

# CURRICULUM VITAE

## 1. Personal data:

- Surname: Asgari
- Name: Reza
- Birth date and place: 14 April 1969, Tehran, Iran
- Sex: Male
- Nationality: Iranian
- Present address: School of Physics, Institute for Research in Fundamental Sciences, (IPM) 19395-5531 Tehran, Iran.
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## 2. Educational background (Degree Date, Institution):

- High School: June 1986, Beheshti School, Tehran, Iran.
- Bachelor of Science: June 1991, Sharif University of Technology, Tehran, Iran.
- Master of Science: September 1994, Shahid Beheshti University, Tehran, Iran.
- Master Advisor: Dr. Farshad Ebrahimi (Title: Strong coupling theory in Superconductivity and calculation of strong coupling constant for Fe, Cu and Al.).
- Ph. D. in Physics: September 2000, Sharif University of Technology, Tehran, Iran.
- Ph. D. Adviser: Prof. Nasser Nafari (Title: Correlations in multi-subband one dimensional electron gas.).

## 3. Employment record:

- Head, School of Nano Science, IPM, 20/3/2016-
- Director, Condensed matter national laboratory, IPM, 24/9/2014-
- Head, School of Physics, IPM, 10/1/2009-23/9/2014
- Professor of Physics : Faculty member at School of Physics, Institute for Research in Fundamental Sciences, (IPM) Tehran, Iran. September 2013
- Associate Professor: Faculty member at School of Physics, Institute for Research in Fundamental Sciences, (IPM) Tehran, Iran. Oct. 2009-2013
- Assistant Professor: Faculty member at School of Physics, Institute for Research in Fundamental Sciences, (IPM) Tehran, Iran. Oct. 2004-2009
- Researcher Associate at NEST-INFN and classe di Scienze, Scuola Normale Superiore, Pisa, Italy . Oct 2003-Oct. 2004
- Postdoctoral Research at NEST-INFN and classe di Scienze, Scuola Normale Superiore, Pisa, Italy . Oct 2001-Oct. 2003
- Postdoctoral Research at Institute for Studies in Theoretical Physics and Mathematics, Tehran, Iran. Sep. 2000-Oct. 2001

#### 4. Scientific activities:

- Co-Editor Solid State Communication, May, 2020
- Co-Editor EPL (Europhysics Letters), April, 2019
- Member of European Physical Society, April 2019
- Scientific member of Nanoscience and Nanotechnology committee, *Ministry of science and technology*, 2016-2017
- Scientific member of Higher Education office of the Nanoscience and Nanotechnology, *Ministry of science and technology*, 2018-
- International advisory board: International Scientific Spring, Islamabad, Pakistan, 13-14 March 2017, <http://www.ncp.edu.pk/docs/iss-2017/poster-iss-2017.pdf>
- Board member of *Physics Society of Iran* since (October 2014)-present.
- Editorial Board of *Iranian Journal of Physics Research* since (2011)-present.
- Chair, Condensed matter council of physics society of Iran since (2012)-(2015).
- Referee for most major research journals including the Nature Communications, Physical Review Letters, New Journal of Physics, Physical Review B, Europhysics Lett and Journal of Physics C: Condensed Matter Physics

- Scientific referee for Mustafa Prize 2015.
- International advisory board: 7th International Conference on Nano-structures Kish Island, Iran 27 Feb-1 March 2018
- International advisory board: 6th International Conference on Nano-structures Kish Island, Iran 7-10 March 2016
- International advisory board: 5th International Conference on Nano-structures Kish Island, Iran 6-9 March 2014
- Referee for more than 30 Ph.D. and 20 M.Sc. thesis inside Iran.
- scientific committee of School of physics, IPM July 2007-present
- scientific committee of School of Astronomy, IPM July 2009-present
- Member: scientific council of IPM, 10/1/2009-present
- Member: center of excellence in Nano structure at Sharif university, Tehran, since 10/1/2012
- Steering committee, "International conference on Nano structures" since 10/8/2012
- Scientific committee member of 38th International physics olympiad, July 2007

## 5. Funding:

- African Network for Advanced two-dimensional materials for the year 2018 from ICTP. The grant is 10000 Euro.
- Modeling the olfactory system from receiver to recognition 2018 by Iran Cognitive Science and Technologies Council. The grant is Euro.
- Chair, distinguished researcher selected by ministry of Science and technology in 2016. The grant is 17000 USD.
- Special research grant from Science and Technology, vice presidency of Iran. I am selected as a distinguished researcher in 2015. The grant is 17000 USD.
- Research grant for developing my group at IPM, 8000USD per year. It has been starting since 2009.
- Special grant for hiring two post-docs in 2017-2018 from Iran Science Elites Foundation.
- Special grant for hiring two post-docs in 2018-2019 from Iran Science Elites Foundation.
- Special grant for hiring two post-docs in 2019-20120 from Iran Science Elites Foundation.
- Research grant from the ministry of science, research and technology, Iran , 30MT (Iranian currency). It has been starting since 2020.

- Special grant for hiring two post-docs in 2020-20121 from Iran Science Elites Foundation.

## 6. Awards:

- Distinguished researcher in the "Basic Sciences" selected by the ministry of science, research and technology, Iran , 17 Dec 2019
- Selected among the top ten researchers in nanotechnology by the Iranian Vice-Presidency for Science and Technology, 12th Oct 2019
- Senior Associate member of ICTP (2018-2024)
- Chair, distinguished researcher selected by ministry of Science and technology, (2016)
- Distinguished researcher selected by Science and technology, vice presidency of Iran (2015)
- Distinguished researcher in the "Basic Sciences" selected by the ministry of science, research and technology, Iran (2013)
- Best researcher with most progress in nano-science selected by Iranian nanotechnology initiative council (2011)
- Special prize from Iranian nanotechnology initiative council for our published paper in **Science** (2010)
- Regular Associate member of ICTP (2011-2017)
- Prize for the best researcher in Tehran province 1386 (2007)
- Prize for the best graduate student in Physics, Shahid Beheshti University, (1994)

## 7. Main research fields:

- Quantum and Classical Liquids
- Highly Correlated Electron Systems
- Density Functional Theory and Dynamical Mean Field Theory
- Disordered systems
- Computational Physics

## 8. Current Research:

I have been working on two-dimensional material electron systems namely graphene, transition metal dichalcogenide and phosphorene systems. To be more precise, I am interested in many-body physics by carrying out the physical quantities of many body problem and specially the transport

properties of a few layer graphene and other advanced two-dimensional crystalline materials. Furthermore, cold dipolar atom gases have attracted a lot of attention due to the novel anisotropic and long-range character of dipole-dipole interactions. I am also working on one- and two-dimensional dipolar Fermi gas systems and interested in the phase diagrams in such systems.

## 9. Experience in teaching of the physics:

- Advanced Condensed matter physics I and II (2015-2016) using Philip Phillips's book (PhD students at IPM) <http://physics.ipm.ac.ir/phd-courses/semester10>.
- Advanced Many-body physics II (PhD students at IPM) <http://physics.ipm.ac.ir/phd-courses/semester5/cp.pdf>.
- Advanced Many-body physics I (PhD students at IPM) <http://physics.ipm.ac.ir/phd-courses/semester2/cm/index.jsp>.
- Advanced Condensed Matter physics I and II (PhD students at SUT).
- Advanced numerical methods in Physics (PhD students at IPM).
- Advanced condensed matter physics I and II (Ms students in Iran University of Science and Technology).
- Quantum Mechanics I and II (Bs students in Shahid Rajaye university).
- Electrodynamics I and II (Bs students in Shahid Beheshti University).
- General Physics I and II (Bs students in Iran University of Science and Technology).

## 10. Books/ Book chapters:

- 1) *R. Asgari*: Electronic Transport in Bilayer Graphene, *Chapter 10: Graphene*, pages 228-265. Woodhead Publishing, UK Elsevier (ISBN: 978-0-85709-508-4 (2014))
- 2) *R. Asgari*: Introduction to electronic and optical properties of two-dimensional molybdenum disulfide systems, *Chapter 1: no-nonsense Physicists, An overview of Gabriele Giuliani's work (Edizioni Della Normale, Pisa, Italy)* (ISBN: 978-88-7642-535-6 (2015))

## 11. Publications:

- Based on the google scholar scientometrics (15 May 2020): the number of citations is about 4440 with h-index=34
- **2020**
- 134) *S. Izadi, Z. Torbatian, A. Qaiumzadeh and R. Asgari* : Strain and electric field control of spin-spin interactions in monolayer CrI<sub>3</sub>, submitted (2020)
- 133) *Azadeh Faridi and R. Asgari* : Many-body exchange-correlation effects in MoS<sub>2</sub> monolayer: the key role of nonlocal screening of the crystal, submitted (2020)
- 132) *Zahra Torbatian, Mohammad Alidoosti, Dino Novko, and R. Asgari* : Low-loss two-dimensional plasmon modes in antimonene, Phys. Rev. B **101**, 205412 (2020)
- 131) *L. Majidi and R. Asgari* : New supercurrent pattern in quantum point contact with strained graphene nanoribbon, Phys. Rev. B (2020)
- 130) *I. Seydi, S. H. Abedinpour, R. E. Zillich, R. Asgari and B. Tanatar* : Rotons and Bose condensation in Rydberg-dressed Bose Gases, Phys. Rev. A **101**, 013628 (2020)
- 129) *Sh. Hiedari and R. Asgari* : Chiral Hall effect and intraband transitions in strained Weyl semimetals, Phys. Rev. B **101**, 165309 (2020)
- 128) *M. Tavakol, A. Montazeri, H. Aboutalebi and R. Asgari*: Mechanical properties of graphene oxide: the impact of functional groups, Applied Surface Science , 146554 (2020) DOI : 10.1016/j.apsusc.2020.146554
- 127) *F. G. Ghamsari and R. Asgari*: Plasmon-phonon-polaritons in encapsulated phosphorene, Plasmonics **1**, 1 (2020), DOI : 10.1007/s11468-019-01059-9
- **2019**
- 126) *Sh. Hiedari, A. Cortijo and R. Asgari* : Hall viscosity for optical phonons Phys. Rev. B **100**, 165427 (2019)
- 125) *A. Ebrahimian, M. Dadsetani and R. Asgari* : Topological Dirac semimetal and superconductivity in two-dimensional transition-metal MOH (M=Zr, Hf), Phys. Rev. B **100**, 245120 (2019)
- 124) *M.A. Sharif Sheikholeslami, Z. Nourbakhsh, A. Beitollahi, M. Shokouhimehr and R. Asgari* : Development of Graphene Structure

in Phenolic Resin Induced by Planarization of Benzene Rings, (2019)

- 123) *M. Barzegar, M. Berahman and R. Asgari* : First-Principles Study of Molecules Adsorption on the Ni-Decorated Monolayer MoS<sub>2</sub>, *J. Computational Electronics* **18**, 826 (2019)
- 122) *I. Seydi, S. H. Abedinpour, R. Asgari and B. Tanatar* : Exchange-correlation effects and the quasiparticle properties in a two dimensional dipolar Fermi liquid, *Journal of Superconductivity and Novel Magnetism*, 1-6 (2019) [doi.org/10.1007/s10948-019-05371-7](https://doi.org/10.1007/s10948-019-05371-7)
- 121) *Z. Shomali and R. Asgari*: Spin transfer torque and exchange coupling in Josephson junctions with ferromagnetic superconductor reservoirs, *J. Physics: Condens. Matter* **32**, 035806 (2019)
- 120) *B. Zare Rameshti, A. Eskandari-asl and R. Asgari*: Phonon enhanced Kerr and Faraday rotations in two-dimensional electron systems , (2018)
- 119) *D. Nasr Esfahani and R. Asgari*: Superconducting critical temperature of hole doped blue phosphorene , (2018)

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- 118) *Z. Torbatian and R. Asgari*: Optical absorption properties of few-layer phosphorene *Phys. Rev. B* **98**, 205407 (2018)
- 117) *Z. Nourbakhsh and R. Asgari*: Phosphorene as a nanoelectromechanical material *Phys. Rev. B* **98**, 125427 (2018)
- 116) *X. Wei, Ch. Gao, R. Asgari, P. Wang and G. Xianlong*: Fulde-Ferrell-Larkin-Ovchinnikov pairing states of a polarized dipolar Fermi gas trapped in a one-dimensional optical lattice *Phys. Rev. A* **98**, 023631 (2018)
- 115) *A. Faridi, R. Asgari and A. Langari*: Magnetotransport of a 2DEG with anisotropic Rashba interaction at the LaAlO<sub>3</sub>/SrTiO<sub>3</sub> interface *Phys. Rev. B* **98**, 155442 (2018)
- 114) *M. Yousefi, M. Faraji, R. Asgari and A. Z. Moshfegh*: Effect of boron and phosphorus codoping on the electronic and optical properties of graphitic carbon nitride monolayers: First-principle simulations *Phys. Rev. B* **97**, 195428 (2018)
- 113) *I. Seydi, S. Abedinpour Harzand, R. Asgari and B. Tanatar*: Composite quasiparticles in strongly-correlated dipolar Fermi liquids *Phys. Rev. A* **98**, 063623(2018)

- 112) *L. Majidi, M. Zare, and R. Asgari*: Quantum transport in new two-dimensional heterostructures: thin films of topological insulators, phosphorene , *Physica C (Special issue: conference paper)* **3**, 3 (2018)
- 111) *Z. Nourbakhsh and R. Asgari*: Charge transport in doped zigzag phosphorene nanoribbons , *Phys. Rev. B* **97**, 235406 (2018)
- 110) *Z. Torbatian and R. Asgari*: Plasmonic physics of 2D crystalline materials, , *App. Science (invited paper)* **8**, 238 (2018)
- 109) *Z. Shomali and R. Asgari*: Effects of low-dimensional material channels on energy consumption of Nano-devices , *Int commun in heat and mass transfer* **94**, 77 (2018)
- 108) *M. Zare, F. Parhizgar and R. Asgarii*: Strongly anisotropic RKKY interaction in monolayer black phosphorus , *J. Mag. Magn. Mat.* **456**, 307 (2018)
- 107) *H. Mosadeq and R. Asgari*: Ground-state phases of dipole-dipole Fermion interactions on two-leg ladder systems. *J. Phys. C* **30**, 205601 (2018)
- **2017**
- 106) *M. Lundeberg, Y. Gao, R. Asgari, Ch. Tan, B. Duppen, M. Autore, P. Gonzalez, A. Woessner, K. Watanabe, T. Taniguchi, R. Hillenbrand, J. Hone, M. Polini and F. Koppens*: Tuning quantum non-local effects in graphene plasmonics, *Science*, **357**, 187 (2017)
- 105) *F. Parhizgar, A. Qavimzadeh and R. Asgari*: Quantum capacitance of decoupled bilayer graphene , *Phys. Rev. B* **96**, 075447 (2017)
- 104) *Z. Torbatian and R. Asgari*: Plasmon modes of bilayer molybdenum disulfide: A density functional study, *J. Phys. C* **29**, 465701 (2017)
- 103) *M. Zare, L. Majidi and R. Asgari*: Giant magnetoresistance and anomalous transport in phosphorene-based multilayers with non-collinear magnetizations. *Phys. Rev. B* **95**, 115426 (2017)
- 102) *A Faridi, and R. Asgari*: Plasmons at the LaAlO<sub>3</sub>/SrTiO<sub>3</sub> interface and Graphene-LaAlO<sub>3</sub>/SrTiO<sub>3</sub> double laye. *Phys. Rev. B* **95**, 165419 (2017)



- 101) *M. Zare, B. Zare Rameshti, F. G. Ghamsari and R. Asgari:* Thermoelectric transport in monolayer phosphorene. *Phys. Rev. B* **95**, 045422 (2017)

- **2016**

- 100) *B. Zare Rameshti and R. Asgari:* Thermoelectric effects in topological crystalline insulators. *Phys. Rev. B* **94**, 205401 (2016)
- 99) *Z. Nourbakhsh and R. Asgari:* Excitons and optical spectra of phosphorene nano ribbons. *Phys. Rev. B* **64**, 035437 (2016)
- 98) *A. Farid, A. Langari and R. Asgari:* Electron mobility of two-dimensional electron gases at the interface of SrTiO<sub>3</sub> and LaAlO<sub>3</sub>. *Phys. Rev. B* **93**, 235306 (2016)
- 97) *A. Mazloom, F. Parhizgar, S. Abedinpour and R. Asgari:* Relaxation times and charge conductivity of silicene. *Phys. Rev. B*, **64**, (2016)
- 96) *L. Hedayatifar, E. Irani, M. Mazarei, S. Raasti, Y. Taghipour Azar, A. T. Rezakhani, A. Mashaghi, F. Shayeganfar, M. Anvari, T. Heydari, A. Rahimi Tabar, N. Nafari, M. A. Vesaghi, R. Asgari and M. Reza Rahimi Tabar:* Time-dependent density functional analysis of optical absorption and electronic spectra of chlorophylls *a* and *b*. *RSC Adv.* **6**, 109778 (2016)
- 95) *G. Rubio, T. Stauber, G. Gomez-Santos, R. Asgari, and F. Guinea:* orbital magnetic susceptibility of grapheme and MoS<sub>2</sub>. *Phys. Rev. B* **93**, 085133 (2016)
- 94) *H. Rostami, R. Asgari and F. Guinea:* Edge modes in zigzag and armchair ribbons of monolayer MoS<sub>2</sub>. *J. Phys. C.* **28**, 495001 (2016)
- 93) *J.R. Tolsma, A. Principi, R. Asgari, M. Polini and A.H. MacDonald :* Quasiparticle Mass Enhancement and Fermi Surface Shape Modification in Oxide Two-Dimensional Electron Gases *Phys. Rev. B* **95**, 045120 (2016)
- 92) *L. Majidi and R. Asgari :* Specular Andreev reflection in thin films of topological insulators. *Phys. Rev. B* **93**, 195404 (2016)
- 91) *M. Zare, F. Parhizgar and R. Asgari :* RKKY interaction in the topological phase of zigzag silicene nanoribbon: *Phys. Rev. B* **94**, 045443 (2016)

- 90) *H. Rostami, A. G. Moghaddam and R. Asgari* : Spin relaxation and Kondo effect in monolayer of transition metal dicalcogenides. *J. Phys. C* **28**, 505002 (2016)

## • 2015

- 89) *M. Mihnev, J. R. Tolsma, C. J. Divin, R. Asgari, M. Polini, C. Berger, W. de Heer, A. H. MacDonald, T. Norris* : Electronic cooling via interlayer Coulomb coupling in multilayer epitaxial graphene, *Nature Communications*, **6**, 8105 (2015)
- 88) *H. Rostami, R. Roldan, E. Cappelluti, R. Asgari and F. Guinea*: Theory of strain in single layer transition metal dichalcogenids, *Phys. Rev. B*, **92**, 195404 (2015)
- 87) *F. Parhizgar, A. G. Moghaddam and R. Asgari* : Optical responses and optical activity of ultrathin film topological insulator, *Phys. Rev. B* **92**, 045429 (2015)
- 86) *H. Rostami and R. Asgari* : Charge compressibility and quantum magnetic phase transition in MoS<sub>2</sub>: *Phys. Rev. B* **91**, 235301 (2015)
- 85) *H. Rostami and R. Asgari* : Valley Zeeman effect and Spin-valley polarization conductance in monolayer MoS<sub>2</sub> nanoribbon in a perpendicular magnetic field: *Phys. Rev. B* **91**, 075433 (2015)
- 84) *M. Elahi, K. Khalij, S.M. Tabatabaei, M. Pourfath and R. Asgari* : Modulation of electronic and mechanical properties of phosphorene through strain, *Phys. Rev. B* **91**, 115412 (2015)
- 83) *H. Mosadeq and R. Asgari* : Quantum phases of a one-dimensional dipolar Fermi gas, *Phys. Rev. B* **91**, 085126 (2015)

## • 2014

- 82) *R. Asgari, M.I. Katsnelson and M. Polini* : Quantum capacitance and Landau parameters of massless Dirac fermions in graphene *Ann. Phys.* **526**, 359 (2014)
- 81) *L. Majidi, M. Zare and R. Asgari* : Valley- and spin-filter in monolayer MoS<sub>2</sub>, *Solid State Communi.* **199**, 52 (2014)
- 80) *F. Parhizgar, and R. Asgari* : Magnetoresistance of double layer hybrid system in tilted magnetic field, *Phys. Rev. B* **90**, 035438 (2014)

- 79) *L. Majidi, and R. Asgari* : Valley and spin switch effect in molybdenum disulfide superconducting spin valve, Phys. Rev. B **90**, 165440 (2014)
- 78) *L. Majidi, H. Rostami and R. Asgari* : Andreev reflection in monolayer MoS<sub>2</sub>, Phys. Rev. B **89**, 045413 (2014)
- 77) *S. Abedinpour, R. Asgari, B. Tanatar and M. Polini* : Correlations and stability in strongly interacting 2D dipolar Fermi Fluids , Anna. Phys. **340**, 25 (2014)
- **2013**
- 76) *Z. Khatibi, H. Rostami and R. Asgari* : Valley polarized transport in strained graphene based Corbino disc, Phys. Rev. B **88**, 195426 (2013)
- 75) *A. Vaezi, N. Abedpour, R. Asgari, A. Cortijo and M. A. H. Vozmediano* : Topological electric current from time-dependent elastic deformations in graphene, Phys. Rev. B **88**, 125406 (2013)
- 74) *H. Rostami, and R. Asgari*: Electronic structure and layer-resolved transmission of strained bilayer graphene in the presence of vertical fields, Phys. Rev. B **88**, 035404 (2013)
- 73) *H. Rostami, A. G. Moghaddam, and R. Asgari*: Effective lattice hamiltonian for monolayer MoS<sub>2</sub> : Tailoring electronic structure with perpendicular electric and magnetic fields, Phys. Rev. B **88**, 085440 (2013)
- 72) *F. Parhizgar, M. Shefati, R. Asgari, S. and S. Satpathy*: RKKY interactions in biased bilayer graphene, Phys. Rev. **87**, 165429(2013)
- 71) *F. Parhizgar, H. Rostami and R. Asgari*: Indirect exchange interaction between magnetic adatoms in monolayer MoS<sub>2</sub> , Phys. Rev. B **87**, 125401 (2013)
- 70) *F. Parhizgar, R. Asgari, S. Abedinpour and M. Zareyan*: RKKY interactions in spin polarized graphene, Phys. Rev. B **87**, 125402 (2013)
- **2012**
- 69) *H. Rostami and R. Asgari* Electronic ground state properties of strained graphene , Phys. Rev. B **86**, 155435 (2012)

- 68) *S. Abedinpour, R. Asgari and M. Polini* : Theory of correlations in strongly interacting fluids of two-dimensional dipolar bosons , Phys. Rev. A **86**, 043601 (2012)
- 67) *A. Principi, M. Carrega, R. Asgari, V. Pellegrini and M. Polini* : Plasmons and coulomb drag in Dirac/Schroedinger hybrid electron systems , Phys. Rev. B (Editor's Suggestion) **86**, 085421 (2012)
- 66) *A. Esmailpour, H. Meshkin and R. Asgari* : Conductance of graphene superlattices with correlated disorder in velocity profiles , Solid State Commun. **152**, 1896 (2012)
- 65) *A. Quaimzadeh, Kh. Jahanbani and Reza Asgari* : Spin polarization dependence of quasiparticle properties in graphene , Phys. Rev. B **85**, 235428 (2012)
- 64) *R. E.V. Profumo, Reza Asgari, M. Polini and A.H. MacDonald* : Double-layer graphene and topological insulator thin-film plasmons , Phys. Rev. B **85**, 085443 (2012)
- 63) *A. Principi, M. Polini, Reza Asgari and A.H. MacDonald* : The tunneling density-of-states of interacting massless Dirac fermions , Solid State Communication **152**, 1456 (2012) ( Graphene special issue)
- 61) *A. Faridi, M. Pashangpour and R. Asgari* : Temperature dependence of the paramagnetic spin susceptibility of doped graphene , Phys. Rev. B **85**, 045410 (2012)

## • 2011

- 60) *A. L. Walter, A. Bostwick, K. Jeon, F. Speck, M. Ostler, T. Seyller, L. Moreschini, Y. Chang, M. Polini, R. Asgari, A. H. MacDonald, K. Horn and E. Rotenberg*: Effective Screening and the Plasmaron Bands in Graphene , Phys. Rev. B (Editor's Suggestion) **84**, 085410 (2011)
- 59) *A. Vaezi, N. Abedpour and R. Asgari* : Charge quantum hall effect in time reversal invariant systems , submitted (2011)
- 58) *J. Sarabadani, A. Naji, R. Asgari and R. Podgornik* : Many-Body effects in Van der Waals-Casimir interaction between graphene layers , Phys. Rev. B **84**, 155407 (2011)
- 57) *N. Abedpour, R. Asgari and F. Guinea* : Strains and pseudo-magnetic fields in circular graphene rings , Phys. Rev. B **84**, 115437 (2011)

- 56) *A. Principi, R. Asgari and M. Polin* : Acoustic plasmons and composite hole-acoustic plasmon satellite bands in graphene on a metal gates , Solid State Communication ( Fast track) **151**, 1627 (2011)
- 55) *N. Abedpour, R. asgari and M.R. Rahimi Tabar* : Irreversibility in response to forces acting on the graphene sheets Phys. Rev. Lett **106**, 209702 (2011), There is a comment on our paper that our reply letter shows that the comment is irrelevant.
- 54) *H. Cheraghchi, A.H. Irani, S.M. Fazeli and R. Asgari* : Metallic phase of disordered graphene superlattices with long-range correlations , Phys. Rev. B **83**, 235430 (2011)
- 53) *H. Hatami, N. Abedpour, A. qaiumzadeh and R. Asgari* : Conductance of a bilayer graphene in the presence of a magnetic field: effect of disorder , Phys. Rev. B **83** 125433 (2011)

## • 2010

- 52) *Aaron Bostwick, Florian Speck, Thomas Seyller, Karsten Horn, Marco Polini, Reza Asgari, Allan H. MacDonald, Eli Rotenberg* : Observation of composite particles in quasi-freestanding graphene, Science **325**,999 (2010)
- 51) *G. Borghi, M. Polini, R. Asgari and A.H. MacDonald* : Compressibility of the electron gas in bilayer graphene ,Phys. Rev. B **82**, 155403 (2010)
- 50) *Rosario E.V. Profumo, Marco Polini, Reza Asgari, Rosario Fazio, and A.H. MacDonald* : Electron-electron interactions in decoupled graphene layers , Phys. Rev. B **82** , 085443 (2010)
- 49) *N. Abedpour, R. asgari and M.R. Rahimi Tabar* : Irreversibility in response to forces acting on the graphene sheets , Phys. Rev. Lett **104**, 196804 (2010).
- 48) *A. Raoux, M . Polini, R. Asgari, A.R. Hamilton, R. Fazio and A.H. MacDonald*: Velocity-modulation control of electron-wave propagation in graphene , Phys. Rev. B **81**,073407 (2010)
- 47) *kh. Jahanbani and R. Asgari*: Effect of Holstein phonons on the optical conductivity of gapped graphene, Eur. Phys. J. B **73**, 247 (2010)

- 46) *M. Esmailpour, A. Esmailpour, R. Asgari, M. Elahi and M.R. Rahimi Tabar* : Effect of a gap opening on the conductance of graphene superlattices, *Solid State Commun.***150**, 655 (2010)
- 45) *A. Qaiumzadeh, F. Joibari and R. Asgari* : Effect of Gap Opening on the Quasiparticle Properties of Doped Graphene Sheets , *Eur. Phys. J. B* **74**, 479 (2010)
- **2009**
- 44) *G. Borghi, M. Polini, R. Asgari and A.H. MacDonald* : Dynamical response functions and collective modes of bilayer graphene , *Phys. Rev. B (R)* **80**, 241402 (2009)
- 43) *A. Qaiumzadeh and R. Asgari*: Sublattice symmetry breaking effect on the electronic properties of a doped graphene , *New J. Phys.* **11**, 095023 (2009) , Invited paper
- 42) *M. Neek-Amal and R. Asgari*: Nano-Indentation of circular graphene flakes, Submitted to *Phys. Rev. B*(2009)
- 41) *R. Asgari, T. Gokmen, B. Tanatar, M. Padmanadhan, and M. Shayegan* : Effective mass suppression in a ferromagnetic two-dimensional electron liquid , *Phys. Rev. B* **79**, 235324(2009)
- 40) *A. Qaiumzadeh and R. Asgari* : Stoner ferromagnetic phase of a ground state doped graphene in the presence of in-plane magnetic field , *Phys. Rev. B* **80**, 035429 (2009)
- 39) *G. Borghi, M. Polini, R. Asgari and A.H. MacDonald* : Fermi velocity enhancement in monolayer and bilayer graphene , *Solid State Commun.* **149**, 1117 (2009)
- 38) *M. Ramezanali, M.M. Vazifeh, R. Asgari, M. Polini and A. H. MacDonald*: Finite temperature screening and specific heat of doped graphene sheets, *J. Phys. A* **42**, 214015 (2009)
- 37) *M. Neek-Amal, R. Asgari and M. R . Rahimi Tabar*: Formation of atomic nanoclusters on graphene sheets, *Nanotechnology* **20**, 135602 (2009)
- 36) *A. Esmailpour, N. Abedpour, R. Asgari and M. R . Rahimi Tabar*: Conductance of disordered graphene superlattice, *Phy. Rev.***79**, 165412 (2009), has been selected for the April 20, 2009 issue of *Virtual Journal of Nanoscale Science and Technology*

- 35) *A. Qauimzadeh and Reza Asgari* : Ground-state properties of gapped graphene using the random phase approximation, Phys. Rev. B **79** ,075414(2009). It has been selected for the February 23, 2009 issue of Virtual Journal of Nanoscale Science and Technology

- **2008**

- 34) *Marco Polini, Andrea Tomadin, Reza Asgari, A.H. MacDonald* : Density-Functional theory of graphene sheets , Phys. Rev. B **78** , 115426 (2008)
- 33) *A. Qauimzadeh, N. Arabchi and R. Asgari* : Quasiparticle properties of graphene in the presence of disorder, Solid State Commun. **142**, 172 (2008)
- 32) *G. Xianlong and R. Asgari* : Spin Density-Functional Theory for Imbalanced Interacting Fermi Gases in Highly Elongated Harmonic Traps, Phys. Rev. A.**77**, 033604 (2008).
- 31) *R. Asgari, M. M. Vazifeh, M. R. Ramazeni, E. Davoudi and B. Tanatar* : Disorder Effects on the Ground-State Properties of Graphene ,Physical Review B **77** ,081411 (2008), It has been republished in Virtual Journal of Nanoscale Science and Technology , April 7, 2008 Volume 17, Issue 14
- 30) *Marco Polini, Reza Asgari, G. Bodgri, Yafis Barlas, T. Peregr-Barnea, and A.H. MacDonald* : Plasmons and the spectral function of graphene , Physical Review B **77**,081411 (R)(2008) , It has been republished in Virtual Journal of Nanoscale Science and Technology , March 17, 2008 Volume 17, Issue 11.
- 29) *R. Asgari* : Many-Body Effects in Low Dimensional Electron Liquids, Iran Journal of Physics Research **8** 86-111(2008).
- 28) *R. Asgari, B. Tanatar and B. Davoudi* : Comparative study of screened inter-layer interactions in the Coulomb drag effect in bilayer electron systems, Phys. Rev. B **77**, 115301 (2008).
- 27) *R. Asgari and B. Tanatar* : Quasiparticle properties in a quasi-two-dimensional electron liquid, PRAMANA J. Phys. **70** 285-293 (2008) . This is a special issue collecting papers were be presented in MESODIS-06, Kanpur, India

## ● 2007

- 26) *N. Abed-Pour, M. Neek-Amal, R. Asgari, F. Shahbazi, N. Nafari and M.R.Rahimi Tabar* : Roughness of Undoped Graphene and Its Short-Range Induced Gauge Field , Phys. Rev. B **76**, 195407 (2007), has been selected for the November 19, 2007 issue of Virtual Journal of Nanoscale Science and Technology(2007).
- 25) *S. Abedipour, R. Asgari, M. Polini, and M. P. Tosi* : Analytic theory of pair distribution functions in symmetric electron-electron and electron-hole bilayers, Solid State Commun. **144**, 65 (2007).
- 24) *Marco Polini, Reza Asgari, Yafis Barlas, T. Pereg-Barnea, and A.H. MacDonald* : Graphene: A Pseudochiral Fermi Liquid , Special issue in Solid State Communication devoted to graphene physics, bf 143, 58 (2007).
- 23) *Yafis Barlas, T. Pereg-Barnea, Marco Polini, Reza Asgari and A.H. MacDonald* : Chirality and Correlations in Graphene, Physical Review Lett. **98** 236601(2007). It has been selected for the June 18, 2007 issue of Virtual Journal of Nanoscale Science and Technology
- 22) *R. Asgari, A. Esmailian and B. Tanatar* : Effective electron-electron interactions and magnetic phase transition in a two-dimensional electron liquid, Solid State Commun. **141** 595 (2007).
- 21) *M. Neek-Amal, G. Tayebirad, M. Molayem and R. Asgari*: Ground state properties of a confined simple atom by C<sub>60</sub> fullerene, J. Phys. B **40** 1509 (2007).
- 20) *R. Asgari* : Ground-state properties of the one dimensional electron liquid, Solid State Commun. **141** 563 (2007).

## ● 2006

- 19) *R. Asgari and B. Tanatar* : Correlations in charged fermion-boson mixture in dimensionalities D=2 and D=3, Phys. Letts. A **359** 143(2006).
- 18) *R. Asgari and B. Tanatar* : Many-body effective mass and spin susceptibility in a quasi-two-dimensional electron liquid, Phys. Rev. B **74**, 075301 (2006). Selected for the August, 2006 vol. 14 issue 7 of Virtual Journal of Nanoscale Science and Technology .
- 17) *R. Asgari , A. L. Subasi, A. A. Sabouri-Dodaran and B. Tanatar*: Static local-field factors in a two-dimensional electron liquid, Phys. Rev. B **74**, 155319 (2006).



- 16) *G. Xianlong, M. Polini, R. Asgari and M.P. Tosi:* Density-functional theory of strongly correlated Fermi gases in elongated harmonic traps, *Phys. Rev. A* **73**, 033609 (2006).

- **2000-2005**

- 15) *M. Gattobigio, P. Capuzzi, M. Polini, R. Asgari and M.P. Tosi:* Ground-state densities and pair correlation functions in parabolic quantum dots, *Phys. Rev. B* **71**, 045306 (2005). Selected for the July, 2005 Vol. 12 issue 3 of *Virtual Journal of Nanoscale Science and Technology*
- 14) *R. Asgari, M. Cardenas, M. Polini, B. Davoudi, M. P. Tosi:* Self-consistent Overhauser model for the pair distribution function of an electron gas at finite temperature, *Solid State Communications*. **133** 337 (2005).
- 13) *R. Asgari, B. Davoudi, M. Polini, G. Giuliani M. P. Tosi and G. Vignale:* Quasiparticle self-energy and many-body effective mass enhancement in a two-dimensional electron liquid, *Phys. Rev. B* **71** 045323 (2005).
- 12) *R. Asgari, B. Davoudi and M. P. Tosi:* Analytic theory of correlation energy and spin polarization in the 2D electron gas, *Solid State Communications* **131**, 301 (2004).
- 11) *R. Asgari, B. Davoudi and B. Tanatar:* Effective mass enhancement in two-dimensional electron systems: the role of interaction and disorder effects, *Solid State Communications* **130**, 13 (2004).
- 10) *R. Asgari, M. Polini, B. Davoudi and M. P. Tosi:* Correlation energy of a two-dimensional electron gas from static and dynamic exchange-correlation kernels, *Phys. Rev B* **68**, 235116 (2003).
- 9) *B. Davoudi, R. Asgari, M. Polini and M. P. Tosi:* Analytical theory of the ground-state properties of a three-dimensional electron gas with arbitrary spin polarization, *Phys. Rev. B* **68**, 155112 (2003).
- 8) *R. Asgari, M. Polini, V. Carneval and M. P. Tosi:* Vibrational excitations in the paired phases of a two-dimensional electron crystal in a perpendicular magnetic field, *Physica B* **336**, 387 (2003).
- 7) *B. Davoudi, R. Asgari, M. Polini and M. P. Tosi:* Self-consistent scattering theory of the pair distribution function in charged Bose fluids, *Phys. Rev. B* **67**, 172503 (2003).

- 6) *R. Asgari, M. Polini, B. Davoudi and M. P. Tosi*: Pair densities at contact in a quantum electron gas, *Solid State Communications* **125**, 129 (2003).
- 5) *F. Capurro, R. Asgari, M. Polini, B. Davoudi and M. P. Tosi*: Pair densities in two-dimensional jellium at strong coupling from scattering theory with Kukkonen-Overhauser effective interaction, *Z. Naturforschung.* **57 a**, 237 (2002).
- 4) *B. Davoudi, M. Polini, R. Asgari and M. P. Tosi*: Self-consistent Overhauser model for the pair distribution function of an electron gas in dimensionalities  $D=3$  and  $D=2$ , *Phys. Rev. B* **66**, 075110 (2002).
- 3) *R. Asgari, and B. Tanatar*: Effects of disorder on the ground-state energy of a two-dimensional electron gas, *Phys. Rev. B* **65**, 085311 (2002).
- 2) *R. Asgari, B. Davoudi and B. Tanatar*: Hard-core Yukawa model for two-dimensional charge stabilized colloids, *Phys. Rev. E* **64**, 0411406 (2001).
- 1) *N. Nafari and R. Asgari*: Correlation in Multi sub-band quasi One dimensional electron gas, *Rhys. Rev. B* **62**, 16001 (2000). Selected for the December 25, 2000 Vol. 2, issue 26 of *Virtual Journal of Nanoscale Science and Technology*

## 12. Post-doctoral supervision:

- M. Neek-Amal, Post-doc (Mechanical properties of graphene) (2008-2009): Present address: Rajaee University, Tehran
- N. Abedpour, Post-doc (Pseudo-magnetic field in graphene sheets) (2010-2011) Present Address: Bonne University, Germany
- L. Majidi, Post-doc (Andreev reflections in a monolayer  $\text{MoS}_2$  and thin film topological insulators ) (2013-2015) (2015-2017) (2019-present)
- Z. Nourbacksh, Post-doc (Optical properties in phosphorene) (2014-2018)
- F. Parhizgar, Post-doc (Many body properties in decoupled systems) (2015-2018)
- B. Zare Rameshti, Post-doc (Transport properties) (2016-2019)

- D. Nasr Esfahani, Post-doc (Superconductivity) (2016-2018)
- Z. Torbatian, Post-doc (Plasmon modes in nanostructures) (2016-2017) (2019-present)
- Z. Shomali, Post-doc (Phonons distributions in 2D) (2017-2020)
- A. Faridi, Post-doc (Many-body physics in MoS<sub>2</sub>) (2018-present)
- S. Izadi, Post-doc (Magnetic properties of CrI<sub>3</sub>) (2018-present)
- A. Ebrahimian, Post-doc (Topological 2D materials) (2019-present)

### 13. Students supervision:

- M. Esmaelzadeh, PhD (TCI). Started from 2017-unfinished (terminated)
- M. Alidosti, PhD (Graphene oxide). Started from 2017
- Sh. Hydari, PhD (Weyl Semimetal). Started from 2017
- F. Mahmoudi, PhD (Nano photonics). Started from 20117
- F. Ghamsari, PhD (Charge collective modes in phosphorene). Started from 2015-defense 31 Dec 2019
- M. Barzegar, PhD (SUT: MoS<sub>2</sub>) and gas sensing, Co-supervisor. Started from 2016-defense 16 Dec 2019
- M. Yousefi, PhD (SUT: g-C<sub>3</sub>N<sub>4</sub> monolayer and water splitting) , Co-supervisor. Started from 2016-defense about Sep (2020)
- A. Farid, PhD (Oxide interfaces systems). 2014-2018, Post-doc at IPM
- M. Zare, PhD (Transport properties of phosphorene). 2014-2018, Present address: Yasuge University
- H. Rostami, PhD (Strained graphene). Started from 2010-Graduated on the 1st of January 2015-2017 Post Doc at SNS, Pisa, Italy and (2017-2018) Nordita
- F. Parhizgar, PhD (Bilayer graphene). Started from 2010-Graduated on 18th January 2015-Post Doc at IPM, Iran. (2018) Nordita

- A. Quiamzadeh, PhD (Gapped graphene). Graduated 4 Sep. 2010, Post-doc at Trondheim, Norway Jan 2011-2013, Nijmegen, the Netherlands 2013-2016, Norway 2016-
- Kh. Jahanbani, PhD (Spin dependence of transport properties in graphene) Graduated: 12 April 2012
- H. Hatami , researcher (2009-2010)(Conductance of bilayer graphene). PhD student at Victoria University of Wellington, New Zealand
- M. M. Vazifeh , Ms (Electronic specific heat of a doped graphene). Graduated 1/8/2008 PhD student at BC, Canada (2009)
- M. R. Ramezanali , Ms (Impurity effect in the transport properties of doped graphene). Graduated 1/10/2008; PhD student at Rutgers University, USA (2009)
- E. Davoudi , Ms (Disorder effect in the ground state properties of a graphene sheet). Graduated 31/1/2009, PhD student at Azad University.
- F. Joibari , researcher (2007-2008)(Quasiparticle properties of graphene). PhD student at Delf University of Technology, Netherlands

## 14. Proceeding Papers:

- *R. Asgari*: Quasiparticle properties of massless Dirac-like electron of 2D graphene , Proceeding of 13th IASBS Condensed Matter Meeting, page 217-220, May 28-29 (2007), IASBS( Zanjan, Iran ).
- *R. Asgari*: Spin-density-functional theory for a parabolic quantum dot in a magnetic field , Proceeding of 12th IASBS Condensed Matter Meeting, page E1-E4, May 25-26 (2006), IASBS( Zanjan, Iran ).
- *R. Asgari, B. Davoudi, M. Polini, M. P. Tosi, G. Giuliani and G. Vignale*: Many-Body Effective Mass Enhancement in a Two-Dimensional Electron Liquid, Proceeding of International Workshop in Condensed Matter Theories (CMT 28), Editors: J. W. Clark, R. M. Panoff and H. Li, vol. 20, Page 23-34, (2006)) Nova Science Publishers .
- *R. Asgari, B. Davoudi, M. Polini and M. P. Tosi*: Effective mass and spin susceptibility in 2DEG , Proceeding of 11th IASBS Condensed Matter Meeting, page 235-238, May 25-26 (2005), IASBS( Zanjan, Iran ).

- *A. Esmalian and R. Asgari*: Effective electron-electron interaction and magnetic phase transition in two dimensional electron liquid , Proceeding of 8th Condensed Matter Meeting, Physics society of Iran, page 235-238, Bahman (1385), (Mashhad, Iran ).
- *N. Abedinpour, M. Neek-amal, R. Asgari, F. Shahbazi, N. Nafari and M. R. Rahimi tabar*: Roughness of graphene and its short-range induced magnetic field , Electronic Proceeding of 14th spring conference, page 1-3, May 16-18 (2007), IPM( Tehran, Iran ).

## 15. Publications pending:

- *R. Asgari, B. Davoudi and B. Tanatar*: Hard Core Yukawa model for binary two dimensional colloids system, Unpublished.
- *R. Asgari, B. Davoudi, M. Polini and M. P. Tosi*: Self-consistent theory of pair distribution functions and effective interactions in quantum Coulomb liquids, submitted to Phys. Rev. Lett. (2002). Cond-mat/0206456 (Unpublished)
- *R. Asgari*: Many body properties of unpolarized quasi one dimensional electron gas. Submitted in J. Phys. C (1999).Unpublished

## 16. Organizing Conferences/Schools:

- *Organizers : R. Asgari, S. Arbabi*: 12th Spring Theoretical Physics Conference IPM, 11-12 May 2005, Participants: 100, Speakers: 32
- *Organizers: R. Asgari*: 13th Spring Theoretical Physics Conference IPM, May 3-5, 2006, Participants: 157, speakers: 57
- *Organizer: R. Asgari*: 14th Spring Theoretical Physics Conference IPM, May 16-18, 2007, Participants: 240, speakers: 44
- *Organizers: R. Asgari and H. seid Allaei*: International Workshop on High performance computing IPM, February 16-21, 2008, Participants: 72, Invited Lecturer: Dr. Cozzini from CNR/INFM Democritos and SISSA/eLab, Trieste, Italy
- *Organizers: R. Asgari and M. Alishahiha*: 15th Spring Theoretical Physics Conference IPM, May 16-18, 2008, Participants: 140, speakers: 32

- *Organizer: R. Asgari* : Advanced school on Recent progress of Condensed Matter Physics and Strongly Correlated systems. IPM, July 5-9, 2008, Participants: 60, Lectures: 6
- *Organizers: R. Asgari and H. seid Allaei*: the 2th International Workshop on High performance computing IPM, 21 January - 1 February 2008, Tehran, IRAN, Invited Lecturers: Dr. Cozzini from CNR/INFM Democritos and SISSA/eLab, Trieste, Italy, Dr Luca Hilary from SISSA, Trieste, Italy
- *Organizers: R. Asgari et al.,:* National Condensed Matter conference 3-5 February 2008, Ahvaz, Iran (100 presented talks)
- *Organizers: R. Asgari and Ali Naji*: Workshop on Selected Topics in Casimir Effect: from Nanoscience to High Energy Physics, 25 July 2010, IPM
- *Organizers: S. Cozzini, R. Asgari, S. Rouhani and A. Balaz* : International workshop: Advance Reginal Workshop in High Performance and Grid Computing, 25 Oct-9 Nov. 2010 ( Collaboration with ICTP and IPM)
- *Organizers: R. Asgari et al.,:* Scientific member of National physics conference,(IPS) 10-14 Sep 2010, Hamedan
- *Organizers: R. Asgari et al.,:* National Condensed Matter conference 3-5 February 2011, Shiraz
- *Organizers: R. Asgari and Ali Naji*: School on selected topics in Strongly Correlated Systems 21-22 June, (2011) , IPM
- *Organizers: R. Asgari and Abdollah Langari*: Advanced School on recent progress in Condensed Matter Physics 27-28 June, (2012) , IPM
- *Organizers: R. Asgari and Abdollah Langari*: Advanced School on recent progress in Condensed Matter Physics 25-26 September, (2013) , IPM
- *Organizer: R. Asgari* International workshop: Advanced mini-workshop on Recent progress on graphene 6 March, (2014), Kish Island, <http://nanosharif.ir/page.asp?id=416>
- *Steering and scientific committee: R. Asgari et al.* 5th International Conference on Nanostructures 6-9 March 2014 Kish Island, Iran, <http://nanosharif.ir/page.asp?id=301>
- *Organizers: R. Asgari and Saeed Abedinpour*: Advanced School on recent progress in two-dimensional systems 9th of October, (2014) , IPM
- *Organizers: R. Asgari , A Langar and F. Shahbazi*: Advanced School on recent progress in condensed matter physics 22-23 January, (2015) , IPM
- *Organizers: R. Asgari , A G Moghaddam and A Jafari*: International school on Spintronics and Nanomagnetism, Nov 4-6, (2015) , IPM

- *Organizers: R. Asgari and A. Langari:* International school on Many-Body Localization, Sep 17-18, (2016) , IPM
- *Organizers: R. Asgari and S. Alipour:* New advances on quantum information science and technology, January 4-5, (2017) , IPM
- *Organizers: R. Asgari and O. Fizi:* International workshop on New trends in molecular electronics and mechanics, June 28-29, (2017) , IPM
- *Organizers: R. Asgari and M. Azizi:* International workshop on Transport properties of low-dimensional electronic materials, September 19-20 (2017)

## 17. Organizing National Exams:

- *R. Asgari and H. Arfaei:* Admission PhD students at IPM : 19 February 2010, Participants: 229 people, total selected: 18 Responsibility: designing and marking questions. Chair, executing the exam. anjou

## 18. Participate in International and National Conferences and Workshops:

- *El Mara University of Tunis-ICTP meeting, December 20-25 (2018), Invited Lecture:* 3-hour lectures on "Plasmonic physics on two-dimensional crystalline materials"
- *Many-body theory of quantum electron liquids, November 22 (2017) Pisa, Italy, <https://www.sns.it/sites/default/files/allegati/24-10-2017/locandina-22-novembre-2017-giuliani.pdf>, Invited Talk:* quantum nonlocal effects in graphene plasmonics.
- *New Advances in Condensed Matter Physics: Quantum transport, topological effects and energy conversion in low-dimensional systems , September 20-28 (2017) Khiva, Uzbekstan, <http://nacmp2017.las.uz/>, Invited Lectuere:* Plasmons in 2D crystalline materials: From calssical picture to quantum non-local effects.
- *Annual conference of Physics Society of Iran, Augest 28-31,(2017) Yazd, Iran, Invited Talk:* Graphene plamonincs: quantum nonlocal effects.
- *Recent progress in the physics of thermal transport, July 8-10,(2017) Izmir, Turkey <http://ictp-ecar.org/events/rppt-2/>, Invited Talk:* 40K superconductivity in hole-doped blue phosphorene.

- *3rd NANOAPP 2017 conference, June 14-18, (2017) Bled, Slovenia, <http://nanoapp.ios.si/>, **Invited Talk:** Quantum non-local effects in graphene.*
- *24th IPM spring conference, May 20-21, (2017) Zanzan, Iran, **Invited Talk:** Superconductivity of hole doped blue phosphorene.*
- *22th IASBS Condensed Matter Meeting, May 19-20, (2017) Zanzan, Iran, **Invited Talk:** Non-local effects in graphene plasmonics.*
- *Spin and electron correlations, University of North South Wales, Sydney, Australia, November 2-6 (2015) <http://newt.phys.unsw.edu.au/Godfrey/2015/index.html>, **Invited Talk:** Monolayer MoS<sub>2</sub>: Slater-Koster tight-binding Hamiltonian versus two-band low-energy model*
- *Physics of interfaces and layered structures, Stockholm, Sweden , August 24-6 September (2015) <http://agenda.albanova.se/conferenceDisplay.py?confId=4461>, **Invited Talk:** Electronic cooling in multilayer epitaxial graphene*
- *Interaction effects on graphene and related materials, San Sebastian, Spain , 13-17 July (2015) , **Invited Talk:** Plasmon-phonon polaritons in encapsulated phosphorene sheets*
- *2nd meeting on Research in Physics, Shahid Beheshti University, Tehran Iran , 4th February (2015) , **Invited Talk:** Condensed matter physics: past, present and future*
- *17th National Condensed Matter conference, Isfahan, Iran , 28-29 January (2015) , **Invited Talk:** Valley Zeeman effect in MoS<sub>2</sub>*
- *17th Iranian physical chemistry conference, Iran , 23-24 October , (2014) , **Invited Talk:** Two-dimensional systems beyond graphene.*
- *IPM-INIC international mini-workshop on "Graphene and its applications", IPM, Iran , 12th of October , (2014) , **Invited Talk:** Physics of graphene.*
- *2nd International Advanced school on two dimensional materials, Tabriz, Iran , May 25-26 , (2014) , **Invited Talk:** Electronic and optical properties of MoS<sub>2</sub>.*
- *21th Spring conference, IPM, Iran , May 21-22 , (2014) , **Invited Talk:** New two-dimensional materials beyond graphene.*
- *5th International conference on Nanostructures, Kish, Iran , March 6-9 , (2014) , **Invited Talk:** Intrinsic optical conductivity of modified Dirac Fermion systems.*
- *Advanced mini-workshop on Recent Progress on Graphene, Kish Island Iran , March 6 , (2014) , **Talk:** Quantum capacitance of graphene systems.*
- *Advanced school on condensed matter physics: IASBS Condensed Matter Meeting, May 29, (2013) Zanzan, Iran, **Invited Talk:** New two-dimensional systems.*



- *19th IASBS Condensed Matter Meeting, May 29-31,(2013) Zanjan, Iran, Invited Talk:* Electronic ground state properties of of monolayer MoS<sub>2</sub>.
- *Advanced school on plasmonic and optoelectronic May 26-27,(2013) Tabriz, Iran, Invited Talk:* Plasmonic in graphene.
- *20th spring conference at IPM May 23-24,(2013) Tehran, Iran, Invited Talk:* Ferromagnetic ground-state of a monolayer Molybdenum disulfide (MoS<sub>2</sub>) system.
- *Advanced School on recent progress in Condensed Matter Physics 27-28 June, (2012) , IPM, Lecture:* Transport properties in bilayer graphene.
- *18th IASBS Condensed Matter Meeting, May 24-25,(2012) Zanjan, Iran, Invited Talk:* Density of states in a doped graphene flake.
- *4th international conference on nanostructure 12-14 March, (2012) , Kish, Iran, Invited Talk:* Electron-plasmon composite particle in a doped graphene sheet.
- *Workshop on Condensed Matter Physics 23 October, (2011) , Isfahan University of Technology, Iran, Invited Talk:* Plasmarons in doped graphene sheets .
- *Workshop on graphene and Topological insulators 19-20 October, (2011) , IPM, Invited Talk:* (1) Strain and Pseudomagnetic field on graphene nano-structures. (2) Introductory lecture on Topological Insulators ( Two Talks).
- *Workshop and School on Topological Aspects of Condensed Matter Physics, 27 June-17 July (2011), ICTP, Italy*
- *School on selected topics in Strongly Correlated Systems 21-22 June, (2011) , IPM, Lectures:* Correlation effects in Fermion Systems I, II and III ( Three sessions).
- *Graphene week, Obergurgl Austria, 24-29 April (2011) , Talk:* Effective pseudo-magnetic field in graphene ring and nanobubble graphene structures.
- *Workshop on Graphene and Topological Insulators, School of physics, IPM 29-30 Sep 2010 y, September 14-17 (2010), Invited speaker:* Introductory remarks on graphene physics and topological insulators.
- *27th international physics congress, Turkey Physical Society, September 14-17 (2010), Invited speaker:* Spectral Function of Quasi-Freestanding Doped Graphenes.
- *The annual physics conference of Iran, Hamedan 11-14 Sep. (2010), Invited speaker:* Why graphene has attracted a tremendous physicists' attention.
- *Progress in spintronic and graphene research , Beijin,China May 31-June 4,(2010), Invited speaker:* Ripples and wrinkles in suspended graphene sheets.

- *16th IASBS Condensed Matter Meeting, May 27-28,(2010)*, **Invited speaker**: Composite particles in graphene sheets.
- *3th international conference on Nanostructures : , 10-12 March. (2010) Kish-Iran*, **Invited Speaker**: Spectral Properties in Quasi-Freestanding Graphene.
- *Magnetism, Superconductivity and Phase transitions in Novel and Complex Materials : , 11-14 Nov. (2009) Kolkata-India*, **Invited Speaker**: Quasiparticle electronic properties of doped graphene.
- *Graphene , Benasque, Spain , July 26 Aug.8 (2009)*, **Invited Speaker**: Stoner Ferromagnetic Phase of a Graphene in the Presence of an In-Plane Magnetic Field.
- *Graphene week, ICTP, Trieste Italy, Aug. 25-29 (2008)*, **Poster**: Density-Functional Theory of Graphene Sheets.
- *Advanced School of Recent Progress in Condensed Matter Physics and Strongly Correlated System , 5th -9th July 2008*, **Invited Lecturer**: Electronic properties of Graphene .
- *14th IASBS Condensed Matter Meeting, May 22-23,(2008)*, **Invited speaker**: Many-body correlation effects in graphene.
- *Monte Calro Simulations: Oct 17-18 (2007), Tehran* Invited Lecturer: Introduction on the Diffusion and Green's function Quantum Monte Calo simulations.
- *International workshop Many-body theory in inhomogeneous superfluidity, 9-29 July (2007) Pisa-Italy.*
- *the first Summer school on strongly correlated electron system, June 23-26,(2007)*, **Invited Lecturer**: Lecture I: Correlations in quantum electron systems. Lecture II: Luttinger liquid system Lecture III: Cold fermion system, Feshbach resonance and BCS-BEC crossover. Lecture IV: Superfluidity and ground state of an imbalance Fermi mixture, pairing without superfluidity.
- *13th IASBS Condensed Matter Meeting, May 26-27,(2007)*, **Invited Speaker**: Electronic properties of graphene.
- *8th National Condensed Matter conference, Iranian Physical Socceity. Feb. 14-15 (2007) Mashhad, Iran*, **Invited Speaker**: Strongly Correlated quantum particles at low dimensional systems.
- *International workshop on the physics of Mesoscopic and Disordered Materials, 4-9 December (2006), I. I. T, Kanpur, India*, **Poster**: Quasiparticle properties in a quasi-two-dimensional electron liquid.
- *Spin and Charge Effects at the Nanoscale, 1-9 June (2006), Pisa, Italy*, **Poster**: Coulomb drag effect in a bilayer system: The role of dynamic and static interaction potentials.

- *12th IASBS Condensed Matter Meeting, May 25-26, (2006)*, **Invited speaker**: Spin-density-functional theory for a parabolic quantum dot in a magnetic field .
- *Conference on Strongly Interacting Systems at the Nanoscale, 8 - 12 August 2005-Abdus Salam ICTP-Trieste*, **Poster**: Ground-state densities and pair correlation functions in parabolic quantum dots.
- *Summer school and mini-conference on Dynamical Mean-Field Theory for Correlated Electrons, 25 July-3 August 2005-Abdus Salam ICTP-Trieste*
- *11th IASBS Condensed Matter Meeting, May 26-27, (2005)*, **Invited speaker**: Effective mass and spin susceptibility in a two-dimensional electron liquid.
- *March Meeting 2004*, Montreal, Quebec, Canada, 03/22-26/2003. **Talk**: Accurate calculation of the pair distribution function in two-dimensional quantum Coulomb liquids. R. Asgari, B. Davoudi and M. P. Tosi and two other talks given by M. Polini and F. Capurro in collaborate with me
- *International school of physics" Enrico Fermi"*, Varena, Italy, 29 July-8 Auguste 2003.
- *Proceeding on 26th International conference on the physics of semi-conductors*. July 29-August 2 (2002) Edinburg. **Poster**: Compressibility anomaly in disordered two-dimensional electron gas. B. Tanatar and R. Asgari
- *Quantum Phases at the Nanoscale*, Erice, Italy, 07/15-20/2002. **Talk**: Self-consistent theory of pair distribution functions and effective interactions in quantum Coulomb liquids. R. Asgari, B. Davoudi, M. Polini and M.P. Tosi.
- *11th International Conference on Recent Progress in Many-Body Theories*, Manchester, United Kingdom, 07/09-13/2001. **Poster**: Correlation in Multi sub-band quasi One dimensional electron gas. N. Nafari and R. Asgari

## 19. Invited talks at universities in Iran:

- *Sistan and Balouchestan University, Zahedan, Iran*, 17 January (2019). Colloquium talk: Why Condensed Matter Science?
- *Institute for advanced basic science, Zanjan, Iran*, 19 January (2016). Colloquium talk: Quantum phases in Condensed matter physics
- *Sharif university of Technology, Tehran, Iran*, 21th May (2015). Colloquium talk: Condensed matter physics and advanced two dimensional crystals

- *Shahid beheshti university, Tehran, Iran, 22th February (2015)*. Colloquium talk: Condensed matter physics, past, present and future
- *Institute for advanced basic science, Zanzan, Iran, 11th April. (2012)*. Colloquium talk: graphene physics and composite particles in a doped graphene
- *Iran University of Science and technology, 20th Dec. (2010)*. TITLE: Plasmaron quasi-particle in a doped graphene
- *Physics department, Sharif University of Technology , 11th April (2010)*. TITLE: Observation of plasmaron particles and the exact spectrum of the charge excitations in doped Graphene
- *Physics department, Shahid Beheshti University , 27th April 2010 ,* TITLE: Some aspects of Graphene properties
- *Physics department, Sharif University of Technology, April 12, 2009,* TITLE: Physics of Graphene
- *Physics department, Sharif University of Technology , April 24, 2008,* TITLE: Many-body effects in Graphene flakes

## 20. Visiting:

- *UNSW, Sydney, March 9 (2020)*, Talk given on "Low-loss two-dimensional plasmon modes in antimonene"
- *UNSW, Sydney, 22 Sep-6 December (2019)*. Talk given on "Quantum electron liquid in two-dimensional system"
- *Btiment F Pico-Lab , Toulouse France, 8-11 April (2018)*. Colloquium talk given on " Weyl semimetals: New phases of crystals"
- *CEMES CNRS, Toulouse France, 8-11 April (2018)*. Talk given on "Quantum nonlocal effects in graphene plasmonics"
- *ICTP, Trieste Italy, 15 March-8 April (2018)*.
- *SNS, Pisa Italy, 20-27 November (2017)*.
- *ICTP, Trieste Italy, October 22-30 (2016)*.
- *Madrid University, Madrid, Spain, October 15-22 (2016)*. Talk given at ICMM " Many-body and transport properties of 2DES in oxide interfaces"

- *Zhejiang University, Jinhua, China*, March 13-April 5 (2016). Colloquium given on " Physics of two-dimensional systems".
- *Madrid University, Madrid, Spain*, November 9-13 (2014). Talk given on " Valley Zeeman effect in MoS<sub>2</sub>"
- *SNS, Pisa, Italy*, October 26-November 9 (2014). Collaboration with colleagues and given a talk. Talk given on "Electronic properties of monolayer MoS<sub>2</sub>."
- *Victoria University of Wellington, New Zealand*, February 1-22 (2014). Technical talk: "Optical properties of MoS<sub>2</sub>", Colloquium talk: "Electronic properties of MoS<sub>2</sub>."
- *IMR, Tohoku University, Japan*, December 18-27 (2013). Collaboration with Prof. G Bauer and given a talk. Talk given on "Optical properties in modified Dirac model systems"
- *SNS, Pisa, Italy*, April 3-6 (2013). Collaboration with colleagues and given a talk. Talk given on "Electronic band structure of monolayer MoS<sub>2</sub> : Effective lattice Hamiltonian"
- *Madrid University, Madrid, Spain*, March 18-22 (2013). Talk given on " Effective lattice Hamiltonian for a monolayer MoS<sub>2</sub> "
- *ICTP, Trieste*, March 2 until April 6 (2013). As an associate member
- *SNS, Pisa, Italy*, March 22-31 (2012). Collaboration with colleagues and given a talk.
- *Madrid University, Madrid, Spain*, March 14-22 (2012). Talk given on " Composite particles in graphene flakes"
- *ICTP, Trieste*, April 10-24 (2011). As an associate member
- *Zhejiang Normal University, Jinhua, China*, June 4-7 (2010). Invited talk: Spectral function of quasi-freestanding doped graphene
- *Schuola Normale Superiore, Pisa, Italy*, March 30-April 8 (2009). Invited as a jury member in the PhD defense. Candidate was Ms S. Safaei. // Seminar presentation: Simulation of graphene sheets under high pressure. ( April 7 (2009))
- *ICTP, Trieste, Italy*, March 17-April 18 (2008). Visitor
- *Bilekent University, Ankara, Turkey*, Dec 17-25 (2008). Invited
- *Bilekent University, Ankara, Turkey*, Dec 24-30 (2007). Invited

- *Bilekent University, Ankara, Turkey*, Dec 24-31 (2006). Invited
- *Bilekent University, Ankara, Turkey*, Dec 19-30 (2005).Invited
- *MacGill University, Canada*, March 4-9 (2003).Visitor
- *ICTP, Trieste, Italy*, July 14-29 (2003).Visitor

## 21. Computer knowledge:

### A. Programming:

- C++
- Fortran
- Maple
- Mathematica

### B. Computer graphics:

- Gnuplot
- Tecplot

### C. Word processor:

- Latex
- Word