

Dr.N.B.Balamurugan Publications

Publication Details	Year of Publication
Analytical Modeling of Surrounding Gate Junctionless MOSFET Using Finite Differentiation Method S Preethi, NB Balamurugan Silicon, 1-11	2020
Three-dimensional analytical modeling for small-geometry AlInSb/AlSb/InSb double-gate high-electron-mobility transistors (DG-HEMTs) TV Kumar, NB Balamurugan JOURNAL OF COMPUTATIONAL ELECTRONICS	2020
The improved RF/stability and linearity performance of the ultrathin-body Gaussian-doped junctionless FinFET S Manikandan, NB Balamurugan Journal of Computational Electronics, 1-9	2020
Influence of Threshold Voltage Performance Analysis on Dual Halo Gate Stacked Triple Material Dual Gate TFET for Ultra Low Power Applications M Venkatesh, NB Balamurugan Silicon, 1-13	2020
Influence of Germanium Source Dual Halo Dual Dielectric Triple Material Surrounding Gate Tunnel FET for Improved Analog/RF Performance M Venkatesh, M Suguna, NB Balamurugan Silicon, 1-9	2020
Improvement of Subthreshold Characteristics of Dopingless Tunnel FET Using Hetero Gate Dielectric Material: Analytical Modeling and Simulation NB Balamurugan Silicon, 1-13	2019
Analytical model of double gate stacked oxide junctionless transistor considering source/drain depletion effects for CMOS low power applications S Manikandan, NB Balamurugan, D Nirmal Silicon, 1-11	2019
Impact of uniform and non-uniform doping variations for ultrathin body junctionless FinFETs S Manikandan, NB Balamurugan, TSA Samuel Materials Science in Semiconductor Processing 104, 104653	2019
Subthreshold performance analysis of germanium source dual halo dual dielectric	2019

triple material surrounding gate tunnel field effect transistor for ultra low power applications M Venkatesh, M Suguna, NB Balamurugan Journal of Electronic Materials 48 (10), 6724-6734	
New subthreshold performance analysis of germanium based dual halo gate stacked triple material surrounding gate tunnel field effect transistor M Venkatesh, NB Balamurugan Superlattices and Microstructures 130, 485-498	2019
Analytical Modeling of High Electron Mobility Transistors NB Balamurugan Handbook for III-V High Electron Mobility Transistor Technologies, 173-210	2019
A 2-D Modeling of Fe doped Dual Material Gate AlGaIn/AlN/GaN High Electron Mobility Transistors for High Frequency Applications K Sowmya, NB Balamurugan, V Parvathy AEU-International Journal of Electronics and Communications 103, 46-56	2019
Influence of Temperature in Scattered SiNW MOSFET IS Arafat, NB Balamurugan, SB Khan Proceedings of the National Academy of Sciences, India Section A: Physical ...	2019
2D analytical modeling and simulation of dual material DG MOSFET for biosensing application B Buvaneswari, NB Balamurugan AEU-International Journal of Electronics and Communications 99, 193-200	2019
New dual material double gate junctionless tunnel FET: Subthreshold modeling and simulation GL Priya, NB Balamurugan AEU-International Journal of Electronics and Communications 99, 130-138	2019
VLSI Design and Test: 22nd International Symposium, VDAT 2018, Madurai, India, June 28-30, 2018, Revised Selected Papers S Rajaram, NB Balamurugan, DGN Rani, V Singh Springer	2019
An Analytical Modeling and Simulation of Surrounding Gate TFET with an Impact of Dual Material Gate and Stacked Oxide for Low Power Applications V Dharshan, NB Balamurugan, TS Samuel Journal of Nano Research 57, 68-76	2019
Sensitivity analysis of double gate metal oxide semiconductor field effect transistor for bio-sensing applications B Buvaneswari, NB Balamurugan	2019

Journal of Nanoelectronics and Optoelectronics 14 (1), 136-145	
Comparative analytical analysis of various configurations of nanoscaled dielectric-modulated double gate MOSFET based biosensors B Buvaneswari, NB Balamurugan Journal of Optoelectronics and Advanced Materials 20 (September-October 2018 ...	2018
Analytical modeling of InSb/AlInSb heterostructure dual gate high electron mobility transistors TV Kumar, NB Balamurugan AEU-International Journal of Electronics and Communications 94, 19-25	2018
Subthreshold Modeling of Triple Material Gate-All-Around Junctionless Tunnel FET with Germanium and High-K Gate Dielectric Material L Priya Informacije MIDEEM 48 (1), 53-62	2018
Two Isolated Depletion Regions Analytical Model of Sheet Carrier Density and Threshold Voltage for InAlAs/InGaAs HEMTs K Sowmya, M Venkatesh, R Rojana, KSK Virutchu, AV Priya, K Swathika, ... 2018 Conference on Emerging Devices and Smart Systems (ICEDSS), 88-91	2018
A Comparison of Analytical Modeling of Double Gate and Dual material Double GateTFETs with high-KStacked Gate-Oxide Structure forLow power Applications V Dharshana, AY Fathima, S Harinie, SMB Priamvatha, V Ajitha, ... 2018 Conference on Emerging Devices and Smart Systems (ICEDSS), 92-96	2018
Performance Analysis of Fuzzy processor for a Healthcare Application-Diabetic Epilepsy Risk Classifier M Jothi, NB Balamurugan, RH Kumar Asian Journal of Research in Social Sciences and Humanities 7 (2), 124-140	2017
Influence of scattering in near ballistic silicon nanowire metal-oxide-semiconductor field effect transistor IS Arafat, NB Balamurugan Journal of Nanoscience and Nanotechnology 16 (6), 6032-6036	2016
Analytical modeling of nanoscale Quad Gate MOSFET including quantum mechanical effects NB Balamurugan, MS Abirami, B Buvaneswari, K Sowmya 2016 Conference on Emerging Devices and Smart Systems (ICEDSS), 1-5	2016
Analytical modeling of dual material gate all around stack architecture of tunnel FET NB Balamurugan, GL Priya, S Manikandan, G Srimathi	2016

2016 29th International Conference on VLSI Design and 2016 15th ...	
Respiratory Emergencies in Children S Thangavelu, RC Sharada, N Balamurugan Clinical Pathways in Emergency Medicine, 251-263	2016
Triple material surrounding gate (TMSG) nanoscale tunnel FET-analytical modeling and simulation P Vanitha, NB Balamurugan, GL Priya Journal of Semiconductor Technology and science 15 (6), 585-593	2015
Analysis of charge density and Fermi level of AlInSb/InSb single-gate high electron mobility transistor ST Chandra, NB Balamurugan, M Bhuvaneswari, N Anbuselvan, ... Journal of Semiconductors 36 (6), 064003	2015
Subthreshold behavior of AlInSb/InSb high electron mobility transistors ST Chandra, NB Balamurugan, GL Priya, S Manikandan Chinese Physics B 24 (7), 076105	2015
COMPARATIVE ANALYSIS OF QUANTUM EFFECTS IN NANO-SCALE MULTIGATE MOSFETS USING VARIATIONAL APPROACH V Palanichamy, NB Balamurugan Journal of Engineering Science and Technology 10 (2), 224-234	2015
Compact modeling of gate engineered triple material gate (TMG) AlInSb/InSb high electron mobility transistors ST Chandra, NB Balamurugan, GL Priya, V Muralidharan, DSSR RANI Journal of Optoelectronics and Advanced Materials 17 (January-February 2015 ...	2015
Subthreshold behavior of AlInSb/InSb high electron mobility transistors S Theodore, NB Balamurugan, G Lakshmi, S Manikandan 中国物理 B: 英文版, 360-364	2015
Impact of Electricfield Distribution on the performance of Dual Material Gate Work function Engineered Surrounding Gate Nanowire Tunnel FETs GL Priya, NB Balamurugan, D Saraswathi International Journal of Applied Engineering Research 10 (1), 1018-1023	2015
A compact analytical model for 2D triple material surrounding gate nanowire tunnel field effect transistors D Saraswathi, NB Balamurugan, GL Priya, S Manikandan Intelligent Computing and Applications, 325-332	2015
Analytical Approach on the Scale Length Model for Tri-material Surrounding Gate Tunnel Field-Effect Transistors (TMSG-TFETs)	2015

P Vanitha, GL Priya, NB Balamurugan, ST Chandra, S Manikandan Intelligent Computing and Applications, 231-238	
A Novel scaling theory for Single Gate AlInSb/InSb High Electron Mobility Transistors G LakshmiPriya, S Manikandan, NB Balamurugan, ST Chandra 2014 International Conference on Communication and Network Technologies, 211-215	2014
Analytical threshold voltage modeling of surrounding gate silicon nanowire transistors with different geometries MK Pandian, NB Balamurugan Journal of Electrical Engineering & Technology 9 (6), 2079-2088	2014
Compact analytical model for single gate AlInSb/InSb high electron mobility transistors ST Chandra, NB Balamurugan, G Subalakshmi, T Shalini, GL Priya Journal of Semiconductors 35 (11), 114003	2014
Performance Analysis of Silicon and Germanium Nanowire Transistor using Crystal Orientation and Oxide Thickness PT Mary, NB Balamurugan International Journal of Advanced Computer Research 4 (3), 898	2014
Analytical Modeling of Junctionless Surrounding Gate Silicon Nanowire Transistors MK Pandian, NB Balamurugan, S Manikandan Journal of Nanoelectronics and Optoelectronics 9 (4), 468-473	2014
Effects of Roughness Scattering in Carrier Transport of Near Ballistic Silicon NanoWire MOSFET. NB Balamurugan, C Priya Applied Mechanics & Materials	2014
Location service for wireless network using improved RSS-based cellular localisation S Fayaz, S Sarrafian International Journal of Electronics 101 (6), 763-778	2014
Analytical modelling and simulation of single-gate SOI TFET for low-power applications TS Arun Samuel, NB Balamurugan, S Bhuvaneswari, D Sharmila, ... International Journal of Electronics 101 (6), 779-788	2014
A 2D sub-threshold current model for single halo triple material surrounding gate (SHTMSG) MOSFETs	2014

PS Dhanaselvam, NB Balamurugan Microelectronics Journal 45 (6), 574-577	
Performance analysis of fully depleted triple material surrounding gate (TMSG) SOI MOSFET PS Dhanaselvam, NB Balamurugan Journal of Computational Electronics 13 (2), 449-455	2014
Performance analysis of silicon nanowire transistors considering effective oxide thickness of high-k gate dielectric ST Chandra, NB Balamurugan Journal of Semiconductors 35 (4), 044001	2014
A Compact Quantum Model for Cylindrical Surrounding Gate MOSFETs using High-k Dielectrics P Vimala, NB Balamurugan Journal of Electrical Engineering & Technology 9 (2), 649-654	2014
Modeling and simulation of nanoscale tri-gate MOSFETs including quantum effects P Vimala, NB Balamurugan Journal of Semiconductors 35 (3), 034001	2014
Analytical Surface potential model with TCAD simulation verification for evaluation of Surrounding Gate TFET TSA Samuel, NB Balamurugan, T Niranjana, B Samyuktha Journal of Electrical Engineering & Technology 9 (2), 655-661	2014
Analytical modeling and simulation of germanium single gate silicon on insulator TFET TSA Samuel, NB Balamurugan Journal of Semiconductors 35 (3), 034002	2014
New analytical model for nanoscale tri-gate SOI MOSFETs including quantum effects P Vimala, NB Balamurugan IEEE Journal of the Electron Devices Society 2 (1), 1-7	2014
An analytical modeling and simulation of dual material double gate tunnel field effect transistor for low power applications TSA Samuel, NB Balamurugan Journal of Electrical Engineering & Technology 9 (1), 247-253	2014
Analytical modeling of quantization effects in surrounding-gate MOSFETs N Takahashi, V Palanichamy, NB Balamurugan COMPEL: The International Journal for Computation and Mathematics in ...	2014

<p>Analytical IV Modeling of Accumulation Mode Cylindrical Surrounding Gate Nanowire Mosfets MK Pandian, NB Balamurugan, S Manikandan International Journal of Applied Engineering Research 9 (22), 17745-17758</p>	2014
<p>Triple Material Gate Work Function Engineering in Surrounding Gate Nanoscale MOSFETs for reduced Short Channel Effects (SCE's): Scale Length Model GL Priya, NB Balamurugan International Journal of ChemTech Research 7 (2), 1005-1013</p>	2014
<p>An analytical modeling and simulation of dual material double gate tunnel field effect transistor for low power applications TS Arun Samuel, NB Balamurugan Journal of Electrical Engineering and Technology 9 (1), 247-253</p>	2014
<p>Analytical modeling of quantization effects in surrounding-gate MOSFETs V Palanichamy, NB Balamurugan COMPEL: Int J for Computation and Maths. in Electrical and Electronic Eng ...</p>	2014
<p>Analysis of Tunnelling Rate Effect on Single Electron Transistor L Sheela, NB Balamurugan, S Sudha, J Jasmine Journal of Electrical Engineering and Technology 9 (5), 1670-1676</p>	2014
<p>A 2d analytical modeling of single halo triple material surrounding gate (SHTMSG) mosfet PS Dhanaselvam, NB Balamurugan, GC Chakaravarthi, RP Ramesh, ... Journal of Electrical Engineering and Technology 9 (4), 1355-1359</p>	2014
<p>Effects of roughness scattering in carrier transport of near ballistic silicon nanowire MOSFET IS Arafat, NB Balamurugan, C Priya Applied Mechanics and Materials 573, 201-208</p>	2014
<p>A surface potential model of junctionless surrounding gate (JLSG) MOSFET PS Dhanaselvam, NB Balamurugan, AN Ananthi 2013 International Conference on Green Computing, Communication and ...</p>	2013
<p>A 2D Transconductance and Sub-threshold behavior model for triple material surrounding gate (TMSG) MOSFETs PS Dhanaselvam, NB Balamurugan, VN Ramakrishnan Microelectronics Journal 44 (12), 1159-1164</p>	2013
<p>Modeling and simulation of centroid and inversion charge density in cylindrical surrounding gate MOSFETs including quantum effects P Vimala, NB Balamurugan Journal of Semiconductors 34 (11), 114001</p>	2013

<p>Analytical modeling and simulation of dual material gate tunnel field effect transistors TSA Samuel, NB Balamurugan, S Sibitha, R Saranya, D Vanisri Journal of Electrical Engineering & Technology 8 (6), 1481-1486</p>	2013
<p>Modelling the centroid and charge density in double-gate MOSFETs including quantum effects P Vimala, NB Balamurugan International journal of Electronics 100 (9), 1283-1295</p>	2013
<p>Performance evaluation of a fuzzy processor M Jothi, NB Balamurugan, R Harikumar 2013 Fourth International Conference on Computing, Communications and ...</p>	2013
<p>Analytical approach of a nanoscale triple-material surrounding gate (TMSG) MOSFETs for reduced short-channel effects PS Dhanaselvam, NB Balamurugan Microelectronics Journal 44 (5), 400-404</p>	2013
<p>Fuzzy processor based on VLSI—A review M Jothi, NB Balamurugan, R Harikumar 2013 International Mutli-Conference on Automation, Computing, Communication ...</p>	2013
<p>Analytical modeling of drain current, capacitance and transconductance in symmetric double-gate MOSFETs considering quantum effects V Palanichamy, NB Balamurugan International journal of nanoscience 12 (01), 1350005</p>	2013
<p>High performance double gate silicon nanowire transistors MS Gandhi, MK Pandian, NB Balamurugan 2013 International Conference on Emerging Trends in VLSI, Embedded System ...</p>	2013
<p>Potential and electric field model for 18 nm SG tunnel field effect transistor TSA Samuel, NB Balamurugan 2013 International Conference on Emerging Trends in VLSI, Embedded System ...</p>	2013
<p>Modeling the inversion charge centroid in Tri-Gate MOSFETs including quantum effects P Vimala, NB Balamurugan 2013 International Conference on Emerging Trends in VLSI, Embedded System ...</p>	2013
<p>Parameter extraction of single electron transistor based on Master Equation approach L Sheela, S Sudha, NB Balamurugan 2013 International Conference on Emerging Trends in VLSI, Embedded System ...</p>	2013

Performance analysis and threshold voltage modeling of Surrounding Gate Silicon Nanowire Transistors MR Manohari, MK Pandian, NB Balamurugan 2013 International Conference on Emerging Trends in VLSI, Embedded System ...	2013
A CHARGE CONTROL MODEL OF SURROUNDING GATE MOSFET P SuveethaDhanaselvam, NB Balamurugan, N BasheerAhamed International Journal of Engineering and Computer Science 2 (03)	2013
FPGA Synthesis of SIRM Fuzzy System-Classification of Diabetic Epilepsy Risk Levels from EEG Signal Parameters and CBF NB Balamurugan, M Jothi, R Harikumar Proceedings of the Fourth International Conference on Signal and Image ...	2013
Potential and quantum threshold voltage modeling of gate-all-around nanowire MOSFETs MK Pandian, NB Balamurugan, A Pricilla Active and Passive Electronic Components 2013	2013
Quantum centroid modeling for surrounding gate MOSFETs P Vimala, NB Balamurugan 2012 International Conference on Communications, Devices and Intelligent ...	2012
Electrical characteristics of silicon and germanium nanowire transistors-a simulation study ST Chandra, NB Balamurugan 2012 International Conference on Communications, Devices and Intelligent ...	2012
Quantum mechanical compact modeling of symmetric double-gate MOSFETs using variational approach P Vimala, NB Balamurugan Journal of Semiconductors 33 (3), 034001	2012
Effect of annealing on Bridgman grown organic scintillation material of trans-stilbene N Vijayan, G Bhagavannarayana, KK Maurya, D Haranath, B Rathi, ... Materials Chemistry and Physics 132 (2-3), 453-457	2012
SciVerse ScienceDirect Procedia Engineering NB Balamurugan, MM Jothib, R Harikumar	2012
FPGA Synthesis of SIRM Fuzzy System-Classification Of Diabetic Epilepsy Risk Level NB Balamurugan, M Jothi, R Harikumar Procedia engineering 38, 391-404	2012

Two dimensional analytical modeling of a nanoscale dual material gate MOSFETs PS Dhanaselvam, NB Balamurugan, P Vanitha, ST Chandra International Journal of Advanced Science and Technology 18, 49-58	2010
2D transconductance to drain current ratio modeling of dual material surrounding gate nanoscale SOI MOSFETs NB Balamurugan, K Sankaranarayanan, MF John Journal of Semiconductor Technology and Science 9 (2), 110-116	2009
An analytical modeling of threshold voltage and subthreshold swing on dual material surrounding gate nanoscale mosfets for high speed wireless communication NB Balamurugan, K Sankaranarayanan, P Amutha, MF John Journal of Semiconductor Technology and Science 8 (3), 221-226	2008
A new scaling theory for the effective conducting path effect of dual material surrounding gate Nanoscale MOSFETs NB Balamurugan, K Sankaranarayanan, M Suguna Journal of Semiconductor Technology and Science 8 (1), 92-97	2008
A novel scaling theory for effective conductive path effect of double gate (DG) MOSFETs for nano-scale CMOS circuit design NB Balamurugan, K Sankaranarayanan, V Priyadharsini, MI Devi 2008 International Conference on Signal Processing, Communications and ...	2008
A New Analytic Description of Short-Channel Effects in Fully Depleted Single Gate SOI MESFETs for Low Power VLSI Applications NB Balamurugan, K Sankaranarayanan, M Suguna, K Balasubadra 2007 International Conference on Signal Processing, Communications and ...	2007
Scattering in quantum simulations of silicon nanowire transistors XH Yang, AK Kerman, ST Chandra, NB Balamurugan, ND Akhavan, ... Journal of Physics: Conference Series 35, 219-232	2006