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Education

Ph.D. physics, solid state.

University of Tehran

2005-2009

GPA: 19.5/20

M.Sc. physics, solid state.

University of Tehran

2003 - 2005

GPA: 18.56/20 first rank in class

B.Sc. physics, solid state.

Iran university of science and technology

1999 – 2003

Teaching practice

- Quantum mechanics (University of Tehran , Ph.D Course)
- Nano-particles physics and applications (University of Tehran , M. Sc. Course)
- Advanced solid state physics (University of Tehran , M. Sc. Course)
- Nano- physics Lab (University of Tehran , M. Sc. Course)
- Solid State- physics Lab (University of Tehran , M. Sc. Course)
- Thermodynamics and statistical physics (University of Tehran , B. Sc. Course)
- Physics of semiconductors (University of Tehran , B. Sc. Course)

Research Experience

- Fabrication of nano-crystalline silicon structure and investigation of photoluminescence.

- Nanolithography using vertically grown carbon nano-tubes.
- Fabrication of field emission display by nano tubes.
- Fabrication of field emission transistor using encapsulated nano-structure.
- Fabrication of 100 nm gate MOSFET using nano-tube-based nanolithography.
- Fabrication of strain gauge on membrane.
- Low temperature crystallization of Silicon and Germanium.
- Fabrication of plasma display on glass and flexible substrate.

Publications

Patent:

- [1] Mohajerzadeh, Shamsoddin, Yaser, Abdi, Hadi, Hosseinzadegan, Javad, Koohsorkhi "A method of forming a carbon nanotube emitter, carbon nanotube emitter with applications in nano-printing and use thereof" EUROPEAN PATENT APPLICATION, EP 1 755 137 A1 (2007)

journals:

- [1] Y. Abdi, J. Derakhshandeh, P. Hashemi, S. Mohajerzadeh, F. Nayeri, E. Arzi and M.D. Robertson, H. Radamson, "Light emitting nano-porous silicon structures fabricated using a plasma hydrogenation technique", Material Science and Engineering B 124–125 (2005) 483–487
- [2] J. Derakhshandeh, Y. Abdi, S. Mohajerzadeh and H. Radomson, "Fabrication of 100nm gate length MOSFET's using novel carbon-nanotube-based nano-lithography", Material Science and Engineering B, 124–125 (2005) 354–358.
- [3] Y. Abdi, S. Mohajerzadeh, J. Koohsorkhi, H. Hoseinzadegan, "PECVD-grown Carbon-Nanotubes on silicon substrates suitable for nano-lithography", Applied Physics Letters, 88. (2006) 1-3.
- [4] Y. Abdi, J. Koohsorkhi, J. Derakhshandeh, S. Mohajerzadeh, H. Hoseinzadegan, M.D. Robertson and C. Bennet, "PECVD-grown carbon nano-tubes on silicon substrates with a nickel-seed tip-growth structure", journal of material science and Engineering C, 26 (2006) 1219 – 1223
- [5] Y. Abdi, Y. Komijani, S. Mohajerzadeh, "Realization of vertically aligned carbon Nanotubes on silicon substrates" International journal of nanoscience and nanotechnology, Vol. 1, pages 34-40, (2006).

- [6] P. Hashemi, Y. Abdi, S. Mohajerzadeh, A. Khajooeizadeh, and M.D. Robertson, "low temperature Hydrogenation-assisted nano crystalization and oxidation of amorphous silicon by RF PECVD" *Journal of Applied Physics*, vol 100, no. 10, Nov, (2006).
- [7] J. Koohsorkhi, Y. Abdi, S. Mohajerzadeh, H. Hoseinzadegan, and E. Asl Soleimani "Novel Self-defined field-emission transistors using carbon nano-tubes" *Journal of Carbon* 44 (2006) 2797–2803.
- [8] K. Zandi, E. Arzi, N. Izadi, S. Mohajerzadeh, S. Haji, Y. Abdi, and E. Asl Soleimani "Study of bulk micromachining for (100) silicon" *Eur. Phys. J. Appl. Phys.* 35, (2006) , 7–12.
- [9] Y. Abdi, J. Koohsorkhi, S. Mohajerzadeh, S. Darbari and Z. Sanaie "Embedded vertically grown carbon nanotubes for field emission applications", *J. Vac. Sci. Technol. B* 25(3) ,(2007) 822-828.
- [10] Y. Abdi, M. Jamei, P. Hashemi, S. Mohajerzadeh, M. D. Robertson, M. J. Burns, and J. M. MacLachlan "Visible photoluminescence from a nanocrystalline porous silicon structure fabricated by a plasma hydrogenation and annealing method" *JOURNAL OF APPLIED PHYSICS* 101, 044309 (2007)
- [11] M. Jamei, F. Karbassian, S. Mohajerzadeh, Y. Abdi, M.D. Robertson, "Fabrication of light-emitting diodes with a plasma hydrogenation of three dimensional nanocrystalline silicon thin films" *IEEE Electron Device Letters* 28, NO. 3,(2007) 207-210.
- [12] Y. Abdi, S. Mohajerzadeh and S. Darbari, "Both-end opened carbon nanotubes on silicon based membranes", *Physica E*, 37 (2007) 226–230
- [13] Y. Abdi, P. Hashemi , S. Mohajerzadeh , M. Jamei ,M.D. Robertson , M.J. Burns , J.M. MacLachlan , "Silicon nano-crystalline structures fabricated by a sequential plasma hydrogenation and annealing technique ", *Thin Solid Films* 516 (2008) 3172–3178.
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- [17] M. Pazoki, Y. Abdi and E. Arzi "Anomalous nucleation of gold nanoparticles on silicon substrate and monitoring the growth of ZnO nanowires on such structures" *Eur. Phys. J. Appl. Phys.* 47, 10602 (2009)
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- [23] Darbari S, Abdi Y, Mohajerzadeh S, et al. “High electron emission from branched tree-like carbon nanotubes suitable for field emission applications” CARBON 48 (9) 2493-2500 (2010) .
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conference:

1. "Encapsulated Vertically Grown Carbon Nano-Tubes for Submicron and Nano-Lithography";
presented at Material Research Society (MRS) spring meeting, San Francisco, CA, March28-Aprill (2005).
Y. Abdi, J. Koohsorkhi, P. Hashemi, S. Mohajerzadeh, H. Hosseinzadegan and L. Rezaee
2. "Anomalous tip growth of carbon nanotubes on silicon substrates using a PECVD method"
presented at 207th Meeting of the Electrochemical Society, Inc. (ECS)- Quebec City, Canada May 15-20, 2005
J. Koohsorkhi, Y. Abdi, H. Hosseinzadegan, S. Mohajerzadeh, M.D. Robertson and C. Bennett
3. "Gated Field-emission Nano-Structures for carbon-based Nanolithography" *presented at 207th Meeting of the Electrochemical Society, Inc. (ECS)- Quebec City, Canada May 15-20, 2005*
Y. Abdi, J. Koohsorkhi, H. Hosseinzadegan, S. Mohajerzadeh, M.D. Robertson
4. "PECVD-grown Carbon-nano-tubes on Silicon Substrates with an anomalous Nickel-seeded Tip-growth structure" *presented at EMRS Spring Meeting, Strasbourg, France, May 2005*
Y. Abdi, J. Koohsorkhi, J. Derakhshandeh, S. Mohajerzadeh, H. Hosseinzadegan, M.D. Robertson and C. Benet

5. "Application of Encapsulated PECVED-grown Carbon Nano-Structure Field-Emission Devices in Nanolithography" *presented at Nanotech, (2005)*
J. Koohsorkhi, Y. Abdi, S. Mohajerzadeh J. Derakhshandeh, H. Hosseinzadegan and A. Khakifirooz
6. "Application of carbon nanotubes in nano-lithography and nano-electronics" *presented at Device Research Conference, USA, 2005.*
Y. Abdi, S. Mohajerzadeh, H. Hosseinzadegan, D. Shahrjerdi, M. Robertson and J.C. Bennett
7. "Application of carbon nanostructure for submicron nanolithography, using the emission current" *presented at 13th Iranian Conference on Electrical Engineering, ICEE 2005, May 10- 12, 2005 University of Zanjan, I.R.Iran*
H. Hosseinzadegan, Y. Abdi, J. Koohsorkhi, S. Mohajerzadeh, E. Asl. Soleimani
8. "PECVD-grown Vertically-aligned carbon nano-tubes on silicon suitable for nano-transistor fabrication and nano-scale writing" *presented at Canadian Semiconductor Technology Conference (2005).*
Y. Abdi, S. Mohajerzadeh, H. Hoseinzadegan, A. Khajooee, M.D. Robertson and J.C. Bennet
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