



Mojtaba Ashhadi

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Education

- ✓ B.Sc, Nuclear Physics, - 2005
- ✓ MS, Solid State Physics, Ferdowsi University of Mashhad - 2010
- ✓ PhD, Solid-State Physics, Damghan University - 2014
- ✓ PhD, Solid-State Physics, Damghan University - 2014

Courses

- | | |
|---|-----------------------------|
| 1. Crystallography | 2. Physics 1 |
| 3. Basic Physics 1 | 4. Solid State Physics1 |
| 5. Advanced Solid State Physics 1 | 6. physic principal in nano |
| 7. Advanced Solid State Physics 2 | 8. Physics 2 |
| 9. Density Functional Theory and Its Applications | 10. Solid State Physics |

Master Thesis

1. First-principles investigation of structural, electronic, and mechanical properties of monolayer semiconductor of B₂CS

حبيب اله يزدان صفت, [Mojtaba Ashhadi, Fatemeh Heydari nasab, Mohsen Saadat, Mahboobe Sayahi]
نیمسال اول سال تحصیلی 00-01

2. First principles investigation of electronic and mechanical properties of AlN monolayer under hydrogen adsorption

راضیه نعمتی, [Mojtaba Ashhadi, Davood Vahedi Fakhrabad]
نیمسال اول سال تحصیلی 99-00

3. First- principles investigation of structural, electronic and mechanical properties of monolayer C₂N₄

خالمراد هاشمی, [Mojtaba Ashhadi, Davood Vahedi Fakhrabad]
نیمسال اول سال تحصیلی 99-00

4. Investigation the effect of Solitons on the spin transport properties through ferromagnetic /DNA/ferromagnetic structure

احسان محمدی, [Mojtaba Ashhadi]
نیمسال دوم سال تحصیلی 97-98

5. Spin transport properties through ferromagnetic /single molecule/ ferromagnetic structure: Influence of molecule to electrodes interface structure

زهرا حسین آبادی, [Mojtaba Ashhadi, Fatemeh Heydari nasab, Majid Azarang, Naser Hatefi Kargan]
نیمسال اول سال تحصیلی 97-98

Journals Papers

2026

1. DFT study on electronic and thermoelectric properties of bilayer BAs/BGe

Mojtaba Ashhadi, Maliheh Azadparvar

PHYSICA SCRIPTA Volume: (101) 1 - 16

2025

2. Electronic and thermoelectric properties of bilayer GeB/BP: first-principles calculation

Mojtaba Ashhadi

INDIAN JOURNAL OF PHYSICS Volume: (99) 2843 - 2849

2024

3. Ab initio study of the mechanical and electronic properties of 2D B₂CX (X = O, S, Se) monolayers

Mojtaba Ashhadi

INDIAN JOURNAL OF PHYSICS Volume: (98) 1699 - 1706

4. Investigation of Electrical and Thermal Properties of SnN-InO by Using Density Functional Theory

Mojtaba Ashhadi, Tahereh Shabanzade Hesari

Iranian Journal of Physics Research Volume: (24) 183 - 189

2023

5. Theoretical investigation of electronic and thermoelectric properties of 2D pentagonal nanomaterial BeP₂ by density functional theory

Mojtaba Ashhadi

Volume: (13) 1 - 12

2022

6. Enhancement of the thermoelectric performance in a nano junction by electron-phonon interaction effects

Mojtaba Ashhadi

SOLID STATE COMMUNICATIONS Volume: (353) 114874-1 - 114874-6

7. Evaluation of the thermoelectric properties of a nanoscale device in the presence of an external electric field: Tight binding model

Mojtaba Ashhadi

MATERIALS SCIENCE IN SEMICONDUCTOR PROCESSING Volume: (151) 106996-1 - 106996-6

8. [Ab initio study of electronic and thermoelectric properties of a new B2CO monolayer](#)

Mojtaba Ashhadi, Davoud Vahedi Fakhrabad

Iranian Journal of Physics Research Volume: (22) 305 - 313

2021

9. [First-principles investigation of electronic and mechanical properties of AlN monolayer under hydrogen adsorption](#)

Razieh Nemati, Mojtaba Ashhadi, Davoud Vahedi Fakhrabad

Volume: (10) 83 - 92

10. [First-principles investigation of electronic and thermoelectric properties of monolayer pentagonal nanostructures of C2B4 and C4B2](#)

Mojtaba Ashhadi, Davoud Vahedi Fakhrabad

Volume: (11) 147 - 157

2020

11. [Tight-binding method for the electronic and optical properties of C and BN nanotubes](#)

Maryam Mojarab, Mojtaba Ashhadi

Materials Science and Engineering B-Advanced Functional Solid-State Materials Volume: (261) 1 - 6

12. [Interaction of phonons with discrete breathers in one-dimensional chain with tunable type of anharmonicity](#)

Farangis Hadipoor, Danial Saadatmand, Mojtaba Ashhadi, A. Moradi Marjaneh, I. Evazzade, A. Askari, S

PHYSICS LETTERS A Volume: (384) 126100-1 - 126100-6

2018

13. [The role of solitons on the tunneling magnetoresistance through a double-stranded DNA molecule](#)

Mojtaba Ashhadi

PHYSICA E-LOW-DIMENSIONAL SYSTEMS and NANOSTRUCTURES Volume: (101) 232 - 238

14. [Electronic transport properties and first-principles Study of -graphyne and -BN graphyne monolayers](#)

Mojtaba Ashhadi

SUPERLATTICES AND MICROSTRUCTURES Volume: (116) 1162 - 1171

2017

15. Electronic transport properties and first-principles Study of graphene/h-BN and h-BN bilayers

Mojtaba Ashhadi, Mohammad Saeid Hadavi, Zeinab Sari

PHYSICA E-LOW-DIMENSIONAL SYSTEMS and NANOSTRUCTURES Volume: (87) 312 - 316

2015

16. Optical excitations and quasiparticle energies in the AlN monolayer honeycomb structure

, , Mojtaba Ashhadi

SUPERLATTICES AND MICROSTRUCTURES Volume: (79) 38 - 44

17. Optical excitations and quasiparticle energies in the AlN monolayer honeycomb structure

, , Mojtaba Ashhadi

SUPERLATTICES AND MICROSTRUCTURES Volume: (79) 38 - 44

2014

18. Quasiparticle energies and optical excitations in the GaAs monolayer

- , , Mojtaba Ashhadi

PHYSICA E-LOW-DIMENSIONAL SYSTEMS and NANOSTRUCTURES Volume: (59) 107 - 109

19. Quasi-particle energies and excitonic effects in bilayer of hexagonal boron nitride

Mojtaba Ashhadi,

SOLID STATE COMMUNICATIONS Volume: (187) 1 - 4

2013

20. Influence of inelastic electronphonon interaction on the noise power through a molecular junction

, Mojtaba Ashhadi

PHYSICA E-LOW-DIMENSIONAL SYSTEMS and NANOSTRUCTURES Volume: (53) 150 - 154

2012

21. Electronic transport properties through ZGNR /BNAM/ ZGNR

Mojtaba Ashhadi,

PHYSICA E-LOW-DIMENSIONAL SYSTEMS and NANOSTRUCTURES Volume: (46) 250 - 253

22. Electronic transport properties of an armchair boron-nitride nanotube

, Mojtaba Ashhadi

PHYSICA E-LOW-DIMENSIONAL SYSTEMS and NANOSTRUCTURES Volume: (44) 2105 - 2109

2011

23. Effect of inelastic electronphonon interaction on tunneling magnetoresistance through ferromagneticorganic moleculeferromagnetic junction

Mojtaba Ashhadi,

SOLID STATE COMMUNICATIONS Volume: (151) 1236 - 1239

24. Electric field effects on tunnel magnetoresistance in FMorganic moleculeFM junction

Mojtaba Ashhadi,

PHYSICA E-LOW-DIMENSIONAL SYSTEMS and NANOSTRUCTURES Volume: (44) 605 - 608

25. The role of impurities on the properties of electron transport through the metal/trans-PA/metal system Greens function approach

Mojtaba Ashhadi, , , ,

PHYSICA E-LOW-DIMENSIONAL SYSTEMS and NANOSTRUCTURES Volume: (43) 924 - 928

26. Tunnel magnetoresistance of FMorganic moleculeFM junction A Greens function approach

Mojtaba Ashhadi,

PHYSICA E-LOW-DIMENSIONAL SYSTEMS and NANOSTRUCTURES Volume: (43) 1208 - 1212

2010

27. Tunnel magnetoresistance of the system of ferromagnetic electrode/polyacetylene/ferromagnetic electrode A Greens function approach

, , , Mojtaba Ashhadi,

PHYSICA E-LOW-DIMENSIONAL SYSTEMS and NANOSTRUCTURES Volume: (43) 620 - 624

Conferences Papers

2022

1. A first-principles study of the electronic and mechanical properties of B2CS monolayer

annual physics conference of Iran 2022

Habiboleh Yazdan sefat, Mojtaba Ashhadi

2019

2. Study of spin transport properties through single molecule: Effect of interface structure

Mojtaba Ashhadi,

2017

3. TB description and first-principles study of -graphyne monolayer

The Annual Physics Conference of Iran 2017

Mojtaba Ashhadi,

2016

4. Study of the electronic transport properties of hexagonal boron nitride nanoribbon

The Annual Physics Conference of Iran 1395

Mojtaba Ashhadi, Mohammad Saeid Hadavi, Zeinab Sari

2015

5. Tight-binding description and first-principles study of graphene/h-BN and h-BN bilayers

The Physics Conference of Iran

Mojtaba Ashhadi

6. Study of the local field effects of multilayer hexagonal BN

The Physics Conference of Iran

Mojtaba Ashhadi, Davoud Vahedi Fakhrabad

Executive activities
