

Sara Darbari, Ph.D.

Date of Birth: 1982

Faculty of Electrical and Computer Engineering, Tarbiat Modares University

Tehran, Iran | +98 21 8288 3524 | s.darbari@modares.ac.ir

Education

PH.D. | 2008 - 2011 | UNIVERSITY OF TEHRAN, IRAN

Semiconductor Devices, Electronics, Electrical Engineering

M.SC. | 2006 - 2008 | UNIVERSITY OF TEHRAN, IRAN

Semiconductor Devices, Electronics, Electrical Engineering

B.SC. | 2001 - 2005 | UNIVERSITY OF TEHRAN, IRAN

Electronics, Electrical Engineering

Professional Experience

Associate professor of EE, Tarbiat Modares University, Tehran, Iran

Postdoctoral research assistant, Nov. 2012 – Nov. 2013, Tarbiat Modares University, Tehran, Iran

Graduate research assistant, Sept. 2006 – Sept. 2011, University of Tehran, Tehran, Iran

Research Interests

- Plasmonic devices: plasmonic tweezers, plasmonic modulators, plasmonic sensors
- Acoustic and SAW devices: acoustic tweezers, acoustic sensors...
- Integrated Photonics components: electro-optic modulators, ring resonators, acousto-optic modulators...
- Emerging devices based on 2D materials: 2D Perovskite, Graphene, MoS₂, Borophene, MXenes...
- Nano-Sensors and Detectors: photodetectors, gas sensors, biosensors, mechanical sensors
- Energy harvesting devices: triboelectric nanogenerators, piezoelectric nanogenerators, solar cells

Honors

- Outstanding Young Researcher in Engineering, 4th National Festival of Woman and Science (Mariam Mirzakhani Award), Ministry of Science, Research and Technology of Iran, 2021.
- Outstanding Post Doc. Researcher, Tarbiat Modares University, 2013.
- Outstanding Ph.D. Thesis, Women in Engineering Award, IEEE Iran Section, 2012.
- 1st ranked GPA among Ph.D. students of Semiconductor Devices, ECE Faculty, University of Tehran, 2011.
- 2nd ranked GPA among M.Sc. students of Electrical and Computer Engineering, ECE Faculty, University of Tehran, 2007.

Professional Experience

- Founder and supervisor of “Nano-Sensors and Detectors Lab.” (NSDL) in ECE Faculty of Tarbiat Modares University, since 2017.
- Vice-chair in the steering committee of Electronics Chapter of the IEEE Iran Section, 2019-2021.
- Editorial Board member of Transactions on Computer Science & Engineering and Electrical Engineering (D), Iranica Scientia, since 2021.
- Associate Editor of Journal of Electronics Industry, since 2018.
- Guest Editor of Modares Journal of Electrical Engineering (MJEE), 2015-2017.
- Reviewer of Sensors and Actuators A, Thin Solid Films, Photonics Technology Letters, Journal of Light Wave Technology, Applied Surface Science, and Applied Acoustics...
- Scientific Committee member of the 3rd Iranian Conference on Microelectronics (ICM), 2021, Tehran, Iran.
- Technical Committee member of The 3rd West Asian Symposium on Optical and Millimeter-wave Wireless Communications (WASOWC) 2020, Tehran, Iran.
- Technical Committee member of Optics and Photonics Conference (ICOP), 2019, Shiraz, Iran.
- Technical Committee member of Optics and Photonics Conference (ICOP), 2018, Shahrekord, Iran.
- Executive committee member of Optics and Photonics Conference (ICOP), 2017, Tehran, Iran.
- Technical Committee member of ICEE, 2016, Shiraz, Iran.
- Committee member of Health and Safety Executive (HSE), Tarbiat Modares University, 2014-2020.
- Committee member of WIE, IEEE Iran Section, 2014-2017.
- Committee member and advisor of Applied Research and Technology Office of Tarbiat Modares University, 2019-2020.

Journal Publication

- 1- Z Dehghani, M Nadafan, MB Mohammadzadeh Shamloo, Z Shadrokh, S Gholipour, MH Rajabi Manshadi, **S Darbari**, Y Abdi, “Investigation of dielectric, linear, and nonlinear optical properties of synthesized 2D Ruddlesden-Popper-type halide perovskite”, *Optics & Laser Technology* 155, 108352 (2022).
- 2- M Samadi, P Alibeigloo, A Aqhili, M A Khosravi, F Saeidi, S Vasini, M Ghorbanzadeh, **S Darbari**, M K Moravvej-Farshi, “Plasmonic tweezers: Towards nanoscale manipulation”, *Optics and Lasers in Engineering* 154, 107001 (2022).
- 3- S Jalalvandi, **S Darbari**, MK Moravvej-Farshi, “Semiempirical modeling of the effects of the intrinsic and extrinsic optical phonons on the performance of the graphene-based devices”, *Scientific reports* 12 (1), 1-9 (2022).
- 4- MM Mehrnegar, **S Darbari**, MKM Farshi, “Simulating a graphene-based acousto-plasmonic biosensor to eliminate the interference of surrounding medium”, *Optics Express* 30 (9), 15721-15734 (2022).
- 5- S Hemayat, **S Darbari**, “Far-field position-tunable trapping of dielectric particles using a graphene-based plasmonic lens”, *Optics Express* 30 (4), 5512-5530 (2022).
- 6- R Rostami, G Moussavi, **S Darbari**, AJ Jafari, “Non-thermal plasma by positive corona glow discharge using nano-structured Cu/CuO coated electrodes for benzene removal from air flow; removal enhancement and energy efficiency”, *Separation and Purification Technology* 275, 119156 (2021).
- 7- R Sharaf, **S Darbari**, A Khelif, “Nonreciprocity of Gigahertz Surface Acoustic Wave Based on Mode Conversion in an Inclined Phononic Crystal Heterojunction”, *Physical Review Applied* 16 (5), 054004 (2021).

- 8- A Aqhili, **S Darbari**, “A numerical study on the closed packed array of gold discs as an efficient dual mode plasmonic tweezers”, *Scientific Reports* 11 (1), 1-15 (2021).
- 9- M Samadi, **S Darbari**, MK Moravvej-Farshi, “Thermophoresis suppression by graphene layer in tunable plasmonic tweezers based on hexagonal arrays of gold triangles: numerical study”, *Optics Express* 29 (18), 29056-29067 (2021).
- 10- S Jalalvandi, **S Darbari**, MK Moravvej-Farshi, “Exact dispersion relations for the hybrid plasmon-phonon modes in graphene on dielectric substrates with polar optical phonons”, *Optics Express* 29 (17), 26925-26943 (2021).
- 11- E Ghavaminia, F Behrouznejad, M Forouzandeh, R Khosroshahi, **S Darbari**, Y Zhan, N Taghavinia, “Polyvinylcarbazole as an Efficient Interfacial Modifier for Low-Cost Perovskite Solar Cells with CuInS₂/Carbon Hole-Collecting Electrode”, *Solar RRL* 5 (7), 2100074 (2021).
- 12- R Ghalamboland, **S Darbari**, M Rashidifar, Y Abdi, “MoS₂/Si-Based Heterojunction Bipolar Transistor as a Broad Band and High Sensitivity Photodetector”, *IEEE Sensors Journal* 21 (13), 14784-14788 (2021).
- 13- F Taleb, **S Darbari**, A Khelif, H Taleb, “An acoustoelectric-induced tailorable coupled resonator surface acoustic waveguide”, *Journal of Physics D: Applied Physics* 54 (22), 225301 (2021).
- 14- F Taleb, **S Darbari**, A Khelif, “Reconfigurable locally resonant surface acoustic demultiplexing behavior in ZnO-based phononic crystal”, *Journal of Applied Physics* 129 (2), 024901 (2021).
- 15- MA Khosravi, A Aqhili, S Vasini, MH Khosravi, **S Darbari**, F Hajizadeh, “Gold cauldrons as efficient candidates for plasmonic tweezers”, *Scientific Reports* 10 (1), 1-12 (2020).
- 16- A.A. Khorami, M.K. Moravvej-Farshi, **S. Darbari**, “Next-generation on-chip plasmonic tweezer with a built-in light source,” *OSA Continuum* 3 (8), 2044-2052 (2020).
- 17- R. Rostami, G. Moussavi, A.J. Jafari, **S. Darbari**, “A modeling concept on removal of VOCs in wire-tube non-thermal plasma, considering electrical and structural factors *Environmental Monitoring and Assessment*”, 192, 1-7, 2020.
- 18- M. Ghezselfloo, M. K. Moravvej-Farshi, **S. Darbari**, “Integrated graphene/ferroelectric based plasmonic random access memory (P-RAM),” *Journal of Physics: Photonics* (2020).
- 19- A. A. Khorami, M. K. M. Farshi, **S. Darbari**, “Ultralow-Power Electrically Activated Lab-on-a-Chip Plasmonic Tweezers,” *Physical Review Applied* 13 (2), 024072 (2020).
- 20- M. M. Abbasi, **S Darbari**, MK Moravvej-Farshi, “Tunable plasmonic force switch based on graphene nano-ring resonator for nanomanipulation,” *Optics express* 27 (19), 26648-26660 (2019).
- 21- R. Rostami, G. Moussavi, **S. Darbari**, A.J. Jafari, “Enhanced removal of benzene in non-thermal plasma with ozonation, flow recycling, and flow recirculation,” *Plasma Science and Technology* 21 (9), 095501 (2019).
- 22- M. Samadi, S. Vasini, **S. Darbari**, A-A Khorshad, S-N Seyed Reihani, and M-K Moravvej-Farshi, “Hexagonal arrays of gold triangles as plasmonic tweezers”, *Optics Express*, vol. 27 (10), pp. 14754-14766, (2019).
- 23- M. Mahdi Mehrnegar, **S. Darbari**, H. Ramezani, M. Kazem Moravvej Farshi, “Designing Graphene-based Multi-Mode Acousto-Plasmonic Devices”, *Journal of Lightwave Technology*, vol. 37 (9), pp. 2126 – 2132 (2019).
- 24- M. Ghorbanzadeh, **S. Darbari**, “Efficient Plasmonic 2D Arrangement and Manipulation System, Suitable for Controlling Particle-Particle Interactions”, *Journal of Lightwave Technology*, vol. 37 (9), pp. 2058 - 2064 (2019).
- 25- F. Taleb, **S. Darbari**, “Tunable locally resonance surface acoustic waveguiding behavior by acoustoelectric interaction in ZnO-based phononic crystal”, *PHYSICAL REVIEW APPLIED* 11, 024030 (2019).

- 26- A. Shakeri, **S. Darbari**, M. K. Moravvej-Farshi, “Designing a tunable acoustic resonator based on defect modes, stimulated by selectively biased PZT rods in a 2D phononic crystal”, *Ultrasonics*, vol. 92, pp. 8–12 (2019).
- 27- A. Ghasemi Yeklangi, S. E. Khadem, **S. Darbari**, “Fabrication and investigation of a thermoacoustic loudspeaker based on carbon nanotube coated laser-scribed graphene”, *Journal of Applied Physics* 124 (22), 224501 (2018).
- 28- P. Torkaman, **S. Darbari**, M. J. Mohammad-Zamani, “Design and Simulation of a Piezotronic GaN-Based Pulsed THz Emitter”, *Journal of Lightwave Technology*, vol. 36, no. 17, pp. 3645 - 3651 (2018).
- 29- A. Keshvari, **S. Darbari**, M. Taghavi, “Self-powered plasmonic UV detector, based on reduced graphene oxide/Ag nanoparticles”, *IEEE Electron Device Letters*, vol. 39, no. 9, 1433 - 1436 (2018).
- 30- S. Khalili Fard, **S. Darbari**, V. Ahmadi, “Electro-plasmonic gas sensing based on reduced graphene oxide/Ag nanoparticle heterostructure”, *IEEE Sensors Journal*, vol. 18, no. 14, pp. 5770 - 5777 (2018).
- 31- M. Javadi, A. Heidari, **S. Darbari**, “Realization of enhanced sound-driven CNT-based triboelectric nanogenerator, utilizing sonic array configuration”, *Current Applied Physics* 18, pp. 361-368 (2018), (IF: 1.97).
- 32- L. Shafiei, **S. Darbari**, F. Dehghan Nayeri, “Realization of a reduced graphene oxide/ZnO nanorod photodetector, suitable for self-powered applications”, *Scientia Iranica*, vol. 25, no. 3, pp. 1824-1834 (2018).
- 33- M. Samadi, **S. Darbari**, M. K. Moravvej-Farshi, “Numerical Investigation of Tunable Plasmonic Tweezers based on Graphene Stripes”, *Scientific Reports*, 7: 14533, DOI:10.1038/s41598-017-14912-w (2017), (IF: 4.25).
- 34- R. Rostami G. Moussavi, A. Jonidi Jafari, **S. Darbari**, “*Decomposition of benzene using wire-tube AC/DC discharge reactors*”, *Journal of Electrostatics*, vol. 87, p. 158e166 (2017), (IF: 1.31).
- 35- M. Monshipouri, Y. Abdi, **S. Darbari**, S. Tsujino, “*Multiphoton photoemission of gold nanopillars fabricated by carbon nanotube templates*”, *Journal of Vacuum Science & Technology B*, vol. 35, p. 02C110 (2017), (IF: 1.57).
- 36- M. Ghorbanzadeh, M. K. Moravvej-Farshi, **S. Darbari**, “*A Plasmonic Optophoresis for Manipulating, In-situ Position Monitoring, Sensing, and 3D trapping of Micro/Nanoparticles*”, *IEEE Journal of Selected Topics in Quantum Electronics* , vol.23, no.2, pp.1-1, Doi: 10.1109/JSTQE.2016.2593008 (2017), (IF: 3.97).
- 37- M. Monshipouri, Y. Abdi, **S. Darbari**, “*Realization of low power-laser induced thermionic emission from Ag nanoparticle-decorated CNT forest: A consequence of surface plasmon resonance*”, *Applied Physics Letters*, vol. 109, no. 20, p. 203105 (2016), (IF: 3.41).
- 38- E. Modaresinezhad, **S. Darbari**, “*Realization of a room-temperature/self-powered humidity sensor, based on ZnO nanosheets*”, *Sensors and Actuators B: Chemical* 237, 358-366 (2016), (IF: 5.4).
- 39- M. H. Fedaa, Y. Khosravi, **S. Darbari**, B. Abdollahi Nejand, “*Electrically Controlled Photocatalytic Reduction of Graphene Oxide Sheets by ZnO Nanostructures, Suitable for Tunable Optoelectronic Applications*”, *IEEE Transactions on Electron Devices*, vol. 63, No. 8, (2016), (IF: 2.6).
- 40- M. Javadi, **S. Darbari**, Y. Abdi, F. Ghasemi, “*Realization of a Piezophototronic Device Based on Reduced Graphene Oxide/MoS₂Heterostructure*,” *Elec. Dev. Lett.*, vol. 37, no. 5, pp. 677 – 680 (2016), (IF: 3.04).
- 41- M. Ghorbanzadeh, **S. Darbari**, M. K. Moravvej-Farshi, “*Graphene-based Plasmonic Force Switch*,” *Appl. Phys. Lett.* 108, 111105 (2016), (IF: 3.41).
- 42- M. Habibi, **S. Darbari**, S. Rajabali, V. Ahmadi, “*Fabrication of a graphene-based pressure sensor by utilizing field emission behavior of carbon nanotubes*”, *Carbon* 96, 259-267 (2016), (IF: 6.33).
- 43- M. Ghorbanzadeh, M. K. Moravvej-Farshi, **S. Darbari**, “*Designing a Plasmonic Optophoresis System for Trapping and Simultaneous Sorting/Counting of Micro- and Nano-particles*”, *Journal of Lightwave Technology* 33(16),3453-3460 (2015) (IF: 3.67).

- 44- **S. Darbari**, V. Ahmadi, P. Afzali, Y. Abdi, M. Fedaa, “*Reduced graphene oxide /ZnO hybrid structure for high performance photodetection*”, J Nanopart Res 16, 2798 (2014), (IF: 2.02).
- 45- H. Mazraati, M. Gharooni, **S. Darbari**, S. Mohajerzadeh, F. Salehi, “*Realization of suspended silicon-based structures using a smart three-dimensional etching method*”, Journal of Vacuum Science & Technology B 32, 062002 (2014), (IF: 1.57).
- 46- S.M. Jebreil Khadem, Y. Abdi, **S. Darbari**, F. Ostovari, “*Investigating the effect of gas absorption on the electromechanical and electrochemical behavior of graphene/ZnO structure, suitable for highly selective and sensitive gas sensors*”, Current Applied Physics 14, Issue 11, 1498–1503 (2014), (IF:1.97).
- 47- **S. Darbari**, “*Model calculation and empirical investigation of enhanced field emission behavior of branched carbon nanostructures*”, Current Applied Physics 14, 1092-1098 (2014), (IF: 1.97).
- 48- S. Taak, S. Rajabali, **S. Darbari**, S. Mohajerzadeh; “*High sensitive/Wide dynamic range, field emission pressure sensor based on fully-embedded CNTs*”, J. Phys. D: Appl. Phys. 47, 045302 (2014), (IF: 2.58).
- 49- **S. Darbari**, V. Ahmadi, P. Afzali, Y. Abdi “*Photocatalytic-reduction of GO/ZnO to achieve GNRs for optoelectronic applications*”, Journal of Physics D-Applied Physics, Vol. 46, 385101 (2013) (IF: 2.58).
- 50- N. Doostani, **S. Darbari**, S. Mohajerzadeh , M. K. Moravej-Farshi , “*Fabrication of highly sensitive field emission based pressure sensor, using CNTs grown on micro-machined substrate*”, Sensors and Actuators A, Vol. 201, 310– 315 (2013), (IF: 2.49).
- 51- F. Ostovari, Y. Abdi, **S. Darbari**, F. Ghasemi, “*Effects of electromechanical resonance on photocatalytic reduction of the free-hanging graphene oxide sheets*”, J Nanopart Res, Vol. 15, 1551 (2013), (IF: 2.02).
- 52- Y. Abdi, A. Malekan, **S. Darbari**, “*High sensitivity field emission based sensors using carbon nanotubes on silicon tip for high frequency vibration sensing*”, Solid-State Electronics, Vol. 82, 6-10 (2013), (IF: 1.58).
- 53- M. Mohammadi, Z. Kolahdouz, **S. Darbari**, S. Mohajerzadeh, N. Masoumi, “*Graphene formation by unzipping carbon nanotubes using a sequential plasma assisted processing*”, CARBON, Vol. 52, 451-463 (2013), (IF: 6.33).
- 54- **S. Darbari**, S. Mohajerzadeh, S. Azimi, Y. Abdi, “*Gas sensing properties of Branched CNT-based structures using a novel low voltage emission*”, Journal of Nanoscience and Nanotechnology, Vol. 12, No. 11, 8666-8670(5) (2012)
- 55- J. Koohsorkhi, S. Mohajerzadeh, **S. Darbari**, “*Investigation of carbon nanotube-based field emission triode devices on silicon substrates*”, IEEE Transactions on Nanotechnology, Vol. 11, No. 6 (2012)
- 56- F. D. Nayeri, **S. Darbari**, E. A. Soleimani, S. Mohajerzadeh, “*Low temperature and cost effective synthesis of MWCNT/ZnO-NW heterojunction arrays suitable for field emission applications*”, Journal of Physics D: Appl. Phys., Vol. 45, 285101 (2012), (IF: 2.58).
- 57- **S. Darbari**, S. Mohajerzadeh, Y. Abdi, M. Robertson, M. Bluteau, T. Morrison, “*Silicon-based Light Emitting Diodes on Glass Substrates using a Low Temperature Multilayered Nano-crystalline structure*”, Thin Solid Films, Vol. 520, Issue 15, 5021-5028 (2012).
- 58- A.Sani, **S. Darbari**, Y. Abdi, E. Arzi, “*Using bent carbon nanotubes for the fabrication of electromechanical switches*”, CARBON, Vol. 50, Issue 10, 3635-3640 (2012), (IF: 6.33).
- 59- A. Gholizadeh, S. Shahrokhian, A. Irajizad, S. Mohajerzadeh, M. Vosoughi, **S. Darbari**, Z. Sanaee, “*Mediator-less highly sensitive voltammetric detection of glutamate using glutamate dehydrogenase/vertically aligned CNTs grown on silicon substrate*”, Biosensors and Bioelectronics, Vol. 31, Issue 1, 110-115 (2012)
- 60- A. Gholizadeh, S. Shahrokhian, A. Irajizad, S. Mohajerzadeh, M. Vosoughi, **S. Darbari**, J. Koohsorkhi, M. Mehran, “*Fabrication of sensitive glutamate biosensor based on vertically aligned CNT nanoelectrode array and investigating the effect of CNTs density on the electrode performance*”, Analytical Chemistry, Vol. 17, 84(14), 5932-8 (2012)

- 61- **S. Darbari**, Y. Abdi, S. Mohajerzadeh, “*Branched carbon nanotubes to realize a novel capacitive sensor and actuator device*”, *Sensors and Actuators A-Physical*, Vol. 167, No. 2 , 389-397 (2011)
- 62- **S. Darbari**, Y. Abdi, A. Ebrahimi, S. Mohajerzadeh, “*Fabrication of Silicon-Based Actuators Using Branched Carbon Nano-Structures*”, *IEEE Sensors Journal*, Vol. 11, No. 7, 1535-1540 (2011)
- 63- **S. Darbari**, Y. Abdi, F. Haghighi, S. Mohajerzadeh, N. Haghighi, “*Investigating the antifungal activity of TiO₂ nanoparticles deposited on branched carbon nanotube arrays*”, *Journal of Physics D-Applied Physics*, Vol. 44, No. 24 (2011), (IF: 2.58).
- 64- **S. Darbari**, M. Shahmohammadi, S. Mohajerzadeh, Y. Abdi, M. Robertson, T. Morrison, “*High performance multilayered nano-crystalline silicon/silicon-oxide light-emitting diodes on glass substrates*”, *Nanotechnology*, Vol. 22, 375204 (11pp) (2011), (IF: 3.44).
- 65- **S. Darbari**, Y. Abdi, S. Mohajerzadeh, “*A novel carbon-nanotube gas sensor based on field ionization from branched nanostructures*”, *European Physical Journal-Applied Physics*, Vol. 52, No. 3, 30602 (2010)
- 66- **S. Darbari**, Y. Abdi, S. Mohajerzadeh, E. Asl Soleimani , “*High electron emission from branched tree-like carbon nanotubes suitable for field emission applications*”, *CARBON*, Vol. 48, No. 9, 2493-2500 (2010), (IF: 2.58).
- 67- **S. Darbari**, S. Azimi, S. Mohajerzadeh, “*Hydrogenation-Assisted Lateral Micromachining of (111) Silicon Wafers*”, *Journal of Microelectromechanical Systems*, Vol. 17, No. 6, 1489-1494 (2008)
- 68- Y. Abdi, J. Koohshorkhi, S. Mohajerzadeh, **S. Darbari**, Zeinab Sanaee., “*Embedded vertically grown carbon nanotubes for field emission applications*”, *Journal of Vacuum Science & Technology B*, Vol. 25, No. 3, 822-828 (2007)
- 69- Y. Abdi, S. Mohajerzadeh, **S. Darbari**, E. Arzi, “*Both-end opened nanostructure holes by embedded carbon nanotubes realized on thinned membranes on (100) silicon substrates*”, *Physica E-low-Dimensional Systems & Nanostructures*, Vol. 37, No. 1-2, 226-230 (2007)

Selected Presentations

- 1- **S. Darbari**, “Plasmonic tweezers, an efficient tool for lab-on-a-chip systems”, Iranian Nano-Photonic Conference, *Invited Talk*, University of Sistan and Baluchestany-Zahedan, Iran (2021)
- 2- **S. Darbari**, “Graphene-based Optoelectronic Devices”, Annual International Meeting on Low Dimensional Systems: RIAPA-LDS, *Invited Talk*, Tabriz, Iran (2017)
- 3- S. Vasini, **S. Darbari**, “Optical trapping of polystyrene particles, by plasmonic gold patterns”, *Awarded as the outstanding poster presentation*, 23rd Iranian Conference on Optics and Photonics (ICOP) 23:9, 453-456 (2017)

Teaching Experience

University of Tarbiat Modares, Tehran, Iran

Silicon VLSI Technology - since 2012

Solid State Physics - since 2013

Microelectromechanical Systems (MEMS) - since 2014

Biosensors- since 2019

Professional Expertise

Extensive experience in working with fabrication systems such as e-beam evaporation, thermal evaporation, RF PECVD, DC PECVD, Reactive Ion Etching, LPCVD.

Experience with various analysis methods of characterization: SEM and FESEM, AFM, UV-vis Spectroscopy, PL Spectroscopy, Raman Spectroscopy.

Extensive experience in carbon-based materials and nanostructures, such as CNT and graphene.

Extensive experience in fabrication of field emission display based on carbon nanotubes.

Extensive experience in growing novel nanostructures with novel efficiencies in various field of application including field emission, gas sensing, high capacitive sensors and actuators.

Extensive experience in silicon micromachining techniques including vertical etching and lateral etching of silicon.

Extensive experience in fabrication of low temperature nanocrystalline porous silicon and light emitting diodes.

Experience in fabrication of plasma displays on flexible substrates and glass.

Familiar with standard MOS technology and MOSFET transistors.

Familiar with Comsol, Lumerical, Silvaco, PSpice, HSpice, MATLAB.

Familiar with analytical and numerical investigation and modeling of semiconductor devices.