

# Curriculum Vitae

**Full Name:** SATYABRATA JIT

Present Designation & Address: **Professor & Head**  
**Department of Electronics Engineering**  
**Indian Institute of Technology (BHU)**  
**Varanasi-221005, UP, INDIA**

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## Academic Qualifications:

**Ph.D.** (Semiconductor Devices and Circuits), **IIT(BHU), Varanasi, INDIA**  
(2002)

**M.Tech.** (Communication Systems), **IIT Kanpur, INDIA** (1995)

**B.E.** (Electronics & Tele-Communication Engineering), **B.E. College,**  
**University of Calcutta, WB, INDIA** (1993)

## Research Interests:

### **Areas of Interest:**

Advanced CMOS Devices  
ZnO Thin Film Based Nanoelectronic Devices for Electronic, Gas Sensing and  
Optoelectronic Applications  
Microwave Photonic Devices & circuits  
Signal Processing & Communication Systems

## Teaching Experiences:

1. Worked as Lecturer, Dept. of Electronics and Communication Engineering, G.B. Pant Engineering College, Uttaranchal, June 1995-April 1998 (~03 years)
2. Worked as Lecturer, Dept. of Electronics Engineering, IT-BHU, April 1998-June 2004
3. Worked as Reader, Dept. of Electronics Engineering, IT-BHU, June 2004-June 2007
4. Worked as Associate Professor, Dept. of Electronics Engineering, IT-BHU, during June 2007-June 2010
5. **Working as Professor, Dept. of Electronics Engineering, IT-BHU, since June 2010**

### **Experiences in Academic Administration:**

1. **Head, Department of Electronics Engineering, IIT(BHU), Varanasi** (April 08, 2015 --- Till date)
2. **Coordinator/Director, Computer Centre, Banaras Hindu University** (February 29, 2012 –March 22, 2014)
3. **Chairperson, Senate Post Graduate Committee (SPGC), IIT(BHU), Varanasi** (Academic Sessions 2013-14 & 2014-15)
4. **Member, Board of Governors, UPTTI, Kanpur** (January 2016 – Till Date)
5. **Member, Board of Governors, HBTI Kanpur** (March 2013 – Till Date)
6. **Chairman, Institute’s SC/ST Committee, IIT(BHU), Varanasi** (January 10, 2014 – till date)
7. **Convener, Department Post Graduate Committee (DPGC), IIT(BHU), Varanasi** (2013-14 & 2014-15 Sessions)
8. **Member, Research & Development Committee, IIT(BHU), Varanasi** (2013-14 & 2014-15)
9. **Member, Central Purchase Committee, IIT(BHU), Varanasi** (January 2013 – Till date)
10. **Member, University Apex Committee for UET/PET Examinations, BHU, Varanasi** (2013)
11. **Member, Centralized Instrumentation Facility, BHU, Varanasi** (2013)
12. **Member, High Performance Computing Committee, IIT(BHU), Varanasi** (2013)
13. **Chairman, Optical Fiber Cable Based LAN Infrastructure Creation Committee, IIT(BHU), Varanasi** (2016)
14. **Member, Telecommunication Services Committee, IIT(BHU), Varanasi** (2013)
15. **Expert Member, Board of Studies of ECE Dept., SRM University, Lucknow** (2013)
16. **Expert Member, Board of Studies of ECE Dept., SVNIT Surat** (2008)
17. **Expert Member, Board of Studies of ECE Dept., NIT Delhi** (2015)
18. **Expert Member, Board of Studies of Electronics Dept., DDU Gorakhpur University, Gorakhpur** (2010)
19. **Member, Teachers’ Grievance Committee, BHU, Varanasi** (2012-2013)
20. **Member, Senate, IIT(BHU), Varanasi**
21. **Chairman, Co-Curricular Activities Wing, IT-Gymkhana, IIT(BHU), Varanasi** (2010-2011 & 2011-2012)
22. **Vice-President & Treasurer, Electronics Engineering Society, Dept. of Electronics Engg., IIT(BHU), Varanasi** (since 2007)
23. **Treasurer, IETE Varanasi Sub-Centre** (since 2008)
24. **Warden/Administrative Warden, IIT(BHU) Hostels**(6 years)
25. **Professor-in-Charge, Examinations, Dept. of Electronics Engg.**(2008-2010)
26. **Professor-in-Charge, Training & Placement, Dept. of Electronics** (2002-2004)

### Ph.D. Thesis Supervised:

1. **Amritanshu Pandey (2015)**, “Fabrication and Characterization of Some ZnO Thin-Film Based Devices for Ultraviolet Detection Applications”
2. **Mirgender Kumar (2015)**, “Modeling and Simulation of Subthreshold Characteristics of Strained-Si SOI MOSFETs with Emphasis on Possible Terahertz Application”
3. **Divya Somvanshi (2015)**, “Some Studies of ZnO Nanostructure Based Schottky and Heterojunction Devices Fabricated on Silicon Substrates”
4. **Aniruddha Bahadur Yadav (2014)**, “Fabrication and Characterization of ZnO Thin Films and Pd/ZnO Schottky Contacts for Electronic and Gas Sensing Applications”
5. **Purnima Hazra (2014)**, “Fabrication and Characterization of Some Si/ZnO Based Nanostructured Heterojunction Devices”
6. **Sarvesh Dubey (2012)**, “Analytical Modeling and Simulation of Short-Channel Double-Gate MOSFETs with a Vertical Gaussian-like Doping Profile”
7. **Deepak Mishra (2012)**, “Some Studies on the Combined Source Channel Coding for Deep Space Applications”
8. **Pramod Kumar Tiwari (2011)**: Modeling and Simulation of Subthreshold Characteristics of Short-Channel Double-Gate (DG) MOSFETs
9. **Shweta Tripathi (2011)**: Two-Dimensional (2D) Modeling and Simulation of Optically Controlled Short-Channel GaAs MESFETs
10. **Ghusoon M. Ali (2011)**: Investigations on ZnO Thin-Film Based Devices for Electronic and Optoelectronic Applications
11. **Neti V. L. Narasimha Murty (2007)**: Analytical Modeling of Optically Controlled GaAs MESFETs With Emphasis on Substrate Related Effects
12. **Prashant Kumar Pandey(2004)**: Some Studies on Theoretical Modeling and Simulation of Si-SOI-MESFETs

### M.Tech. Thesis Supervised:

1. **Trailokya Nath Rai (2016)**, “Performance investigation of dopingless hetero structure TFETs with a stacked SiO<sub>2</sub>/Ferroelectric oxide gate structure”
2. **Alok Singh Kushwaha (2016)**, “Effect of Source/Drain elevation and side spacer dielectrics on the drivability performance of DGJL FETs”
3. **Chandan Kumar (2016)**, “Performance analysis of DMG dopingless TFET with interface trap charges”
4. **Mr. Manish (2016)**, “Effect of interface charges on the electrical characteristics of double gate TFETs”
5. **Rupanjana Mukherjee (2015)**, “A Multiresolution Scheme of Invisible Image Watermarking Robust to Image Manipulations”
6. **Prince Kumar (VIT University, 2015)**, “Design and Simulation of Tunnel Field Effect Transistors (TFETs) for High ON-Current Applications”
7. **Abhinav Pratap Singh (2015)**, “Surface Potential Based Threshold Voltage Model of High-k Double-Gate (DG) MOSFETs With Gaussian-Like Doping Profile”
8. **Neetu Singh (2015)**, “Analytical Modeling and Simulation of Subthreshold Characteristics of Single-Gate-Dual-Oxide (SGDO) Silicon-on-Insulator (SOI) MOSFETs”
9. **Piyush Kumar Pushkar (2015)**, “Analytical Modeling and Simulation of Threshold Voltage of Double-Gate (DG) Tunnel-Field-Effect-Transistors (TFETs)”
10. **Ashutosh Kumar Dikshit (2015)**, “Photonic Crystal Based Optical Switch”

11. **Shiv Narayan Kumar(2014)**, “Steganography Based on Contourlet Transform Using MATLAB”
12. **Vivek Kumar (2014)**, “Design of New Window Functions for FIR Filters using MATLAB”
13. **Shailesh Bangar (2014)**, “Implementation of Embedded Zerotree Wavelet (EZW) Algorithm”
14. **Varun Goel(2014)**, “Two Dimensional Analytical Model for Threshold Voltage of Graded Channel Dual Material Gate (GCDMG) SOI MOSFETs”
15. **Sanjay Sharma (2014)**, “Analytical Modeling and ATLAS Based Simulation of Vertical Trapezoidal Doped Fully Depleted Silicon-on-Insulator MOSFETs”
16. **Pankaj Kumar (2014)**, “Analytical Modeling and ATLAS Based Simulation of Dual Dielectric Fully Depleted Silicon-on-Insulator MOSFETs”
17. **Prem Kumar (2013)** “Design, Simulation and Fabrication of Digital Micro-Mirror Devices”
18. **Sanjay Kumar (2013)**, “Analytical Modeling and ATLAS Based Simulation of Doped Double-Gate (DG) MOSFETs with a Vertical Gaussian Profile”
19. **Gopal Rawat(2013)**, “Analytical Modeling and Simulation of Doped Strained-Si on Silicon-on-Insulator (SSOI) MOSFETs”
20. **Ms. Ekta Goel (2013)**, “Analytical Modeling and ATLAS Based Simulation of High-k Gate-Stacked Double-Gate (DG) MOSFETs”
21. **Pushkar Singh (2013)**, “Spectrum Sensing in Cognitive Radio Using Energy Detection Technique”
22. **Chandan kumar Bhagat (2013)**, “Peak to Average Power Reduction in Orthogonal Frequency Division Multiplexing (OFDM) Systems”
23. **Amit Kumar (2011)**: Implementation of Set Partitioning in Hierarchical Tree (SPIHT) Algorithms (Co-Supervisor: Mr. A. Pandey)
24. **Dheeraj Gupta (2011)**: Two-Dimensional Analytical Modeling and Simulation of Doping-Dependent Subthreshold Characteristics of Short-Channel Triple Material-Double Gate (TM-DG) MOSFETs (Co-Supervisor: Mr. A. Pandey)
25. **Manjeet Singh (2010)**: Analytical Modeling and Simulation of Subthreshold Characteristics of Triple Material-Double Gate (TM-DG) MOSFETs
26. **Ajay Singh (2010)**: Implementation of Canny Edge Detection Algorithm (Co-Supervisor: Mr. A. Pandey)
27. **Sumeet Kumar (2010)**: Implementation of Residual Excited Linear Predictive Vocodor using MATLAB (Co-Supervisor: Mr. A. Pandey)
28. **Vimal Gupta (2009)**: Analytical Modeling and Simulation of the Threshold Voltage of FD-SOI MOSFETs with a Vertical Gaussian Doping Profile
29. **Kanakadas Y(2005)**: Analytical Modeling and Simulation of Optically Controlled DCFL Inverter using GaAs E-MESFETs
30. **Ratnakar Subudhi (2003)**: Microwave Characterization of a GaAs Based Optically Controlled Metal Semiconductor Field Effect Transistor
31. **Manoj Thapliyal (2001)**: Design of a Signaling Management Scheme for DAMA Based SATCOM Networks
32. **Jayanta Mandal (2001)**: A Comparative Study of QPSK, Q<sup>2</sup>PSK and MSK System
33. **Seema Jaiswal (1999)**: Safety Critical Real Time Systems for Railways Signaling
34. **N. S. Rana (1998)**: Design and Implementation of 8-Bit Trellis Code Modulators

### Sponsored Research Projects

1. Title: *Low-Voltage Low-Power Logic Circuit Design Using E-MESFETs for VLSI Applications.*  
Principal Investigator: Prof. B. B. Pal  
Co-Investigator: **S. Jit** and R. U. Khan  
Sponsored by *AICTE*, 2002-04  
Status: Completed
2. Title: *Analysis and Simulation of Photodetectors for Mid-infrared Applications*  
Principal Investigator: Prof. P. Chakrabarti  
Co-Investigator: **Prof. S. Jit**  
Sponsored by *CSIR*, 2006-09  
Status: Completed
3. Title: *Modeling and Simulation of Advanced Nano-Scaled CMOS Devices*  
Principal Investigator: **Prof. S. Jit**  
Sponsored Agency: IIT(BHU), Varanasi  
Status: On-going
4. Title: Development of Polymer and Doped Quantum Dots Blended Tandem Solar Cells Using Low-Cost Solution Processed Method  
Principal Investigator: **Prof. S. Jit**  
Sponsored Agency: DST, Govt. of India  
Status: On-going
5. Title: *Special Manpower Development Project for System to Chip Design (SMDP-C2SD)* (National Level Project)  
Chief Investigator: **Prof. S. Jit**  
Co-Chief Investigator: Prof. R. B. Mishra  
Sponsored Agency: DeitY, Govt. of India  
Status: On-going

### Fellowships/Awards/Recognition/Honours

1. **BOYSCAST Fellowship (2010-2011)**, Ministry of Science and Technology, Govt. of India. Worked as the BOSCAST Fellow in the Max-Born-Institute, Division C, Berlin during Sept. 22 to Dec. 25, 2012 under the above mentioned fellowship.
2. **Postdoctoral Research Fellowship**, Georgia State University, Atlanta, USA, March-August, 2007.
3. **INSA-Visiting Fellowship**, 2006-2007
4. **Man of the Year 2012** awarded by the *American Biographical Institute* in 2012
5. **Sir Isaac Newton Scientific Award of Excellence for 2012** awarded by the *American Biographical Institute* in 2012
6. **Fellow**, *The Institution of Electronics and Telecommunication Engineers (IETE)*, India
7. **Fellow**, *The Institution of Engineers (India)*
8. **Senior Member**, *IEEE*, USA
9. Appointed as one of the **Juries** for the **India Innovation Initiative (i3)**, a national-level competition in innovation and entrepreneurship organized by the **Confederation of Indian Industry** in partnership with the AICTE and Department of Science and Technology (DST), Government of India in 2015.

10. Worked as a **National Jury** in the 8th India Innovation Initiative: National Fair & Awards Ceremony 2016 held during 18-19 October, 2016 at the Lalit Hotel, New Delhi jointly organized by the Confederation of Indian Industry (CII), Department of Science & Technology (DST) and All India Council of Technical Education (AICTE) as a part of India Start-up & India Stand-up program announced by our Hon'ble Prime Minister.

11. Worked as **Reviewer** in the following **Journals**:

**International:**

- (a) *IEEE Trans. Electron Devices*
- (b) *IEEE Electron Device Letters*
- (c) *IEEE Journal of Quantum Electronics*
- (d) *IEEE Journal of Selected Topics in Quantum Electronics*
- (e) *IEEE Trans. Components and Packaging Technology*
- (f) *IEEE Trans. Nanotechnology*
- (g) *IEEE Trans. Very Large Scale Integration Systems*
- (h) *Journal of Applied Physics*
- (i) *Journal of Applied Physics Letters*
- (j) *Microsystem Technologies*
- (k) *Indian Journal of Physics*
- (l) *Journal of Vacuum Science & Technology*
- (m) *Solid State Electronics*
- (n) *Microelectronics Journal*
- (o) *IET Science, Measurement & Technology*
- (p) *IET Circuits, Devices and Systems*
- (q) *Journal of Electrical Engineering & Technology*
- (r) *Superlattices and Microstructures Journal (Elsevier)*
- (s) *Materials Science and Engineering B*
- (t) *ACS Applied Materials and Interfaces*

**National:**

- (a) *IETE Journal of Research*
- (b) *IETE Technical Review*

12. My name was included in the **Golden List of Reviewers** of the **IEEE Trans. Electron Devices** for the following calendar years:

- 2004** (Ref.: Vol.51, pp. 1948-1961, Dec. 2004)
- 2005**(Ref. Vol.52, pp.2516-2532, Dec. 2005),
- 2006**(Ref.: Vol.53, pp. 2861-2877, Dec. 2006)
- 2008**(Ref.: Vol.55, pp. 3324-3345, Dec. 2008)
- 2009** (Ref.: Vol.56, pp. 2856-2878, Dec. 2009)
- 2012** (Ref.: Vol.59, pp. 3148-3177, Dec. 2012)

13. **Worked as Ph.D. Thesis Examiner:** University of Calcutta; Jadavpur University; Delhi University; Anna University; Jawaharlal Nehru Technological University Hyderabad; Rajiv Gandhi Pradyugiki University Bhopal; NIT Agartala; NIT Raurkela; NIT Silchar; VNIT Nagpur; SRM University-Chennai; St. Peter's University, Tamil Nadu; ISM Dhanbad; IIT Roorkee, IIT Delhi etc.

**14. Expert Member of the UGC and AICTE Teams:**

- Visited as an UGC expert member to the V.S.S. University of Technology, Burla, Odisha during September 17-18, 2012
- Visited as an AICTE expert member to Arya College of Engineering and Information Technology, Jaipur, Rajasthan on 18-Oct-2016.

**15. Visited as an Expert Member of the National Board of Accreditation (NBA)**

**Team to the following Institutes:**

- i) National Institute of Technology, Warangal (Oct. 10-12, 2014)
- ii) BRCM College of Engineering & Technology, Bhiwani, Haryana (April 17-19, 2015)
- iii) Audisankara College of Engineering & Technology, Nellore, Andhra Pradesh (May 29-31, 2015)
- iv) Karnatak Law Society's Gogte Institute of Technology, Udyambag, Karnataka (August 21-23, 2015)
- v) Vasireddy Venkatadri Institute of Technology, Nambur (V), Pedakakani (M), Guntur, AP (Oct. 02-04, 2015)
- vi) Tezpur University, Nappam, Sonitpur, 784 028, Assam (November 6-8, 2015)
- vii) St. Peter's Engineering College, Maisammaguda, R.R. Dist., Hyderabad-500014, Telengana (January 08-10, 2016)
- viii) MCKV Institute of Engineering, Liluah, Howrah- 711 204 West Bengal (February 19-21, 2016)
- ix) B.S. Abdur Rahman University, Chennai, Tamil Nadu (April 15-17, 2016)
- x) National Institute of Technology Calicut, Kozhikode, Kerala- 673 601 (August 19-21, 2016)
- xi) MAEER's MIT College of Engineering, Pune (September 16-18, 2016)
- xii) Panimalar Engineering College, Bangalore Trunk Road, Varadharajapuram, Nazarathpet, Poonamallee, Chennai-600123 (October 22-23, 2016)

**16. Advisory Board Member/Technical Committee Member of National/International Conference/Workshop**

- 5th International Conference on Wireless and Optical Communications (ICWOC 2017) to be held in Singapore, during July 7-9, 2017
- IEEE Second International Conference on *Electrical, Computer and Communication Technologies* (IEEE ICECCT 2017), February 22-24, 2017; SVS College of Engineering, JP Nagar, Coimbatore, Tamilnadu, India
- IEEE International Conference on Recent Advances and Innovations in Engineering (ICRAIE-2016), December 23-25, 2016; Purnima College of Engineering, Purnima University, Jaipur
- IEEE Conference on *Emerging Devices and Smart Systems* (ICEDSS 2016), March 4-5, 2016; Mahendra Engineering College (Autonomous), Mallasamudram, Tamilnadu, India.
- International Conference on *Allied Electrical and Communication Systems*, December 8-10, 2016, VFSTR University, Vadlamudi, A.P.
- IEEE First International Conference on *Electrical, Computer and Communication Technologies* (IEEE ICECCT 2015), March 5-7, 2015; SVS College of Engineering, JP Nagar, Coimbatore, Tamilnadu, India

- 1<sup>st</sup> National Conference on *Technology Enabling Modernization of Rural India* (TMRI-2015); October 30-31, 2015; Suresh Gyan Vihar University, Jaipur, India
- International Conference on *Frontiers in Materials Science and Technology* (ICFMST-2015); December 8-10, 2015; National Institute of Science and Technology (NIST), Behrampur, Odisha
- International Conference on *Devices, Circuits & Communications* (ICDCCom-2014), September 12-13, 2014, BIT Mesra, Ranchi
- National Conference on *Future Trends in Biomedical Engineering and Health Care Technologies*, October 17-18, 2014, IIT(BHU), Varanasi

#### 17. A. Editor-In-Chief of International Journal

- *Material Science Research India*
- *Trends in Opto-Electro & Optical Communications*

#### B. Member of Editorial Board of International Journals

- *NIEEE (The Nigerian Institution of Electrical and Electronics Engineers) Technical Transactions*
- *Journal of Advance Research in Microelectronics and VLSI*
- *Journal of Advance Research in Electrical Engineering and Technology*
- *Journal of VLSI Design Tools & Technology*
- *Journal of Electronic and Electrical Engineering*

#### Conference/Workshop/Course Organized

1. Worked as **Coordinator** of the UGC Sponsored 1<sup>st</sup> Refresher Course on ***Information and Communication Technology (ICT) Applications*** organized by the UGC-Academic Staff College, Banaras Hindu University (BHU), Varanasi-221005 during May 23-June 12, 2009 for the college and university teachers.
2. Worked as **Co-Coordinator** of the ***National Workshop on Advanced Optoelectronic Materials and Devices (AOMD-2007)*** organized by the Department of Electronics Engineering, IT-BHU, Varanasi-221005 during December 27-29, 2007.
3. Worked as **Co-Coordinator** of the ***2<sup>nd</sup> National Workshop on Advanced Optoelectronic Materials and Devices (AOMD-2008)*** organized by the Department of Electronics Engineering, IT-BHU, Varanasi-221005 during December 22-24, 2008.
4. Worked as **Organizing Secretary** of the ***International Conference on Emerging Trends in Electronic and Photonic Devices and Systems*** organized by the Department of Electronics Engineering, IT-BHU, Varanasi-221005 during December 22-24, 2009.
5. Worked as **Coordinator** of the UGC Sponsored 2<sup>nd</sup> Refresher Course on ***Information and Communication Technology (ICT) Applications*** organized by the UGC-Academic Staff College, Banaras Hindu University (BHU), Varanasi-221005 during September 22-October 12, 2010 for the college and university teachers.



6. Worked as Chairman of the **University Workshop on National e-Governance Plan** held on Sept.28, 2012 at the Swatantra Bhawan, BHU
7. Worked as **Coordinator**, AICTE Sponsored Short-Term Course on **Modeling and Simulation of Advanced Semiconductor Devices** organized by the Department of Electronics Engineering, IIT(BHU) Varanasi during July 17-22, 2017.

### List of Publications

#### **Papers Published in the IEEE Journals:**

1. Y. Kumar, H. Kumar, B. Mukherjee, G. Rawat, C. Kumar, B. N. Pal and **S. Jit**, "Visible-blind Au/ZnO Quantum dots based Highly Sensitive and Spectrum Selective Schottky Photodiode," *IEEE Trans. Electron Devices* (**Accepted**)
2. H. Kumar, Y. Kumar, B. Mukherjee, G. Rawat, C. Kumar, B. N. Pal and **S. Jit**, "Electrical and Optical Characteristics of Self-Powered Colloidal CdSe Quantum Dot (QD) Based Photodiode," *IEEE J. Quantum Electronics*, Vol. 53, page: 4400108:1-8, 2017
3. G. Rawat, H. Kumar, Y. Kumar, B. Mukherjee, C. Kumar, B. N. Pal and **S. Jit**, "Effective Richardson Constant of Sol-Gel Derived TiO<sub>2</sub> Films in n-TiO<sub>2</sub>/p-Si Heterojunctions," *IEEE Electron Device Letters*, Vol. 38, pp. 633 - 636, 2017.
4. S. Kumar, E. Goel, K. Singh, B. Singh, P. K. Singh, K. Baral and **S. Jit**, "2D Analytical Modeling of the Electrical Characteristics of Dual-Material Double-Gate TFETs with a SiO<sub>2</sub>/HfO<sub>2</sub> Stacked Gate-Oxide Structure," *IEEE Trans. Electron Devices* (**Accepted**)
5. B. Singh, D. Gola, K. Singh, E. Goel, S. Kumar and **S. Jit**, "Two-Dimensional Analytical Threshold Voltage Model for Dielectric Pocket Double-Gate Junctionless FETs by Considering Source/Drain Depletion Effect," *IEEE Trans. Electron Devices*, Vol 64, No. 3, pp. 901 - 908, 2017.
6. Y. Kumar, H. Kumar, G. Rawat, C. Kumar, A. Sharma, B. N. Pal and **S. Jit**, "Colloidal ZnO Quantum Dots Based Spectrum Selective Ultraviolet Photodetectors" *IEEE Photonics Technol. Lett.*, Vol. 29 no. 4, pp. 361 - 364, 2017.
7. G. Rawat, D. Somvanshi, Y. Kumar, H. Kumar, C. Kumar and **S. Jit**, "Electrical and Ultraviolet-A Detection Properties of E-Beam Evaporated n-TiO<sub>2</sub> Capped p-Si Nanowires Heterojunction Photodiodes", *IEEE Trans. Nanotechnology*, Vol. 16 no. , pp. 49 - 57, Jan. 2016.
8. S. Kumar, E. Goel, K. Singh, B. Singh, M. Kumar and **S. Jit**, "A Compact 2D Analytical Model for Electrical Characteristics of Double-Gate Tunnel Field-Effect Transistors with a SiO<sub>2</sub>/High-k Stacked Gate-Oxide Structure", *IEEE Transactions on Electron Devices*, Vol 63, No. 8, pp. 3291-3299, 2016.
9. M. Kumar, S. Kumar, E. Goel, K. Singh, B. Singh, and **S. Jit**, "Strain-Induced Plasma Radiation at Terahertz Domain in Strained-Si-on-Insulator MOSFETs", *IEEE Trans. on Plasma Science*, Vol. 44, No. 3, pp. 245-249, 2016.
10. G. Rawat, D. Somvanshi, H. Kumar, Y. Kumar, C. Kumar and **S. Jit**, "Ultraviolet Detection Properties of p-Si/n-TiO<sub>2</sub> Heterojunction Photodiodes Grown by Electron-Beam Evaporation and Sol-Gel Methods: A Comparative Study," *IEEE Trans. Nanotechnology*, Vol. 15, No. 2, pp. 193-200, 2016.
11. E. Goel, S. Kumar, K. Singh, B. Singh, M. Kumar, and **S. Jit**, "2-D Analytical Modeling of Threshold Voltage for Graded-Channel Dual-Material Double-Gate MOSFETs", *IEEE Transactions on Electron Devices*, Vol 63, No. 3, pp. 966-973, 2016.
12. B. Singh, D. Gola, K. Singh, E. Goel, S. Kumar and **S. Jit**, "Analytical Modeling of Channel Potential and Threshold Voltage of Double Gate Junctionless Field Effect Transistors with a Vertical Gaussian-Like Doping Profile", *IEEE Transactions on Electron Devices*, Vol 63, No. 6, pp. 2299-2305, 2016.
13. M. Kumar, and **S. Jit**, "A Novel Four-Terminal (4T) Ferroelectric Tunnel FET (Fe-TFET) for Quasi-Ideal Switch," *IEEE Trans. Nanotechnology* (under Letters category), Vol. 14, No. 4, pp.600-602, 2015

14. M. Kumar, and **S. Jit**, "Effects of Electrostatically Doped Source/Drain and Ferroelectric Gate Oxide on Subthreshold Swing and Impact Ionization Rate of Strained-Si-on-Insulator Tunnel Field Effect Transistors," *IEEE Trans. Nanotechnology* (under Letters category), Vol. 14, No. 4, pp. 597-599, 2015.
15. A. B. Yadav, A. Pandey, D. Somvanshi and **S. Jit**, "Sol-Gel Based High Sensitive Pd/n-ZnO Thin Film /n-Si Schottky Ultraviolet Photodetectors," *IEEE Trans. Electron Devices*, Vol. 62, No. 6, pp. 1879-1884, 2015
16. D. Somvanshi and **S. Jit**, "Effect of ZnO Seed Layer on the Electrical Characteristics of Pd/ZnO Thin Film based Schottky Contacts Grown on n-Si Substrates," *IEEE Trans. Nanotechnology*, Vol.13(6),pp.1138-1144, 2014
17. D. Somvanshi and **S. Jit**, "Analysis of Temperature Dependent Electrical Characteristics of n-ZnO Nanowires(NWs)/p-Si Heterojunction Diodes," *IEEE Trans. Nanotechnology*, Vol.13, pp.62-69, 2014.
18. D. Somvanshi and **S. Jit**, "Effects of Sn and Zn Seed Layers on the Electrical Characteristics of Pd/ZnO Thin Film Schottky Diodes Grown on n-Si Substrates," *IEEE Electron Device Letters*, Vol.35(9), pp.945-947, 2014
19. D. Somvanshi and **S. Jit**, "Pd/ZnO Nanoparticles Based Schottky Ultraviolet Photodiodes Grown on Sn Coated n-Si Substrates by Thermal Evaporation Method," *IEEE J. Selected Topics in Quantum Electronics*, Vol. 20 (6), pp. 3803106:1-6, 2014
20. A. B. Yadav, A. Pandey and **S. Jit**, "Pd Schottky Contacts on Sol-Gel Derived ZnO Thin Films with Nearly Ideal Richardson Constant," *IEEE Electron Device Letters*, Vol. 35, pp. 729-730, July 2014
21. D. Somvanshi and **S. Jit**, "Mean Barrier Height and Richardson Constant for Pd/ZnO Thin Film Based Schottky Diodes Grown on n-Si Substrates by Thermal Evaporation Method," *IEEE Electron Device Letters*, Vol.34(10), pp.1238-1240, 2013
22. **S. Jit**, Aruna Bandara Weerasekara, Ranga Chaminda Jayasinghe, Steven G. Matsik, A. G. Unil Perera, Margaret Buchanan, G. Irwin Sproule, H. C. Liu, Andreas Stintz, Sanjay Krishna, S. P. Khanna, M. Lachab, and E. H. Linfield, "Dopant Migration-Induced Interface Dipole Effect in n-Doped GaAs/AlGaAs Terahertz Detectors," *IEEE Electron Device Letters*, vol. **29**, pp. 1090-1093, Oct. 2008.
23. P. Pandey, B.B.Pal, and **S. Jit** "A New Two-Dimensional Analytical Model for Potential Distribution and Threshold Voltage of Fully Depleted Short - Channel Si-SOI-MESFET's," *IEEE Trans. Electron Devices*, vol. **51**, pp. 246-254, Feb. 2004.
24. **S. Jit** and B. B. Pal, "A New Optoelectronic Integrated Device for Light Amplifying Optical Switch," *IEEE Trans. Electron Devices*, vol. **48**, pp.2732-2739, Dec.2001.

#### **Papers Published in Other Journals:**

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### **C. Books Published**

1. Jacob Millman, Christos C. Halkias, and **Satyabrata Jit**, *Millman's Electronic Devices and Circuits, 4e*, **Tata McGraw-Hill Publishing Company Limited, New Delhi, 2015.**
2. P. Chakrabarti, **S. Jit** and A. Pandey, "Emerging Trends in Electronic and Photonic Devices & Systems," **Macmillan Publishers India Limited, New Delhi, 2009**
3. P. Chakrabarti and **S. Jit**, "Advanced Optoelectronic Materials and Devices," **Macmillan Publishers India Limited, 2008.**
4. P. Chakrabarti, S. Jit and R. Kumar, "Recent Advances in Micro-Electro Mechanical Systems," **Macmillan Publishers India Limited, New Delhi, 2011**
5. **S. Jit**, "Advances in Microelectronics and Photonics" **Nova Science Publisher, New York, USA (2012)**

### **D. Guest Editor of International Journal**

Fangyu Yue, **Satyabrata Jit**, and Weida Hu, *The Scientific World Journal* (Special Issue on *Narrow-Gap Semiconductors and Low-Dimensional Structures for Optoelectronic Applications*), Vol. **2014** (2014)

### **E. Book Chapter**

P. K. Tiwari, S. Dubey and S. Jit, "Double-Gate (DG) MOSFETs: A Review," In: *Advances in Microelectronics and Photonics* published by the *Nova Science Publisher, Inc.*, New York, USA (2012)

### **F. Invited Lectures Delivered**

- [1] "ZnO and TiO<sub>2</sub> Nanostructure Based Schottky and Heterojunction Diodes for Ultraviolet Detections" delivered on March 08, 2017 at the **Department of Instrument Technology, College of Engineering, Andhra University, Visakhapatnam.**
- [2] "Fabrication and Characterization of p-Si/n-TiO<sub>2</sub> Nanostructure Heterojunction Diodes for Ultraviolet Detections" delivered on December 09, 2016 in the

- International Conference on Allied Electrical and Communication Systems (ICA ECS-2017)** organized by the Vignan University, Guntur, A.P. during December 8-10, 2016
- [3] *“Basic Concepts and Modeling of JFET, MESFET and MOSFET”* delivered on November 30, 2016 in the UGC-Sponsored Refresher Course on **“VLSI Design and Nanotechnology: Issues and Challenges”** organized by the **Jadavpur University, Kolkata** during **November 28-December 17, 2016**
- [4] *“Electrical and Optical Properties of Metal Oxide Nanostructures Based Schottky and Heterojunction Diodes”* delivered on July 29, 2016 in the workshop **“Emerging areas of Electronics and Communication Engineering”** organized by the Department of Electronics and Telecommunication Engineering, Jadavpur University, Kolkata.
- [5] *“Advanced MOS Transistors for Future Generation Integrated Circuits: An Overview”* delivered on July 11, 2016 in the Faculty Development Program on **Integrated Circuits: Design and Applications** organized by the **United Institute of Technology, Allahabad** during **July 11-15, 2016**.
- [6] *“Fundamentals of Field Effect Transistors: Basic Concepts and Modeling”* delivered on July 11, 2016 in the Faculty Development Program on **Integrated Circuits: Design and Applications** organized by the **United Institute of Technology, Allahabad** during **July 11-15, 2016**.
- [7] *“Effects of Seed Layers on the ZnO Nanostructure materials grown on Si Substrates for Electronic and Ultraviolet Detection Application”* delivered on December 12, 2015 in the **International Conference on Frontiers in Materials Science & Technology (ICFMST 2015)** held during **December 10-12** at **National Institute of Science and Technology, Berhampur, Odisha, India**
- [8] *“Advances in CMOS Devices: An Overview”* delivered on November 12, 2015 at the **Mepco Schlenk Engineering College, Sivakasi, Tamilnadu - 626 005**
- [9] *“Electrical and Ultraviolet Detection Properties of Some n-ZnO/p-Si Nanostructure Heterojunctions”* delivered on November 03, 2015 at the **Advanced Nanomaterials: Characterizations and Applications (WANCA-2015)** held during **November 02-08, 2015** at the **Department of Physics, Banaras Hindu University, Varanasi, India**.
- [10] *“Fabrication and Characterization of Some p-Si/n-ZnO Nanostructured Heterojunction Devices for Electronic and Ultraviolet Detection Applications”* delivered on October 24, 2015 at the **2<sup>nd</sup> International Conference on Emerging Technologies: Micro to Nano (ETMN 2015)** during **24-25 October, 2015** at **Manipal University, Jaipur, India**.
- [11] *“Terahertz Technology: Principles and Applications”* delivered on October 14, 2015 at the **Dept. of Electronics and Communication Engineering, Kashi Institute of Technology, Varanasi**
- [12] *“Principles and Applications of Terahertz Technology: An Overview”* delivered on September 25, 2015 at the **International Conference on Signal Processing, Computing and Control (2015 ISPCC)** during **September 24- 26, 2015** at **Jaypee University of Information Technology, Wanknaghat, Solan, H.P., INDIA**
- [13] *“Referencing in Research Articles using EndNote Software”* delivered on September 17, 2015 in the **“Capacity Building Programme for Faculty Member in Social Sciences”** held during **September 6-19, 2015** at **Faculty of Commerce, BHU**
- [14] *“Art of Referencing in Research Articles”* delivered on June 23, 2015 in the **Workshop on Research Methodology for Ph.D. Students in Social Sciences** held during **June 15-24, 2015** at **Faculty of Management Studies, BHU**
- [15] *“Introduction to Terahertz Technology,”* delivered at the **Advanced VLSI, Signal processing and Communication network (AVSC-2014)** during **May 19-24,**

- 2014, Motilal Nehru National Institute of Technology (MNNIT), Allahabad on May 23, 2014**
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- [18] *“Fundamentals of Information and Coding Theory,”* delivered at the **Workshop on Communication System Design (WCSD-2014), Sambhunath Institute of Engineering and Technology, Allahabad** on April 03, 2014
- [19] *“Fundamentals of CMOS Scaling: A Journey from Diode to Non-Classical CMOS Technology”* delivered at the **Dept. of Electronics & Communication Engineering, Jadavpur University, Kolkata** on December 21, 2013
- [20] *“E-Governance”* delivered at the **Management Development Program on Financial Management, Faculty of Commerce, BHU** on January 16, 2014
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- [22] *“Importance of Referencing in Research Reports: Introduction to the EndNote Software”* delivered on Sept. 15, 2013 in the **ICSSR Sponsored 10 days Research Methodology Programme for Ph.D Students in Social Sciences** organized by the **Faculty of Commerce** during **September 6-15, 2013**
- [23] *“Non-Classical CMOS Technology: An Overview”* delivered at the **“Student’s Conference on Engineering and Systems (SCES 2013),”** April 12-14, 2013, MNNIT, Allahabad
- [24] *“A Journey from BJT to Multi-Gate CMOS Technology”* delivered on January 11, 2013 at the Dept. of Electronics & Communication Engineering, NIT Agartala, Tripura
- [25] *“Advances in MOSFET Technology: An Overview”* -delivered at the **“Student’s Conference on Engineering and Systems (SCES 2012),”** March 16-18, 2012, MNNIT, Allahabad.
- [26] *“Modeling and Simulation of Some Advanced Non-Classical CMOS Devices”* delivered at the nanoMASTD-12, July 07, 2012, Institute of Radio Physics & Electronics, Kolkata.
- [27] *“CMOS Scaling: Issues, Trends and Key Technology Innovations”*-delivered at the **International Conference on Power, Control and Embedded Systems (ICPCES-2010),** Nov.28-Dec.01, 2010, MNNIT, Allahabad.
- [28] *“Terahertz Technology: An Overview”*- delivered at the **Workshop on Nanotechnology in Semiconductor Industry,** April 5-6, 2008, Department of ECE, M.M.M. Engineering College, Gorakhpur.
- [29] *“Issues and Challenges of Nanoscale MOSFETs”*- delivered at the **Workshop on Nanotechnology in Semiconductor Industry,** April 5-6, 2008, Department of ECE, M.M.M. Engineering College, Gorakhpur.
- [30] *“Global Positioning Systems: An Overview”* delivered at the **Winter School on Information and Communication Technologies Mediated Agricultural Extension: Basics to Advances,** December 15,2010 - January 05, 2011, Department of Extension Education, Institute of Agricultural Sciences, BHU, Varanasi.
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