Ali Kazempour's Curriculum Vitae

Personal information

Ali Kazempour, Associated professor, Physics Deprtment, Payame Noor university, PO BOX 119395-3697, Tehran, Iran & Director of Nanostructured Coatings Institute of Payame Noor University
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Education

Ph.D.	2005 ~2011	Isfahan University of Technology, Isfahan, Iran (Supervisor: **Prof. Hadi Akbarzadeh and Dr. S. Javad Hashemifar**) **Thesis title: First principle study of charged oxygen vacancies in Rutile TiO2 & structural stability of narrow hexagonal MnAs nanowires**
M.Sc.	2003 ~ 2005	Isfahan University of Technology, Isfahan, Iran (Supervisor**: Dr. Farhad Shahbazi**) Thesis type: Statistical physics Thesis title*:* Wavelet Transform Modulus Maxima analysis of Interbeat Interval Time Series
B.Sc.	1999 ~ 2003	Isfahan University of Technology, Isfahan, Iran

Research interests

First principle Many body calculation of

- **Electron-phonon coupling in semiconductors(bulk & nanostructures)**
- **Optical properties due to Neutral and charged point defects and topological defects in wide band gap semiconductors**
- **Ultrafast dynamics of excitations and quasiparticle carreir lifetimes of semiconductor nanostructures**
- **Strong laser-matter interaction and nonlinear optics using TD-DFT**

- **Quantum optimal control theroy & quantum computation**

workshops and Seminars attended

1-20th International Workshop on Computational Physics and Materials Science: Total Energy and Force Methods, virtual conference, 23 - 25 Feb 2021,ICTP,ITALY

2-1st national conference in quantum optics , Isfahan University of Technology,2019, ,Isfahan ,IRAN

3-Hands-on workshop and Humboldt-Kolleg:Density-Functional Theory and Beyond - Basic Principles and Modern Insights,Isfahan, IRAN 2016

4-Workshop on High performance computing, Jan 2011, Isfahan university of technology,Isfahan, IRAN

5-Hands-on tutorial on ab initio molecular simulation:toward a First-principle Understanding of material properties and functions, 22 June-1 July ,2009, Berlin, Germany

6-"Seminar/Workshop on Computational Nanotechnology", Freiburg/Isfahan joint activity, April 15-17, 2008,Isfahan University of Technology,Isfahan,IRAN

7- Workshop on " avdanced school on Quantum Espresso(PwScf) code", February 12-15,2008,Isfahan University of Technology,Isfahan,IRAN

8- Workshop on "strongly correlated systems", June 22-25 2007,Isfahan University of Technology, Isfahan, IRAN

9- School on" introduction to nanofluidics",August 20-24, 2007,ICTP,Treiste, Italy

10- Workshop on "Advanced School on WIEN2K code",January31-February2-2006,Isfahan University of Technology,Isfahan ,IRAN

11- ICTP-INFM-DEMOCRITOS-IUT school on : "Electronic- structure calculation and their application in materials science",25 April – 6 May ,2005 Isfahan –IRAN

Collaboration & scientific visit

Scientific visit from Ulsan national Institute of science and technology, summer 2022, Ulsan, South Korea

Scientific visit from Fritz Haber Institute der Max Planck society,1 July 2009-15- Jan 2010 , Berlin, Germany

publications

In journals

1-Study of optical absorption cross-section spectra and high-order harmonic generation of thymine, thymine glycol, and thymine dimer molecules
F Mohammadtabar, R Rajaie Khorasani, H Mohammadi-Manesh and A. Kazempour, Journal of molecular modeling 28(12),402

2-Thermoelectric properties of tetragonal HfH2 under doping effect: First principles study
M Rouzbehi, A Kazempour, A Shokri, L Gholamzadeh,Physica B: Condensed Matter 613, 413001(2021)

3-High-order harmonic generation in doped diamond: comparison of light and heavy regimes
A Kazempour, T Morshedloo,Applied Physics A 127 (1), 1-8(2021)

4-Transient non-linear optics of diamond under ultrashort excitation pulses
A Kazempour, T Morshedloo, F Wang, Applied Physics A 127 (1), 1-10(2021)

5-First principle study of the modulation of plasmon modes in diamond crystal under pressure through energy loss spectrum
T Morshedloo, A Kazempour, Journal of Research on Many-body Systems 10 (1), 100-112(2020)

6-The topology impact on hydrogen storage capacity of Sc-decorated ever-increasing porous graphene
F Yasareh, A Kazempour, R Behjatmanesh-Ardakani, Journal of molecular modeling 26 (5), 1-8(2020)

7-The Topology Impact Hydrogen Storage Capacity Y-Decorated on Porous Graphene
F Yasareh, A Kazempour, R Behjatmanesh-Ardakani, IRANIAN CHEMICAL ENGINEERING JOURNAL 19 (111), 6-15(2020)

8-Conformational switching of CO on graphene: the role of electric fields

F Zarei, A Kazempour, R Behjatmanesh-Ardakani, Journal of molecular modeling 25 (12), 1-7(2019)

9-Pressure induced renormalization of thermal conductivity of Uranium Nitride: A first principles study
M Rouzbehi, A Kazempour, A Shokri, L Gholamzadeh, F Golami, Physica B: Condensed Matter,572(1),230-237(2019)

10-Boron decorated graphene nanosheet as an ultrasensitive sensor: the role of coverage
SL Fani, Z Tavangar, A Kazempour, Journal of molecular modeling 25 (6), 1-8(2019)

11-Probing plasmons on the edge of graphene nanoribbons under electric field
A Kazempour, T Morshedloo, Journal of Electron Spectroscopy and Related Phenomena 228, 8-12(2018)

12-Plasmon scattering in electron and hole doped diamond
A Kazempour, T Morshedloo, Superlattices and Microstructures 114, 386-392(2018)

13-Modulating the vibronic correlation in 2D superconductor by electric field
A Kazempour, T Morshedloo, Superlattices and Microstructures 104, 477-482(2017)

14-First-principles study of anharmonic phonon effects in tetrahedral semiconductors via an external electric field
Z Dabiri, A Kazempour, MA Sadeghzadeh, Physica B: Condensed Matter 501, 95-100(2016)

15-Pressure dependency of electron-phonon renormalization in diamond
A Kazempour, T Morshedloo, Diamond and Related Materials 70, 132-136(2016)

16-First principle study of inducing superconductivity in α-graphyne by hole-doping and biaxial tensile strain
T Morshedloo, MR Roknabadi, M Behdani, M Modarresi, A Kazempour, Computational Materials Science 124, 183-189(2016)

17-Antibacterial and photocatalytic activity of CuO nanostructure films with different morphology
MM Momeni, M Mirhosseini, Z Nazari, A Kazempour, M Hakimiyan, Journal of Materials Science: Materials in Electronics 27 (8), 8131-8137(2016)

18-Preparation, characterisation, hardness and antibacterial properties of Zn–Ni–TiO_2 nanocomposites coatings
MM Momeni, S Hashemizadeh, M Mirhosseini, A Kazempour, ..., Surface Engineering 32 (7), 490-494(2016)

19-Preparation and characterisation of manganese–TiO2 nanocomposites for solar water splitting
MM Momeni, M Hakimian, A Kazempour, Surface Engineering 32 (7), 514-519(2016)

21-Electron–phonon correlation in cubic zirconia:GW@ DFPT scheme
Z Dabiri, A Kazempour, MA Sadeghzadeh, physica status solidi (b) 253 (6), 1120-1126(2016)

21-First principle characterization of graphene shielding of the late transition metals: The role of coverage
Z Vatankhah, A Kazempour, Modern Physics Letters B 30 (10), 1650108(2016)

22-In-situ manganese doping of TiO2 nanostructures via single-step electrochemical anodizing of titanium in an electrolyte containing potassium permanganate: a good visible-light …
MM Momeni, M Hakimian, A Kazempour, Ceramics International 41 (10), 13692-13701(2015)

23-Polaronic correlation offsets in tetrahedral semiconductors
A Kazempour, Diamond and Related Materials 60, 9-13(2015)

24-Quasiparticle lifetimes in rutile and anatase TiO2: GW approximation
A Kazempour, Physica Scripta 90 (2), 025804(2015)

25-Preparation of CuO nanostructures coating on copper as supercapacitor materials
MM Momeni, Z Nazari, A Kazempour, M Hakimiyan, SM Mirhoseini, Surface engineering 30 (11), 775-778(2014)

26-The effect of time and temperature on the growth and morphology of copper oxide nanostructures
MM Momeni, M Hakimiyan, A Kazempour, M Mirhosseini, Z Nazari, ..., Iranian Chemical Communication 3, 41-47(2014)

27-The quasi-particle electronic structure of charged oxygen vacancies in TiO2
A Kazempour, SJ Hashemifar, H Akbarzadeh, Physica Scripta 88 (5), 055302(2013)

28-POTENTIAL ENERGY SURFACES OF OXYGEN VACANCIES IN RUTILE TiO_2: CONFIGURATION COORDINATE AND MIGRATION BARRIER SCHEMES
A Kazempour, Modern Physics Letters B 27 (24), 1350173(2013)

29-Wavelength and polarization variations of InAs/GaAs quantum dots emission at liquid Helium temperature via microphotoluminescence spectroscopy
A Daraei, SH Hajiemam, A Kazempour, A Abbasi Rostami, ..., International Journal of Nano Dimension 3 (4), 333-336(2013)

30-Structural properties of narrow hexagonal MnAs nanowires: Role of edge atoms
A Kazempour, SJ Hashemifar, H Akbarzadeh, Physical Review B 79 (19), 195420(2009)

31-Band structure and optical properties of antimony-sulfobromide: density functional calculation
H Akkus, A Mamedov, A Kazempour, H Akbarzadeh, Open Physics 6 (1), 64-75(2008)

32-Theoretical investigation of KClxBr1-x KClxI1-x and KBrxI1-x A first principle study
B Amarani, A Kazempour, S Khosravizadeh, F El. Haj Hasan, ..., Physica B: Condensed Matte 403 (17), 2773-2779(2008)

33-Band structure and optical properties of SbSeI: density-functional calculation
H Akkus, A Kazempour, H Akbarzadeh, AM Mamedov, physica status solidi (b) 244 (10), 3673-3683(2007)

34- Multifractal and deterended fluctuation analysis of heartbeat electrical signals ECG
A Kazempour, F Shahbazi, B Mirza, A Naderi Beni,Iranian Journal of Physics Research(2005)

Skills

Expert in

1-Density Functional Theory based codes: Quantum Espresso, elk, octopus codes, FHI-aims, …..

2-Excitation spectra and GW approximation codes: Yambo, octopus, EPW

3-Transport properties codes: Want , Wannier 90

4-linux operating system and parallel computing

5-kinetic monte carlo method :NASCAM

6-python programming

7-expert in practical spectroscopy with scanning electron microscope (SEM)

8- classic finte element method simulation with COMSOL multiphysics

9-Qutip and Qiskit

Teaching

Courses

Nanophysics-Electronic structure calculation-Advanced condensed matter physics- advanced Electrodynamics, Advanced quantum mechanics- advanced statistical physics, many-body physics- group theory