




Faculty Details proforma for DU College Web-site



Title	Dr.	First Name	Monika	Last Name	Bhattacharya	Photograph
Designation		Assistant Professor				
Address		Department of Electronics, Acharya Narendra Dev College, Kalkaji, New Delhi-110019				
Phone No Office		9873491079				
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Email/ Web-Page		monika.bhattacharya86@gmail.com				
Educational Qualifications						
Degree		Institution			Year	
Ph.D.		Delhi University			2014	
M.Sc. Electronics		Delhi University			2009	
B.Sc.(H) Electronics		Delhi University			2007	
XII		CBSE			2004	
X		CBSE			2002	
Career Profile						
TEACHING EXPERIENCE						
❖ Assistant Professor (Adhoc) at Acharya Narendra Dev College, University of Delhi Duration: August 2017-till date						
Subjects taught:						
<ul style="list-style-type: none"> • Electromagnetic Theory • Embedded Systems • Basic Circuit Theory and Network Analysis • Robotics • Signals and Systems 						
❖ Assistant Professor (Adhoc) at Keshav Mahavidyalaya, University of Delhi Duration: August 2014-May 2017						
Subjects taught:						
<ul style="list-style-type: none"> • C++ & Data Structures • Electronic Instrumentation • Numerical Methods • Embedded Systems • Computer Networks 						

- Semiconductor Fabrication and Characterization
- Electrical Technology

❖ **Assistant Professor (Adhoc) at Sri Guru Tegh Bahadur Khalsa College, University of Delhi**

Duration: July 2013-April 2014

Subjects taught:

- Analog Communication
- Digital Communication
- Optics and Optical Electronics
- Analog Electronics
- Applied Physics
- Engineering Mathematics

RESEARCH EXPERIENCE

Area of Research: *VLSI Design and Device Modeling; Microelectronics*

Ph.D. from Semiconductor Device Research Laboratory, Department of Electronic Science, Delhi University, South Campus

Thesis Title: ***“Modeling, Simulation and Characterization of Noise in InAlAs/InGaAs Tied-geometry Double-gate High Electron Mobility Transistor for Millimeter wave Applications”.***

Year of Award of Degree: March 2014

Administrative Assignments

Areas of Interest / Specialization

Areas of interest /specialization

- Semiconductor Device Modeling and Simulation
- Embedded Systems
- Robotics

Subjects Taught

- Electromagnetic Theory
- Embedded Systems
- Basic Circuit Theory and Network Analysis
- Robotics
- Signals and Systems
- C++ & Data Structures
- Electronic Instrumentation
- Numerical Methods
- Computer Networks
- Semiconductor Fabrication and Characterization
- Electrical Technology

- Analog and Digital Communication
- Optics and Optical Electronics
- Analog Electronics
- Applied Physics
- Engineering Mathematics

Research Guidance

Publications Profile

DETAILS OF PUBLICATIONS IN JOURNALS/CONFERENCE PROCEEDINGS

Publication	International	National
Journal	12	-
Conference Proceeding	13	1

LIST OF PUBLICATIONS IN REFERRED/PEER REVIEWED JOURNALS

- (i) Paper Title: “Scattering parameter based Modeling and Simulation of symmetric tied gate InAlAs/InGaAs DG-HEMT for millimeter wave applications”, **Monika Bhattacharya**, Jyotika Jogi, R.S Gupta and Mridula Gupta, **Solid State Electronics**, Vol.63, No.1, pp.149-153, (September) 2011. doi: 10.1016/j.sse.2011.05.025. **Impact Factor(2013): 1.397**
- (ii) Paper Title: “An Accurate Charge Control Based Approach for Noise Performance Assessment of a Symmetric Tied-gate InAlAs/InGaAs DG-HEMT”, **Monika Bhattacharya**, Jyotika Jogi, R.S Gupta and Mridula Gupta, **IEEE Transactions on Electron Devices**, Vol. 59, No. 6, pp. 1644-1652, (June) 2012. doi: 10.1109/TED.2012.2190738. **Impact Factor(2013): 2.318**
- (iii) Paper Title: “Temperature Dependent Analytical Model for Microwave and Noise Performance Characterization of $In_{0.52}Al_{0.48}As/In_mGa_{1-m}As$ ($0.53 \leq m \leq 0.8$) DG - HEMT” **Monika Bhattacharya**, Jyotika Jogi, R.S Gupta and Mridula Gupta, **IEEE Transactions on Device and Material Reliability**, Vol.13, No.1, pp.293-300, (March) 2013. doi: 10.1109/TDMR.2013.2243913. **Impact Factor(2013): 1.543**
- (iv) Paper Title: “Gate-to-Drain Capacitance Dependent Model for Noise Performance Evaluation of InAlAs/InGaAs Double-gate HEMT”, **Monika Bhattacharya**, Jyotika Jogi, R.S Gupta and Mridula Gupta, **Journal of Semiconductor Technology and Science**, Vol. 13, No. 4, pp. 331-341, (March) 2013. <http://dx.doi.org/10.5573/JSTS.2013.13.4.331>. **Impact Factor(2013): 0.52**
- (v) Paper Title: “Impact of Temperature and Indium composition in the channel on the Microwave performance of single-gate and double-gate InAlAs/InGaAs HEMT”, **Monika Bhattacharya**, Jyotika Jogi, R.S Gupta and Mridula Gupta, **IEEE Transactions on Nanotechnology**, Vol. 12, No. 6, pp. 965-970 (August) 2013. doi: 10.1109/TNANO.2013.2276415. **Impact Factor(2013): 2.29.**
- (vi) Paper Title: “Gate-length and Donor-layer characteristics Optimization of InAlAs/InGaAs DG-HEMT for improved RF and Noise Performance”, **Monika Bhattacharya**, Jyotika Jogi, R.S Gupta and Mridula Gupta, **Invertis Journal of Science and Technology**, Vol. 6, No. 4, pp. 244-248

(October) 2013.

(vii) Paper Title: "Evaluation of Noise Coefficients for Separate Gate InAlAs/InGaAs Double Heterostructure DG-HEMT", Parveen, **Monika Bhattacharya** and Jyotika Jogi, **International Journal of Engineering Research and Development (IJERD)**, Vol. 10, No.8, pp. 01-11, (August) 2014. e-ISSN: 2278-067X. **Impact Factor(2013): 1.09**.

(viii) Paper Title: "Modeling of InAlAs/InGaAs/InAlAs DG-HEMT Mixer for Microwave Application", Parveen, **Monika Bhattacharya** and Jyotika Jogi, **IOSR Journal of Electronics and Communication Engineering (IOSR-JECE)**, Volume 10, Issue 4(II), (Jul - Aug .2015), pp. 21-27. e-ISSN: 2278-2834.

(ix) Paper Title: 'Influence of gate leakage current induced shot noise on the Minimum Noise Figure of InAlAs/InGaAs double-gate HEMT', **Monika Bhattacharya**, Jyotika Jogi, R.S. Gupta and Mridula Gupta, **Superlattices and Microstructures (Elsevier)**, pp. 13-22, September (2017) <https://doi.org/10.1016/j.spmi.2017.02.026>. **Impact Factor(2017): 2.117**

(x) Paper Title: "Polarization dependent charge control model for microwave performance assessment of AlGaN/GaN/AlGaN double heterostructure HEMTs.", Nisha Chugh, **Monika Bhattacharya**, Manoj Kumar, S. S. Deswal, and R. S. Gupta, **Journal of Computational Electronics (Springer)**, pp. 1229-1240, September (2018) <https://doi.org/10.1007/s10825-018-1190-0>. **Impact Factor(2018): 1.637**

(xi) Paper Title: "Analysis of Al_{0.15}Ga_{0.85}N/GaN/Al_{0.15}Ga_{0.85}N DH-HEMT for RF and Microwave Frequency Applications", Nisha Chugh, Manoj Kumar, **Monika Bhattacharya** and R. S. Gupta, **Semiconductors (Springer)**, Vol. 53(13), pp. 1784–1791 December (2019). <https://doi.org/10.1134/S1063782619130050>. **Impact Factor(2018): 0.691**

(xii) Paper Title: "Sheet carrier concentration and current–voltage analysis of Al_{0.15}Ga_{0.85}N/GaN/Al_{0.15}Ga_{0.85}N double heterostructure hemt incorporating the effect of traps", Nisha Chugh, Manoj Kumar, **Monika Bhattacharya** and R. S. Gupta, **Microsystem Technologies**, pp. 1-12 Jan (2019). <https://doi.org/10.1007/s00542-019-04322-5> **Impact Factor(2018): 1.513**

Conference/ Presentations/Workshops

LIST OF PUBLISHED/ACCEPTED PAPERS IN CONFERENCES

(i) **NCRDE-2013** (National Conference on Recent Developments in Electronics) (January 18-20, 2013, Department of Electronic Science, University of Delhi, South Campus)
Paper Title: "Gate-length and Donor-layer characteristics Optimization of InAlAs/InGaAs DG-HEMT for improved RF and Noise Performance", **Monika Bhattacharya**, Jyotika Jogi, R.S Gupta and Mridula Gupta, Proc. of NCRDE-2013.

(ii) **ICEE 2012** (International Conference on Emerging Electronics) (December 15-17, 2012, IIT Bombay, Powai, Mumbai, India)
Paper Title: "Impact of Noise Temperature Constant and Diffusion Coefficient on the

Minimum Noise Figure and Minimum Noise Temperature of InAlAs/InGaAs DG- HEMT”, Monika Bhattacharya, Jyotika Jogi, R.S. Gupta and Mridula Gupta. Proc. of ICEE 2012, pp. 11-14.
doi: 10.1109/ICEmElec.2012.6636226

(iii) NANOCON 2012 (2nd International Conference on Nanotechnology - Innovative Materials, Processes, Products and Applications) (October 18-19, 2012, Pune, India)

Paper Title: “Temperature and Channel Indium Composition Sensitivity Analysis of the Small-Signal Equivalent Circuit Parameters of SG- and DG-InAlAs/InGaAs HEMT”, Monika Bhattacharya, Jyotika Jogi, R.S. Gupta and Mridula Gupta. Proc. of NANOCON 2012, pp. 1199-1208.

(iv) IWPSD 2011 (The XVI International Workshop on the Physics of Semiconductor Devices) (December 19-22, 2011, IIT Kanpur, Kanpur, India)

Paper Title: “A comprehensive charge control based analysis of the effect of Donor-layer doping Signal Equivalent Circuit Parameters of SG- and DG-InAlAs/InGaAs HEMT”, Monika Bhattacharya, Jyotika Jogi, R.S. Gupta and Mridula Gupta. Proc. of NANOCON 2012, pp. 1199-1208.

(v) ISDRS 2011 (International Semiconductor Device Research Symposium) (College Park, Maryland, December 7-9, 2011)

Paper Title: “Analytical Modeling of the Impact of Drain Voltage on P, R and C Noise Coefficients for a Symmetric Tied-gate InAlAs/InGaAs DG-HEMT” Monika Bhattacharya, Jyotika Jogi, R.S. Gupta and Mridula Gupta.

(vi) IEEE TENCON 2011 (Nov 21-24, 2011, Bali, Indonesia)

Paper Title: “A Comprehensive Analytical approach for the evaluation of the P,R and C noise coefficients of InAlAs/InGaAs DG-HEMT”, Monika Bhattacharya, Jyotika Jogi, R.S. Gupta and Mridula Gupta., IEEE TENCON 2011 Conference Proceedings, Pg-1131-1134.
doi: 10.1109/TENCON.2011.6129288

(vii) IS-MMSe-2011, (International Symposium on Models and Modeling Methodologies in Science and Engineering)(July 19-22, 2011, Orlando, Florida, USA)

Paper Title: “An Analytical study of the impact of gate-bias on the scattering parameters of a symmetric tied-gate InAlAs/InGaAs DG-HEMT”, Monika Bhattacharya, Jyotika Jogi, R.S. Gupta and Mridula Gupta

(viii) ISMOT-2011 (13th International Conference on microwave and Optical technology), (June 20-23, 2011, Prague, Czech Republic, EU)

Paper Title: “A Comprehensive Analytical Approach for drain-noise source and gate-noise source modeling of InAlAs/InGaAs DG-HEMT”, Monika Bhattacharya, Jyotika Jogi, R.S. Gupta and Mridula Gupta

(ix) ICSSA-2011 International Conference on Signal, Systems and Automation (24-25 Jan 2011, Anand, Gujrat, India)

Paper Title: “Analytical Modeling of Intrinsic Y-parameters to study the enhanced microwave performance of symmetric tied-gate InAlAs/InGaAs/InP DG-HEMT”, Monika Bhattacharya, Jyotika Jogi, R.S Gupta and Mridula Gupta, Proceedings of Second International Conference on Signal, Systems and Automation, Pg. 497-502. ISBN: 978-1-6123-3002-0

(x) ICMARS 2010 International Conference on Microwave, Antenna and Remote Sensing (14-17 Dec

2010, Jodhpur, Rajasthan, India)

Paper Title: "An Analytical study of Enhanced Microwave Performance of symmetric Double-gate InAlAs/InGaAs/InP HEMT over Single-gate InAlAs/InGaAs/InP HEMT for nanometer gate dimension", Monika Bhattacharya, Jyotika Jogi, R.S Gupta and Mridula Gupta

(xi) IEEE TENCON 2010 (21-24 Nov 2010, Fukuoka, Japan)

Paper Title: "Impact of Doping concentration and Donor- layer thickness on the dc characterization of symmetric Double-gate and Single-gate InAlAs/InGaAs/InP HEMT for nanometer gate dimension-A comparison", Monika Bhattacharya, Jyotika Jogi, R.S Gupta and Mridula Gupta, IEEE TENCON 2010 Conference Proceedings, Pg. 134-139.

doi: 10.1109/TENCON.2010.5685856

(xii) IEEE TENCON 2015 (Nov 1-4, 2015, Macao, China)

Paper Title: "A Novel Separate Gate InAlAs/InGaAs/InAlAs DG-HEMT Heterogenous Mixer", Parveen, Neha Verma, Monika Bhattacharya and Jyotika Jogi,, IEEE TENCON 2015 Conference, Proceedings, Pg-978-981. doi:10.1109/TENCON.2015.7373028.

(xiii) IEEE UPCON 2017 (26-28 Oct, 2017, Mathura (U.P.), India)

Paper Title: "Sheet carrier concentration and threshold voltage modeling of asymmetrically doped AlGaIn/GaN/AlGaIn double heterostructure HEMT.", Nisha Chugh; Monika Bhattacharya; Manoj Kumar; R. S Gupta, 4th IEEE Uttar Pradesh Section International Conference on Electrical, Computer and Electronics (UPCON), 2017, IEEE Explore, pp. 446-451.

doi: 10.1109/UPCON.2017.8251089.

(xiv) IWPSD 2017 (11-15 Dec, 2017, IIT Delhi (Delhi, India)

Paper Title: "Impact of Temperature and Al composition on the threshold voltage and sheet-carrier concentration of AlGaIn/GaN/AlGaIn Double Heterostructure HEMT", Nisha Chugh; Monika Bhattacharya; Manoj Kumar; R. S Gupta. (2017). . Proceedings of XIX International Workshop on The Physics of Semiconductor Devices (IWPSD), IIT Delhi (Delhi), December 11-15, 2017.

Research Projects (Major Grants/Research Collaboration)

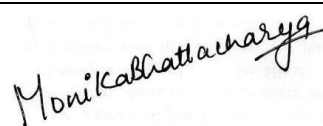
Awards and Distinctions

- ❖ **UGC NET JRF** Qualified (June 2009)
- ❖ Qualified **GATE 2009** : Percentile: 89.18

Association With Professional Bodies

IEEE Member
Membership ID: 90852218

Other Activities



Dr. Monika Bhattacharya