

CURRICULUM VITAE

+ PERSONAL DATA

Surname: Cheraghchi
First name: Hosein
Place of birth : Sarakhs - Iran
Date of birth : Aug, 11, 1972
Nationality: Iranian



+ ADDRESS

Permanent: **School of Physics, Damghan University, Damghan, Iran**

+ Email: [cheraghchi at du. ac.ir](mailto:cheraghchi@du.ac.ir)

+ CAREER

B.Sc. 1990-1994, Shiraz University, Shiraz, Iran

M.Sc. 1994-1996, Ferdowsi University of Mashad, Mashad, Iran

Lecturer, 1997-2001, Damghan University of Basic Science, Damghan, Iran

Ph.D. 2001 -2007, Sharif University of Technology, Tehran, Iran

Assistant Professor, Sep 2007-Jun 2016, School of Physics, Damghan University

Associate Professor, July 2016-Sep 2018, School of Physics, Damghan University

Associate Professor, Oct 2018-Sep 2020, Physics Department, Iran University of Science and Technology

Associate Professor, Oct 2020-yet, School of Physics, Damghan University

+ RESEARCH INTERESTS

Condensed Matter Physics:

- *Quantum Transport and magnetic properties of Topological insulators*
- *Induced Topological Phases in periodically driven systems*
- *Non-Equilibrium Electronic Transport through Mesoscopic systems*
- *Transport through monolayer and bilayer graphene+CNTs*
- *Anderson Localization, localization properties in disordered systems*



Link to [My Google Scholar](#)



JOURNAL PAPERS

1. **H. Cheraghchi**, S. M. Fazeli, K. Esfarjani, "Localization - delocalization transition in a one-dimensional system with long-range correlated off-diagonal disorder", **Phys. Rev. B.** 72. 174207 (2005).
2. **H. Cheraghchi**, S. M. Fazeli, " Statistical properties of a localization-delocalization transition induced by correlated disorder", **Journal of Statistical Mechanics: Theory and Experiment**, P1004, (2006).
3. **H. Cheraghchi**, "Scaling properties of one-dimensional off-diagonal disorder", **Journal of Statistical Mechanics: Theory and Experiment**, P1006, (2006).
4. A. Esmailpour, **H. Cheraghchi**, P. Carpena, M. R. Rahimi Tabar, "Metal-Insulator Transition in a ternary model with long-range correlated disorder", **Journal of Statistical Mechanics: Theory and Experiment**, P09014, (2007).
5. **H. Cheraghchi**, K. Esfarjani, "Negative differential resistance in molecular junctions: application to graphene ribbon junctions ", **Phys. Rev. B.** 78. 085123 (2008).
6. **H. Cheraghchi**, K. Esfarjani, "Negative differential resistance in carbon nanotube nanojunction ", unpublished, (2009).
7. **H. Cheraghchi**, H. Esmailzade, "Gate-Induced Switch of Even Zigzag Graphene Nanoribbons and its charging effects", **Nanotechnology**, 21, 205306, (2010).
8. **H. Cheraghchi**, " Nonlinear transport through ultra-narrow zigzag graphene nanoribbons: non-equilibrium charge and bond currents", **Physica. Scripta.** 84, 015702(2011).
9. **H. Cheraghchi**, A. A. Irani, S. M. Fazeli, R. Asgari, "Metallic phase of disordered graphene superlattices with long-range correlations", **Phys. Rev. B.** 83, 235430 (2011).
10. S. Khazaei, M. Khazaei, **H. Cheraghchi**, V. Daadmehr, Y. Kawazoe, "Considering the effect of different arrangements of pentagons on density of states of capped carbon nanotubes", **Physica B.** 406, 3885–3890 (2011) .
11. **H. Cheraghchi**, F. Adinehvand, "Spin polarization and magnetoresistance through a ferromagnetic barrier in bilayer graphene", **Journal of Physics: Condensed matter**, 24, 045303 (2012).
12. V. Derakhshan, **H. Cheraghchi**, " Edge proximity-induced magnetoresistance and spin polarization in ferromagnetic gated bilayer graphene nanoribbon", **Journal of Magnetism and Magnetic Materials**, 357, 29-34 (2014).

13. **H. Cheraghchi**, *F. Adinehvand*, "Control over band structure and tunneling in bilayer graphene induced by velocity engineering", **Journal of Physics: Condensed matter**, 26, 015302 (2014).
14. **H. Cheraghchi**, "Non-adiabatic pure spin pumping in zigzag graphene nanoribbons with proximity induced ferromagnetism", **Journal of Magnetism and Magnetic Materials**, 264, 264-269 (2015).
15. **H. Cheraghchi**, *H. Esmailzadeh*, *A. G. Moghaddam*, "Superconducting electron and hole lenses", **Phys. Rev. B**. 93, 214508 (2016).
16. *M. Shiranzaei*, **H. Cheraghchi**, *F. Parhizgar*, "Effect of Rashba splitting on RKKY interaction in topological insulator thin films", **Phys. Rev. B**. 96, 024413 (2017).
17. *F. Adinehvand*, **H. Cheraghchi**, "Effect of asymmetric Fermi velocity on trigonally warped spectrum of bilayer graphene", **J. Phys. Chem. Solids**, 107, 118 (2017).
18. *M. Shiranzaei*, *F. Parhizgar*, *J. Fransson*, **H. Cheraghchi**, " Impurity scattering on the surface of topological insulator thin films", **Phys. Rev. B**. 95, 235429 (2017).
19. *T. Sabze*, **H. Cheraghchi**, "Effect of Chiral selective tunneling on quantum transport in magnetic topological insulator thin films", **Phys. Rev. B**. 96, 155440 (2017).
20. *M. Shiranzaei*, *J. Fransson*, **H. Cheraghchi**, and *F. Parhizgar*, " Nonlinear spin susceptibility in topological insulators", **Phys. Rev. B**. 97, 180402 (**Rapid Communication**) (2018).
21. **H. Cheraghchi**, *T. Sabze*, " Spin polarization in nanojunctions of quantum anomalous Hall insulator", **Journal of Magnetism and Magnetic Materials**, 513, 166923 (2020)
22. *M. Yarmohammadi*, **H. Cheraghchi**, " Effective low-energy RKKY interaction in doped topological crystalline insulators", **Phys. Rev. B**. 102, 075411 (2020)
23. **H. Cheraghchi**, *M. Yarmohammadi*, "Anisotropic ferroelectric distortion effects on the RKKY interaction in topological crystalline insulators", **Scientific Reports**. 11, 5273 (2021)
24. *S. Dabiri*, **H. Cheraghchi**, *A. Sadeghi*, "Light-induced topological phases in thin film of magnetically doped topological insulators", **Phys. Rev. B**. 103, 205130 (2021)
25. *M. Azadparvar*, **H. Cheraghchi**, "Strain-induced switching in field effect transistor based on zigzag graphene nanoribbons", **Physica B**. 622, 413304 (2021), [arXiv:1912.02017](https://arxiv.org/abs/1912.02017).
26. *S. Dabiri*, **H. Cheraghchi**, "Engineering of topological phases in driven topological insulator thin films: Structural inversion asymmetry effect", **Phys. Rev. B**. 104, 245121 (2021).

PREPRINTS

27. *F. Askari Shahid*, **H. Cheraghchi**, "Topological properties and edge states in a driven modified dimerized chain", [arXiv:1709.05829](https://arxiv.org/abs/1709.05829) (2017).

IN PREPARATIONS & SUBMITTED

28. M. Yarmohammadi, **H. Cheraghchi**, “*Tuning FM-AFM phase transition in doped gapped topological crystalline insulators*”, *In preparation*.
29. S. Dabiri, **H. Cheraghchi**, A. Sadeghi, “*Floquet states and optical conductivity of an irradiated two dimensional topological insulator*”, *Submitted*

BOOK

*Book title: **Graphene Simulation** (ISBN 978-953-308-60-2, Publisher: InTech)*
*Chapter title: **Nonlinear Transport through Ultra Narrow Zigzag Graphene Nanoribbons***

APPOINTMENTS & AWARDS & SERVICES

1. **Resident Researcher**, Institute for Research in Fundamental Sciences (IPM), School of Physics, (2020-yet), Tehran, Iran.
2. **Elected member of the steering committee of Condensed Matter Physics, Physical Society of Iran (2019-2022).**
3. **The Chair of Scientific Committee, 14th Conference on Condensed Matter Physics, Physical Society of Iran, Chamran University, Ahwaz, 6-7 Feb, 2018.**
4. **Regular Associate member of the Abdus-Salam International Centre for Theoretical Physics (ICTP), Trieste, Italy, (2014-2019).**
5. **Scientific Committee member, 13th Conference on Condensed Matter Physics, Physical Society of Iran, Rajaee University, Tehran, 4-5 Feb, 2017.**
6. **Head of School of Physics, Damghan University (Mar 2015-Mar 2016).**
7. **Short- Term Visit, Condensed Matter and Statistical Mechanics Section, ICTP, Trieste, Italy, 20 July- 15 Aug 2012.**
8. Scientific Committee member of “*national conference on computational science*”, *Damghan University, Damghan, 6-7 Sep, 2012.*
9. **Long- Term Visit**, School of Physics, Institute for Research in Fundamental Sciences (IPM), Tehran, 20 Oct 2010 -20 March 2011.
10. **Associate Director for Graduated Studies, Damghan University, 2010-2012.**

11. **Young Collaborator in the Abdus-Salam International Centre for Theoretical Physics (ICTP), Trieste, Italy, (Jun-Sep 2003).**
12. **Head of School of Physics, Damghan University of Basic Sciences, (Sep 1998-Sep 2001).**
13. **Honored Lecturer, Damghan University of Basic Sciences, (2000).**
14. **Honored Undergraduate Student, Physics Department, Shiraz University, (1994).**

✚ INVITED SPEAKER & TALKS

1. *Title of Talk* : “Floquet Engineering of Quantum Materials : Floquet Topological Insulators”, *School of Physics, Institute for Research in Fundamental Sciences (IPM), Tehran, (Oct 2021). (Invited Talk)*
2. *Title of Talk* : “[Transport and Magnetic properties of Topological Insulator Thin films](#)”, *School of Physics, Institute for Research in Fundamental Sciences (IPM), Tehran, (18th Sep 2019). (Invited Talk)*
3. *Title of Talk*: “[Topological Insulators](#)”, *Iran University of Science and Technology, Tehran, (20th May 2019). (Invited Talk)*
4. *Title of talk* : “Effect of Chiral selective tunneling on quantum transport in magnetic topological insulator thin films”, *The second Autumn Meeting of the Physics Society of Iran, Physics Department, Tehran University, Tehran, 23 Nov (2017). (Contributed Speaker)*
5. *Title of Talk* : "Nonadiabatic charge and spin pumping through driven quasi-one dimensional systems", **Conference on Many-Body Systems**", Khaje Nasir Toosi University of Technology, Tehran (12 Nov 2015). **(Keynote Speaker)**
6. (<http://psi.ir/farsi.asp?page=mbs94>).
7. **Keynote Speaker**: "Electronics and Spintronics in Graphene", **12th Conference on Condensed Matter Physics, Physical Society of Iran, Isfahan University of Technology, Isfahan (28-29 Jan 2015).** (<http://www.psi.ir/farsi.asp?page=cmc12>)
8. *Title of Talk*: " [Spin and Charge transport in Ferromagnetic Graphene](#)", **Recent Progress in Two-dimensional Systems**, *School of Physics, Institute for Research in Fundamental Sciences (IPM), Tehran, (9th Oct 2014)* (<http://physics.ipm.ac.ir/conferences/rpts/title.jsp>). **(Invited Speaker)**
9. *Title of Talk*: "The effect of velocity modulation on band structure and tunneling in bilayer graphene", **Workshop on “Quantum transport in graphene** (In memory of late Prof. Malek Zareyan, 1971-2014), *School of Physics, Institute for Research in Fundamental Sciences (IPM), Tehran, (24th Apr 2014)* (<http://physics.ipm.ir/conferences/qtg/index.jsp>). **(Invited Speaker)**
10. *Title of Talk*: "Transport through Graphene Nanoribbons and Disordered Graphene Superlattice ", **Workshop on Graphene and Topological Insulators**, *School of Physics, Institute for Research in Fundamental Sciences (IPM), Tehran, (29-30 Sep, 2010)* (<http://physics.ipm.ac.ir/conferences/gtic/index.jsp>). **(Invited Speaker)**

11. *Title of Talk: "Negative Differential Resistance in Graphene Nanoribbon Junctions", National Conference on strongly correlated electronic systems, Physics Department, Sharif University of Technology, Tehran (25 Dec 2008).* (<http://spin.cscm.ir/sces08/program.html>) (Contributed Speaker)



CONFERENCE PAPERS

1. Z. Asgarpour, H. Cheraghchi, M. Esmailzadeh, "Transport properties in thin films of topological insulators under structural inversion asymmetry", *15th Conference on Condensed Matter Physics, Physical Society of Iran,* ", Qom University of Technology, Qom, 27-28 Jan, (2021). (Talk)
2. T. Sabze, H. Cheraghchi, "Chiral spin polarization in topological insulator thin film". *14th Conference on Condensed Matter Physics, Physical Society of Iran,* ", Shahid-Chamran University, Ahwaz, 6-7 Feb, (2019). (Talk)
3. M. Azadparvar, H. Cheraghchi, "Investigation IV Characteristics Curve Zigzag Graphene Nanoribbons Under Uniaxial Strain", *14th Conference on Condensed Matter Physics, Physical Society of Iran,* ", Shahid-Chamran University, Ahwaz, 6-7 Feb, (2019). (Selected Poster)
4. F. Adinehvand, F. Parhizgar, H. Cheraghchi, "Topography-Control of bilayer graphene spectrum by using illuminated Terahertz field", *Computational Physics Conference*, Shahid Beheshti University, Tehran, 31 Jan -1 Feb (2017).
5. M. Azadparvar, H. Cheraghchi, "Negative differential resistance in transistors based on zigzag phosphorene nanoribbons", *Iranian Conference on Mathematical Physics*, Qom University of Technology, 27 Dec (2017).
6. F. Adinehvand, H. Cheraghchi, F. Parhizgar, "Effect of irradiated laser polarization on bilayer graphene spectrum", *Iranian Conference on Mathematical Physics*, Qom University of Technology, 28 Dec (2017).
7. H. Cheraghchi, T. Sabze, "Effect of Chiral selective tunneling on quantum transport in magnetic topological insulator thin films", *Conference on Weyl Fermions in Materials, ICTP, Trieste, Italy, 23-27 Oct (2017).*
8. S. Khodamoradi, H. Cheraghchi, "Bending-induced spin splitting of band structure in zigzag phosphorene nanoribbons", *24th Spring conference on physics, IPM, Tehran, 24-25 May (2017).*
9. T. Sabze, H. Cheraghchi, "Quantum transport through barriers in topological insulator thin films", *13th Conference on Condensed Matter Physics, Physical Society of Iran,* ", Rajae University, Tehran, 4-5 Feb, (2017).
10. M. Shiranzaee, F. Parhizgar, H. Cheraghchi, "Rashba-splitting effect on indirect exchange interaction in Topological Insulator thin films", *13th Conference on Condensed Matter Physics, Physical Society of Iran,* ", Rajae University, Tehran, 4-5 Feb, (2017). (Talk)
11. S. Amiri, H. Cheraghchi, "The effect of impurity proximity on the band structure of phosphorene", *13th Conference on Condensed Matter Physics, Physical Society of Iran,* ", Rajae University, Tehran, 4-5 Feb, (2017).

12. F. Adinehvand, H. Cheraghchi, "**Deformation-induced by asymmetric Fermi velocity on trigonally warped spectrum of bilayer graphene**", The 23 th spring conference of physics, Institute for research in fundamental sciences (IPM), Tehran (**18-19 May 2016**). (Talk)
13. M. Shiranzaee, F. Parhizgar, H. Cheraghchi, "**Single impurity effect on Topological Insulator thin films**", The 23 th spring conference of physics, Institute for research in fundamental sciences (IPM), Tehran (**18-19 May 2016**).
14. S. Amiri, H. Cheraghchi, M. Azadparvar, "**Band structure and density of states in black phosphorus sheets in the presence of impurity**", ", 22 th Annual IASBS Meeting on Condensed Matter Physics, Zanjan, (**26-27, May 2016**).
15. S. Amiri, H. Cheraghchi, "**Spin polarization in Phosphorene band structure induced by impurities**", The 23 th spring conference of physics, Institute for research in fundamental sciences (IPM), Tehran (**18-19 May 2016**).
16. H. Cheraghchi, "**Pure spin pumping in zigzag graphene nanoribbons with proximity induced ferromagnetism**", *Conference on Frontiers of Nanoscience* 24 August - 1 September **2015, ICTP, Trieste, Italy**.
17. F. Adinehvand, F. Askari, H. Cheraghchi, "**Band structure of graphene nanoribbons in presence of irradiated polarized light**", 21 th Annual IASBS Meeting on Condensed Matter Physics, Zanjan, (**27-28, May 2015**).
18. Z. Fallahi, H. Cheraghchi, M. Ardianian, S. Rouhani, "**Determination of the roughness exponent and fractal analysis of ZnO thin film deposited by spray pyrolysis**", 12th Conference on Condensed Matter Physics, Physical Society of Iran, Isfahan University of Technology, Isfahan (**28-29 January 2015**).
19. E. Rahmati, H. Cheraghchi, "**Electron scattering in the ferromagnetic graphene nanoribbons(GNRs) by magnetic impurities** ", 20th Annual IASBS Meeting on Condensed Matter Physics, Zanjan (**28-30, May 2014**).
20. F. Pasha, H. Cheraghchi, "**Quantum pumped current in graphene nanoribbons**", 20th Annual IASBS Meeting on Condensed Matter Physics, Zanjan (**28-30, May 2014**). (Selected Poster).
21. H. Cheraghchi, F. Adinehvand, "**Control over band structure and tunneling in bilayer graphene induced by velocity engineering**", the 5th International Conference on Nanostructures, Kish Island, Iran (**6-9 March 2014**).
22. M. Massah, H. Cheraghchi, S. Rouhani, "**Determination of the roughness exponent and fractal dimension of iso-height contours for ZnO thin films**", Annual Physics Conference of Iran, Birjand University, Birjand (**26-29 Aug 2013**).
23. M. A. Keshtan, H. Cheraghchi, '**Simulation of generation of current vortices in a zigzag monolayer Graphene nanoribbon at the presence of strong external magnetic field using bond current formalism**', *Annual Physics Conference of Iran, Yazd University, Yazd*, (**21-24 Aug 2012**).
24. M. Nabavi, H. Cheraghchi, '**Creation of energy gap in graphene antidot lattices**', *Annual Physics Conference of Iran, Urmia University, Urmia*, (**5-7 Sep 2011**).
25. M. Nabavi, H. Cheraghchi, '**Zero mode dependence on the hole structure of antidot graphene lattices**', *Annual Physics Conference of Iran, Urmia University, Urmia*, (**5-7 Sep 2011**).
26. M. Nabavi, H. Cheraghchi, '**The effect of unit cell geometry on the stability and band structure of graphene antidot lattices**', *Annual Physics Conference of Iran, Urmia University, Urmia*, (**5-7 Sep 2011**).

27. Z. Akbarinejad, H. Cheraghchi, '**Magnetization and stability of triangular graphene quantum dots with hydrogen edged saturation in the presence and absence of Fluorine impurity**', *Annual Physics Conference of Iran, Urmia University, Urmia, (5-7 Sep 2011)*.
28. Z. Akbarinejad, H. Cheraghchi, "**Stability and magnetization of triangular graphene quantum dot with zigzag edges**", *The 18th spring conference of physics, Institute for Research in Fundamental Sciences (IPM), Tehran, (18-19 May 2010)*
29. V. Derakhshan, H. Cheraghchi, S. A. Ketabi, "**Transport gap and transport properties of bilayer graphene nanoribbin with the zigzag edges**", *The 10th conference on Condensed Matter , Shiraz University, Shiraz, Iran, (26-27 Jan 2011)*. (Talk)
30. F. Adinehvand, H. Cheraghchi, "**Spin polarization in bilayer graphene located in the proximity of magnetic insulator**", *The 17th spring conference of physics, Institute for Research in Fundamental Sciences (IPM), Tehran, (19-20 May 2010)*
31. F. Adinehvand, H. Cheraghchi, "**Conductance of Dirac quasi-particles through bilayer graphene superlattice**", *Annual Physics Conference of Iran, Bu-Ali Sina University, Hamedan , (11-14 Sep 2010)*.
32. A. A. Irani, H. Cheraghchi, S. M. Fazeli, "**Resonant states in conductance of graphene superlattice with correlated disorder on potentials**", *Annual Physics Conference of Iran, Bu-Ali Sina University, Hamedan , (11-14 Sep 2010)*.
33. H. Esmailzade, H. Cheraghchi, "**Nonlinear electronic transport through zigzag graphene nanoribbon with asymmetric effects**", *The 16th Gava-Zang meeting on condensed matter physics, Institute for advanced studies in basic science, Zanjan, Iran (27-28 May 2010)*.
34. F. Adinehvand, H. Cheraghchi, "**Electronic transport through bilayer superlattice graphene**", *The 16th Gava-Zang meeting on condensed matter physics, Institute for advanced studies in basic science, Zanjan, Iran (27-28 May 2010)*.
35. A. A. Irani, H. Cheraghchi, S. M. Fazeli, "**Metal-insulator transition in the presence of long-range correlated disorder**", *The 16th Gava-Zang meeting on condensed matter physics, Institute for advanced studies in basic science, Zanjan, Iran (27-28 May 2010)*.
36. H. Cheraghchi, H. Esmailzade, "**Nonlinear Electronic Transport through Zigzag Graphene Nanoribbons**", *Spring college on computational nanoscience, 17 - 28 May 2010, ICTP, Trieste, Italy*.
37. H. Cheraghch, A. A. Irani, S. M. Fazeli, "**Localization-delocalization transition through graphene superlattice with long-range correlated disorder on potential barriers**", *Advanced workshop on Anderson localization, nonlinearity and turbulence: a crossfertilization*”, 23 August - 3 September 2010, ICTP, Trieste, Italy.
38. A. A. Irani, H. Cheraghchi, S. M. Fazeli, '**Conductance through Superlattice Graphene with Disorder Potential Barriers**', *The first National Conference on Role of Science in Nanotechnology, Imam Hossein University, (9-10 Dec 2009)*.
39. A. A. Irani, H. Cheraghchi, S. M. Fazeli, '**Electronic Transport through Disordered Superlattice Graphene**', *The first National Conference on Role of Science in Nanotechnology, Imam Hossein University, 9-10 Dec (2009)*.
40. A. Habibi, H. Cheraghchi, "**Statistical Properties and conductance of rough graphene sheets**", *Annual Physics Conference of Iran, Isfahan University of Technology, 15-18 Aug (2009)*.

41. S. Hosseini, H. Cheraghchi, "Edge Disorder Effects on Spectrum of Conduction Modes in Graphene Nanoribbons", *Annual Physics Conference of Iran, Isfahan University of Technology, 15-18 Aug (2009)*.
42. S. Khazaei, M. Khazaei, V. Daadmehr, H. Cheraghchi, "Calculating the density of states for carbon nanotubes with different tip geometries using Green's function approach", *Annual Physics Conference of Iran, Isfahan University of Technology, 15-18 Aug (2009)*.
43. H. Esmailzade, H. Cheraghchi, "Electronic Switch made by Even Graphene Nanoribbons", *The 15th Gava-Zang meeting on condensed matter physics, Institute for advanced studies in basic science, Zanjan, Iran (21-22 May 2009)*.
44. S. Hosseini, H. Cheraghchi, A. Habibi, "Anderson Localization in Graphene Sheets", *The 9th Condensed Matter Conference, Chamran University, Ahwaz, Iran, (4-5 Feb 2009)*.
45. A. H. Irani, H. Cheraghchi, "Graphene sheets as a direction and energy of electronic filter", *The 9th Condensed Matter Conference, Chamran University, Ahwaz, Iran, (4-5 Feb 2009)*.
46. H. Esmailzade, H. Cheraghchi, "Electronic Transport through Armchair Graphene Nanoribbons", *The 9th Condensed Matter Conference, Chamran University, Ahwaz, Iran, (4-5 Feb 2009)*.
47. A. Habibi, H. Cheraghchi, "Anderson Localization in the Square and Cubic Lattices", *The 9th Condensed Matter Conference, Chamran University, Ahwaz, Iran, (4-5 Feb 2009)*.
48. H. Cheraghchi, K. Esfarjani, "Negative Differential Resistance in Graphene Nanoribbon Junctions", *National Meeting of strongly Correlated Systems, Sharif University of Technology, Tehran, 26 Dec (2008). Invited Speaker*.
49. H. Cheraghchi, A. Habibi, "Anomalous properties of localization in one-dimensional disordered models", *Annual Physics Conference of Iran, Kashan University, Kashan, 26-29 Aug (2008)*.
50. H. Cheraghchi, K. Esfarjani, "Scaling properties of one-dimensional off-diagonal disorder", as a Poster in *College on Physics of Nano-Devices, the Abdus Salam International Centre for Theoretical Physics (ICTP), Miramare, Trieste, Italy (10-21 July 2006)*. [cond-mat/0603294](#)
51. V. Chegeni, H. Cheraghchi, M. R. Sarkardei, "The calculation of the eigenvalues spectrum of atoms with the full-filled electron shells in the Restricted Hartree-Fock Approximation", *The 12th Gava-Zang meeting on condensed matter physics, Institute for advanced studies in basic science, Zanjan, Iran (25-26 May 2006)*.
52. H. Cheraghchi, K. Esfarjani, "Scaling properties of one-dimensional off-diagonal disorder", *The 12th Gava-Zang meeting on condensed matter physics, Institute for advanced studies in basic science, Zanjan, Iran (25-26 May 2006)*.
53. H. Cheraghchi, S. M. Fazeli, K. Esfarjani, "Metal-Insulator Transition in one dimensional systems with long-range correlated hopping disorder", *The 12th Gava-Zang meeting on condensed matter physics, Institute for advanced studies in basic science, Zanjan, Iran (25-26 May 2006)*. [Cond-mat/0507274](#)
54. H. Cheraghchi, S. M. Fazeli, K. Esfarjani, "Localization Properties of one dimensional correlated off-diagonal disorder", as a Poster in (a) *Conference on Strongly Interacting Systems at the Nanoscale (8-12 Aug 2005)* (b) *School on Quantum Phase Transitions and*

Non-Equilibrium Phenomena in Cold Atomic Gases (11-22 July 2005), the Abdus Salam International Centre for Theoretical Physics (ICTP), Miramare, Trieste, Italy.
condmat/0507274

55. **H. Cheraghchi, K. Esfarjani, "Delocalization states in one dimensional system with special configuration of off-diagonal elements", The 7th Condensed Matter Conference, Elmo-Sanat university of Iran, Tehran, Iran, (25-26 Jan 2005).**
56. **H. Cheraghchi, K. Esfarjani, " The effect of disorder on the density of states of Carbon Nanotube by Coherent Potential Approximation (CPA)", Annual Physics Conference of Iran, Power and Water University of Technology (Shahid Abbaspour), Tehran, Iran, (23-26 Aug 2004).**
57. **H. Cheraghchi, K. Esfarjani, " Long range coulomb interaction in Quantum Wire ", The 10th Gava-Zang meeting on condensed matter physics, Institute for advanced studies in basic science, Zanjan, Iran (20-21 May 2004).**
58. **H. Cheraghchi, K. Esfarjani, M. Mardani, " Effect of Disorder and External Potential on the Electron Transport and I-V Curve of a Quantum Dot ", The 9th Gava-Zang meeting on condensed matter physics, Institute for advanced studies in basic science, Zanjan, Iran (8-9 May 2003).**
59. **K. Esfarjani, H. Cheraghchi, A. Farajian, " Effect of Disorder on Carbon Nanotube ", Research Project in Sharif University of Technology, (16 Mar 2003).**
60. **H. Cheraghchi, K. Esfarjani, " Investigation of Disorder Effect on Density of States by CPA ", The 6th Condensed Matter Conference, Yazd, Iran, (1 - 2 Feb 2003).**

SUPERVISION OF STUDENTS

1. **Hanyeh Esmailzade (M. Sc.) Graduated (July 2009), Thesis: Electronic Transport Properties in Graphene Nanoribbons.** (Now PhD student at Institute for advanced studies in basic science)
2. **Somayeh Hosseini (M. Sc.) Graduated (July 2009), Thesis: Anderson Localization in one and two dimensional systems: application in graphene sheets.** (Now PhD student at Azad University, Science and Research Branch)
3. **Alireza Habib (B. Sc.) Graduated (July 2009), Thesis: Roughness and Anderson Localization in Graphene Sheets.** (Now PhD student at Sharif University of Technology)
4. **Somayeh Khazaei (M. Sc.) Graduated (Feb 2010) Thesis: Field Emission through Capped Carbon Nanotubes.** (Now PhD student at Matrin-Luther University of Hall Wittenberg, Germany)
5. **Amirhossein Irani (M. Sc.) Graduated (July 2010) Thesis: Klein Tunneling in disordered monolayer Graphene Superlattices.** (Diploma at ICTP 2010-2011, Now PhD student at Massey University, New Zealand)
6. **Fatemeh Adinehvand (M. Sc.) Graduated (Sep 2011) Thesis: Spin transport through ferromagnetic bilayer graphene junctions.** (Now PhD student at Damghan University)
7. **Vahid Derakhshan (M. Sc.) Graduated (Sep 2011) Thesis: Spin polarization and magnetization through bilayer graphene nanoribbons.** (Now Post doc)

8. *Maryam Nabavi (M. Sc.), Graduated (Feb 2012) Thesis: Energy band structure and transport properties of graphene antidot lattices.*
9. *Zahra Akbarinejad (M. Sc.), Graduated (Feb 2012) Thesis: Stability and magnetization of triangular graphene quantum dot with zigzag edges.*
10. *Mohammad Mohammadi Keshtan (M. Sc.), Graduated (Sep 2012) Thesis: Electronic and Thermal Response functions of graphene nanoribbons in the presence magnetic field.(Now PhD student at Iran University of Science and Technology)*
11. *Mozhdeh Massah (M. Sc.), Graduated (Sep 2013) Thesis: Study of Statistical and Morphological Properties of ZnO Rough Surfaces Deposited by Spray Pyrolysis. (Now PhD student at Max-Planck-Institute for the Physics of Complex Systems)*
12. *Fatemeh Pasha (M. Sc.), Graduated (June 2014) Thesis: Non-adiabatic Quantum Pumping in Graphene nanoribbons.*
13. *Elham Rahmati (M. Sc.), Graduated (Feb 2015) Thesis: Boltzmann Conductivity through Ferromagnetic Graphene Nanoribbons.*
14. *Fatemeh Askari Shahid, Graduated (Sep 2016) Thesis: The effect of irradiation on band structure and quantum transport through Carbon structures.*
15. *Saeed Amiri (M. Sc.), Graduated (Sep 2016) Thesis: Investigation of the band structure and quantum transport through Phosphorene in the presence of impurity. (Ph. D. student at Göttingen university)*
16. *Shima, Khodamoradi (M. Sc.), Graduated (Sep 2017) Thesis: Transport properties of Phosphorene nanoribbons and nano-junctions.*
17. *Fatemeh Adinehvand, (Ph. D.), Graduated (Feb 2017) Thesis: Quantum transport and optical conductivity through bilayer graphene in time-periodic and time-independent potentials.*
18. *Mahroo Shiranzaee, (Ph. D.), Graduated (Sep 2018) Thesis : Investigation of magnetic response of novel two-dimensional structures to magnetic impurities. (now post-doc at Uppsala University).*
19. *Tahere Sabze, (Ph. D.), Graduated (Feb 2020) Thesis: Transport properties of Two-Dimensional Topological Insulators.*
20. *Zahra Asgarpour (M.Sc. Student), Graduated (Feb 2020) Thesis: Field-effect topological transistors*
21. *Malihe Azadparvar (Ph. D. Student), Graduated (Sep 2021) Thesis: Transport properties in two-dimensional materials: Phosphorene, Graphene*
22. *Sajad Dabiri (Current Ph. D. Student)*

INTERNATIONAL CONFERENCES AND WORKSHOPS

1. “Conference on Physics of Defects in Solids: Quantum Mechanics Meets Topology”, 9-13 July, (2018), ICTP, Trieste, Italy.
2. “Conference on Weyl Fermions in Materials”, 23-27 Oct (2017) ICTP, Trieste, Italy.
3. “Conference on Many-Body-Localization: Advances in the Theory and Experimental Progress”, 10-14 July (2017), ICTP, Trieste, Italy.
4. “School on Fundamentals on Quantum Transport”, 31 July-4 Aug (2017), ICTP, Trieste, Italy.

5. " *Workshop on Fundamentals on Quantum Transport*", 7 Aug-11 Aug (2017), ICTP, Trieste, Italy.
6. " *School and Workshop on Strongly Correlated Electronic Systems - Novel Materials and Novel Theories*", 10 - 21 Aug (2015), ICTP, Trieste, Italy.
7. " *Conference on Frontiers of nanoscience*", 21 Aug-1 Sep 2015, ICTP, Trieste, Italy
8. " *Conference on Non-equilibrium Phenomena in Condensed Matter and String Theory*", 30 Jun-4 July 2014, ICTP, Trieste, Italy.
9. " *Summer School on Quantum Many-Body Physics of Ultra-Cold Atoms and Molecules*", 1-14 July 2012, ICTP, Trieste, Italy
10. " *Workshop on Quantum Simulations with Ultracold Atoms* ", 16-20 July 2012, ICTP, Trieste, Italy.
11. " *Advanced School of Recent Progress in Condensed Matter Physics and Strongly Correlated Systems*", School of Physics, IPM, Tehran, 27-28 June 2012.
12. " *SPRING COLLEGE ON COMPUTATIONAL NANOSCIENCE*", 17 - 28 May 2010, ICTP, Trieste, Italy.
13. " *ADVANCED WORKSHOP ON "ANDERSON LOCALIZATION, NONLINEARITY AND TURBULENCE: A CROSS-FERTILIZATION"*, 23 August - 3 September 2010, ICTP, Trieste, Italy.
14. " *Advanced School of Recent Progress in Condensed Matter Physics and Strongly Correlated Systems*", School of Physics, IPM, Tehran, 5-9 July 2008.
15. " *Workshop on High Performance Computing (HPC08)*", School of Physics, IPM, Tehran, February 16-21, 2008.
16. " *College on Physics of Nano-Devices*", ICTP, Miramare, Trieste, Italy (10-21 July 2006).
17. " *Conference on Strongly Interacting Systems at the Nanoscale*", ICTP, Miramare, Trieste, Italy (8 - 12 Aug 2005).
18. " *Summer School and Miniconference on Dynamical Mean-Field Theory for Correlated Electrons Applications to Real Materials, Extensions and Perspectives*", ICTP, Miramare, Trieste, Italy (25 July - 3 Aug 2005).
19. " *School on Quantum Phase Transitions and Non-Equilibrium Phenomena in Cold Atomic Gases*", ICTP, Miramare, Trieste, Italy (11-22 July 2005).
20. " *10th Conference on Hopping and Related Phenomena (HRP 10)*" , ICTP, Miramare, Trieste, Italy (1-4 Sep 2003).
21. " *ICTP-INFM Conference on " New Frontiers in Nano-Biotechnology: Monitoring Protein Function with Single-Protein Resolution "*, ICTP, Miramare, Trieste, Italy (15-19 July 2003).
22. " *Third stig Lundqvist Conference on Advancing Frontiers of Condensed Matter Physics: Fundamental Interactions and Excitations in Confined systems "*, ICTP, Miramare, Trieste, Italy (11-15 Aug 2003).
23. " *Euroconference on "Ab initio Many-body Theory for Correlated Electron Systems "*, ICTP, Miramare, Trieste, Italy (25-29 Aug 2003).
24. " *Special Course of Computation Methods in Nano Physics of Condensed Matter "*, Kashan, Iran, (22-23 May 2002)
25. " *The ICTP's Regional Workshop on Computational Condensed Matter Physics "*, Isfahan University of Technology, Isfahan, Iran, (15 - 25 Apr 2002).

26. " Pre-workshop on Computational Condensed Matter Physics ", *Isfahan University of Technology, Isfahan, Iran (28- 31 Jan 2002)*.

REFERENCES

- *My Ph.D. Supervisor : Prof . Keivan Esfarjani*, Department of Mechanical Engineering, Virginia University; **Ph. D. Thesis: Transport properties in disordered onedimensional systems and interacting nano contacts**, *Physics Department, Sharif University of Technology, (Sep 2007)*.
- *My M.Sc. Supervisor : Prof . Seyyed Hossein Keshmiri*, Ferdowsi University, *Microelectronic Laboratory Research , Faculty of Science ,Ferdowsi University of Mashad ,Mashad , Iran, (Sep 1997)*; **M.Sc. Thesis: Investigation of Microstructure and Photoluminescence of Porous Silicon Layers "**.

TEACHING EXPERIENCE

1. "**Advanced Quantum Mechanics**", *Course in two semesters, (Graduate) Text Book: "Modern Quantum Mechanics", J. J. Sakurai*
2. "**Special Topics in Condensed Matter Physics**", *Course in one semester, (Graduate) Text Book: Electronic Transport in Mesoscopic Systems, S. Datta, Cambridge University Press, 1995.*
3. "**Quantum Mechanics** " *Course in two semesters, (Undergraduate) Text Book : Quantum Physics, S .Gasiorowicz , John Wiley&Sons,1996*
4. "**Solid State Physics** " *Course in two semesters, (Undergraduate) Text Book : Introduction to Solid State Physics, C. Kittel, 1983*
5. "**Advanced Solid State Physics** " *Course in two semesters , (Graduate) Text Book : Solid State Physics, Ashcroft&Mermin)*
6. "**Statistical Mechanics** " *Course in one semester, (Graduate, Undergraduate) Text Book :Fundamentals of Statistical and Thermal Physics, F. Reif, McGraw-Hill,1985.*
7. "**Advanced Statistical Mechanics** " *Course in Two semester, (Graduate) Text Book :Statistical Mechanics, R. K. Pathria ,2nd edition, 1996.*
8. "**Superconductivity**" *Course in one semester; (Undergraduate), Text Book; The physics of Superconductors, Introduction to fundamentals and applications", V. V. Schmidt, Springer 1997.*
9. "**Thermodynamics** " *Course in one semester, (Undergraduate) Text Book : Zemansky*
10. "**Optics**", *Course in one semester, (Undergraduate) Text Book, Introduction to modern optics, G. R. Fowles.*
11. "**Fundamentals of Physics**", *Course in three semesters, (Undergraduate), Text Book : Haliday*

12. **"Many-body quantum theory for condensed matter"**, *Course in two semesters, (Graduate), Text Books : Bruus&Flensberg, Mahan, Doniach&Sondheimer, Nolting, Inkson*

PASSED COURSES

1. **In Ph.D. LEVEL:** *Many Body systems {Doniach&Mahan&Feter}, Critical Phenomena {Goldenfeld}, Condensed Matter (1,2), Specific topics on transport {Datta&?}, Individual study on Coherent Potential Approximation {Gonis}.*
2. **In M.S. LEVEL:** *Advanced Quantum Mechanics {Sakurai(1,2)}, Advanced Solid State Physics {Ashcroft(1,2)}, Advanced Statistical Mechanics {Pathria}, Electrodynamics {Jackson}, Computational Physics, Mathematical Physics {Arfken}, Seminar On Integrated Optics.*

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Hosein Cheraghchi