut-off Frequency maintaining the reliability of the device".

Paper published in "**Journal of Semiconductor Science and Technology** Vol. 7, no.2, pp. 120-131 June 2007".

(Year of publication 2006)

9. "An Analytical Model for Various Gate Insulator Geometries (N, L, Γ and T-gate) of SOI SiC MESFET".

Paper presented at "**CODEC-06, Hyatt Regency, Kolkata, India** (Dec 18-20, 2006)".

10. "An Analytical model for Metal Insulator Semiconductor High Electron Mobility Transistor (MISHEMT) for its higher frequency and high power applications".

Paper published in "**Journal of Semiconductor Science and Technology** Vol. 6, no.3, pp. 189-198 September 2006".

11. "An Analytical model for Discretized Doped InAlAs/InGaAs Heterojunction HEMT for higher Cut-off frequency and Reliability".

Paper published in "**Microelectronic Journal** Vol.37/9 pp 919-929 2006".

12. "A Semi Empirical Approach for Submicron GaN MESFET Using an Accurate Velocity Field Relationship for High Power Applications".

Paper published in "**Microelectronic Journal** Vol. 37/7 pp 620-626 2006".

(Year of publication 2005)

13. "A Physics Based Analytical Model for Buried p-layer Non-Self Aligned SiC MESFET for the Saturation Region".

Paper published in "**Solid State Electronics** Vol. 49, no.7, pp. 1206-1212, 2005".

14. "A New Analytical Charge Control Model for InAlAs/InGaAs/InAlAs Double Heterostructure High Electron Mobility Transistor for Microwave Frequency Applications".

Paper published in "**Solid State Electronics** Vol. 49, no.2, pp. 167-174, 2005".

15. "Analytical Model for high temperature performance of Non-Self Aligned SiC MESFET".

Paper published in "**Indian Journal of Pure and Applied Physics**, Vol.43 pp. 697-704, September 2005".

(Year of publication 2004)

16. "Analytical Model for Non-Self Aligned Buried P-layer SiC MESFET".

Presented in "**IEEE Lester Eastman Conference (LEC) on high performance devices**, Troy New York, August 2-6, 2004".

17. "Analytical Model for Non-Self Aligned Buried P-layer SiC MESFET".

Paper published in "**International Journal of High Speed Electronics and Systems**, Vol. 14, no.3, pp. 897-905, 2004".

18. "Optimization of InAlAs/InGaAs HEMT Performance for Microwave Frequency Applications and Reliability".

Paper published in "**Journal of Semiconductor Science and Technology** Vol. 4, no.3, pp. 230-239 September 2004".

19. "A New simplified Analytical Short-channel Threshold Voltage Model for InAlAs/InGaAs Heterostructure InP based Pulsed Doped HEMT".

Paper published in "**Solid State Electronics** Vol. 48, no.3, pp. 437-443, 2004".

(Year of publication 2003)

20. "Optimization of InAlAs/InGaAs heterostructure, InP based HEMT for its Microwave Frequency Applications".

Paper published in "**Proceeding of SPIE** Vol. 5445, pp. 466 – 471, 2003".

21. "Modeling Characterization and Optimization of Tri – Step doped InAlAs/InGaAs Heterostructure, InP based HEMT for Microwave Frequency Applications".
Paper published in "**Indian Journal of Pure and Applied Physics** Vol.41 pp. 223-231, March 2003".
22. "Optimization of InAlAs/InGaAs heterostructure, InP based HEMT for its Microwave Frequency Applications".
Presented in "**ISMOT-03**, August 11-15, 2003".
23. "A New Depletion Dependent Analytical Model for Sheet carrier density of InAlAs/InGaAs Heterostructure InP based HEMT".
Paper published in "**Solid State Electronics** Vol. 47, no.1, pp. 33-38, 2003".
24. "Depletion Dependent Analytical Model for InAlAs/InGaAs/InP HEMT".
Presented in "National Symposium on Advances in Microwaves and Lighwaves (**NSML-2003**) October 13-14, 2003, Pp 52-55".

(Year of publication 2002)

25. "Model for Optically Biased Short Channel GaAs MESFET".
Paper published in "**Microwave and Optical Technology Letters** Vol. 32, No. 2, pp. 138 – 142, January 20 2002".
26. "An Analytical Non-Linear Charge Control Parasitic Resistance Depending Model for InAlAs/InGaAs/InP HEMT Characteristics".
Paper published in "**Microelectronics Engineering**, Vol. 60, no. 3 – 4, pp. 323-337, 2002".
27. "An Analytical Two-dimensional Model for Pulsed Doped InP-based Lattice-matched HEMTs for High Frequency Applications".
Paper published in "**Indian Journal of Pure and Applied Physics** Vol. 40, pp. 342 – 349, 2002".
28. "An Accurate model for planar Doped InAlAs/InGaAs/InP MODFETs for Microwave Circuit Applications".
Paper presented at "**IWPSD**, 2002".

(Year of publication 2001)

29. "An Analytical Model for I-V Characteristics of Optically Controlled Surrounding/ Cylindrical Gate (SGT) MOSFET".
Paper presented at "**ELECTRO-2001** January 4-6, 2001".
30. "An Accurate Charge Control Model for InAlAs/InGaAs/InP Modulation Doped Field Effect Transistors",
Paper presented at "**ELECTRO-2001** January 4-6, 2001".

(Year of publication 2000)

31. "Analytical Model for threshold voltage adjustment by gate material workfunction control in double gate SOI MOSFETs".
Presented in "**National Seminar on VLSI: system design and technology**, IIT Bombay, India, 2000".

MEMBERSHIPS

- IEEE Student Membership (1999 - 2006)
- SPIE Student Membership (2002 - 2003)