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Faculty : Science

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Education

- ✓ B.Sc, Physics Education, Shahid Rajaee Teacher Training University - 2006
- ✓ MS, Solid State Physics, Sistan and Baluchestan University - 2009
- ✓ PhD, Nanosciences and Technology - Nanophysics, University of Kashan - 2016

Courses

- | | |
|------------------------------------|--|
| 1. Physics 1 | 2. Physics 2 |
| 3. Electromagnetism1 | 4. General Physics3 |
| 5. Basic Physics 2 and Laboratory | 6. Physics Laboratory 2 |
| 7. Basic Physics 1 and Laboratory | 8. Methods of Analyzing Nanostructures |
| 9. Fundamentals of nano physics | 10. Physics Laboratory 1 |
| 11. Textbooks in physics education | 12. Physics I |
| 13. Physics Laboratory I | 14. General Physics Laboratory1 |

Thesis

Master Thesis

1. Design and Analysis of Antimony Chalcogenide Based Tandem Solar Cells Using Numerical Simulation

زهرا دهمرده, [Mohsen Saadat, Mohammad Reza Mohammadi, Mojtaba Ashhadi, Fatemeh Heydari nasab]
نیمسال دوم سال تحصیلی 1401

2. Performance improvement of Cu(In_{1-x}Gax)Se₂ thinfilm solar cell by optimization of In₂S₃ buffer layer parameters

ندا بیرامی, [Zihab Sohbatzadeh, Mohsen Saadat]
نیمسال اول سال تحصیلی 99-00

Journals Papers

2024

1. Exploring innovative approaches for enhanced performance of piezo catalysts

Omid Amiri, Mukhtar H. Ahmed, Masoud Salavati-Niasari, Mohsen Saadat

JOURNAL OF CLEANER PRODUCTION Volume: (434) 139847-1 - 139847-16

2. Chalcogenide perovskites for solar energy applications: The role of Sn substitution in BaZrS₃-based photovoltaic devices

Mohsen Saadat, Omid Amiri

INORGANIC CHEMISTRY COMMUNICATIONS Volume: (168) 112977-1 - 112977-20

3. Synthesis of Nano-CuO Powder via Sol- Gel and Investigation the Effective Factors on the Final Size

Mohsen Saadat, Omid Amiri, Mohamad Goshtasbirad

Journal of Nanostructures Volume: (14) 800 - 808

4. Design and Numerical Simulation of Tandem Solar Cells Based on Sb₂S₃ to Improve Photovoltaic Performance

Zhara Dahmarde, Mohsen Saadat

Volume: (14) 41 - 54

5. Zn_xCd_{1-x}SySe_{1-y} as an effective electron transport layer for improving the efficiency of Sb₂S₃ and Sb₂Se₃ thin-film solar cells

Mohsen Saadat

European Physical Journal Plus Volume: (139) 280-1 - 280-10

2023

6. Enhancing photovoltaic performance of antimony sulfide-selenide tandem solar cells through selenium content variation: Modeling and simulation analysis

Zhara Dahmarde, Mohsen Saadat, Omid Amiri

SOLAR ENERGY Volume: (262) 111788-1 - 111788-6

7. Exploring the potential of standalone and tandem solar cells with Sb₂S₃ and Sb₂Se₃ absorbers: a simulation study

Zhara Dahmarde, Mohsen Saadat

Scientific Reports Volume: (13) 22632-1 - 22632-12

8. Stable Perovskite Solar Cells Resist to Water without Encapsulation by P-Type Si Nws as Hole Collection Layers

Karwan M. Rahman, Omid Amiri, Karim A. Younis, Muhammad H. Khalil, Amir Mahyar Azhdarpour, Moh

Journal of Nanostructures Volume: (2) 341 - 352

2022

9. Analysis and performance assessment of CuSbS₂-based thin-film solar cells with different buffer layers

Mohsen Saadat, Omid Amiri, P. H. Mahmood

European Physical Journal Plus Volume: (137) 582-1 - 582-12

10. Fine adjusting of charge carriers transport in absorber/HTL interface in Sb₂(S,Se)₃ solar cells

Mohsen Saadat, Omid Amiri

SOLAR ENERGY Volume: (243) 163 - 173

11. A modeling study on utilizing In₂S₃ as a buffer layer in CIGS-based solar cells

Neda Beyrami, Mohsen Saadat, Zihab Sohbatzadeh

Journal of Computational Electronics Volume: (21) 1329 - 1337

12. Boost piezocatalytic activity of BaSO₄ by coupling it with BaTiO₃, Cu:BaTiO₃, Fe:BaTiO₃, S:BaTiO₃ and modify them by sucrose for water purification

Omid Amiri, Gashaw L. Abdulla, Chnar M. Burhan, Hawnaz H. Hussein, Amir Mahyar Azhdarpour, Mohsen Sa

Scientific Reports Volume: (12) 1 - 15

2021

13. Potential efficiency improvement of CuSb(S_{1-x}Se_x)₂ thin film solar cells by the Zn(O,S) buffer layer optimization

Mohsen Saadat, Omid Amiri, Peshawa H. Mahmood

SOLAR ENERGY Volume: (225) 875 - 881

2020

14. High Efficient Perovskite Solar Cells Base on Niobium Doped TiO₂ as a Buffer Layer

Ardeshtir Baktash, Omid Amiri, Mohsen Saadat

Journal of Nanostructures Volume: (10) 119 - 127

15. Synthesis, physical characterization, and antifungal and antibacterial activities of oleic acid capped nanomagnetite and cobalt-doped nanomagnetite

Abbas Rahdar, Hamid Beyzaei, Mohsen Saadat, Xiao Yu, John F. Trant

CANADIAN JOURNAL OF CHEMISTRY Volume: (98) 34 - 39

16. Purification of wastewater by the piezo-catalyst effect of PbTiO₃ nanostructures under ultrasonic vibration

Omid Amiri, Khatra Salar, Parwarda Othman, Tawar Rasul, Dlnya Faiq, Mohsen Saadat

JOURNAL OF HAZARDOUS MATERIALS Volume: (394) 122514-1 - 122514-8

2019

17. Optimization of (Zn,Sn)O buffer layer in Cu(In,Ga)Se₂ based solar cells

Mohsen Saadat, Omid Amiri, Abbas Rahdar

SOLAR ENERGY Volume: () 464 - 470

2018

18. Plasmonic enhancement of dye-sensitized solar cells by using Au-decorated Ag dendrites as a morphology-engineered

Omid Amiri, Masoud Salavati-Niasari, Noshin Mir, Farshad Beshkar, Mohsen Saadat, Fatemeh Ansari

RENEWABLE ENERGY Volume: (125) 590 - 598

2017

19. Buffer layer replacement: A method for increasing the conversion efficiency of CIGS thin film solar cells

Mehrdad Moradi, Razieh Teimouri, Mohsen Saadat, Mostafa Zahedifar

OPTIK Volume: (136) 222 - 227

2016

20. CIGS absorber layer with double grading Ga profile for highly efficient solar cells

Mohsen Saadat, Mehrdad Moradi, Mostafa Zahedifar

SUPERLATTICES AND MICROSTRUCTURES Volume: (92) 303 - 307

21. Optimization of Zn(O,S)/(Zn,Mg)O buffer layer in Cu(In,Ga)Se₂ based photovoltaic cells

Mohsen Saadat, Mehrdad Moradi, Mostafa Zahedifar

JOURNAL OF MATERIALS SCIENCE-MATERIALS IN ELECTRONICS Volume: (27) 1130 - 1133

2015

22. A new one-pot reverse microemulsion synthesis of ZnS nanoparticle using olive oil as organic solvent and surfactant and their application in remove heavy metal ions

Mohammad Ebadi, Mohsen Saadat, Hamidreza Shagholani

JOURNAL OF MATERIALS SCIENCE-MATERIALS IN ELECTRONICS Volume: (26) 9087 - 9091

23. Optimized annealing regime of CuGaSe₂ nanoparticles prepared by solvothermal method

Mostafa Zahedifar, Ehsan Ghanbari, Mehrdad Moradi, Mohsen Saadat

PHYSICA STATUS SOLIDI A-APPLICATIONS AND MATERIALS SCIENCE Volume: (212) 657 - 661

Conferences Papers

2022

1. A modeling study on utilizing $\text{ZnxCd}_{1-x}\text{SySe}_{1-y}$ as the electron transport layer of $\text{Sb}_2(\text{S,ex})_3$ solar cells

Mohsen Saadat, Marzieh Saadat

2017

2. Measurement of Band Gap of the Active Semiconductor Layer in CIGS Solar Cells

Physics Conference of iran

Mehrdad Moradi, Mohamad Bagher Ghorashi, Mostafa Zahedifar, Tayebbeh Ghorbani, Mohsen Saadat, Mehrdad Mehrjoee

3. Fabrication and optimization of CIGS absorber layer by semi co-evaporation method

Physics Conference of iran

Behnam Talebi, Mehrdad Moradi, Mostafa Zahedifar, Zahra Rajabi, Mohsen Saadat

4. Structural study of CdS buffer layer under annealing in the air and nitrogen ambiances for application in CIGS solar cells

Physics Conference of iran

Mehrdad Moradi, Asma Bashiri harsini, Mostafa Zahedifar, Mohsen Saadat, Mahdiyeh Esmaili

2014

5. The Preparation of CIGS Absorber Layers with Two Different Methods

International Congress on Nanoscience Nanotechnology (ICNN)

Mehrdad Moradi, Mostafa Zahedifar, Mohsen Saadat, Kobra Rostami, Behnam Talebi

6. Investigation of the Effect of Vacuum and Gas Flow on Selenization of CIG Compound

Mehrdad Moradi, Mohamad Bagher Ghorashi, Mostafa Zahedifar, Mohsen Saadat, Tayebbeh Ghorbani

7. Investigation of atomic percentage of Cu, Ga, Se and In at different depths of CIGS absorber layer

Mehrdad Moradi, Kobra Rostami, Mostafa Zahedifar, Mohsen Saadat, Tayebbeh Ghorbani

2013

8. The Effect of Deposition Conditions on the Type of Conductivity and Band Gap of CIGS Thin Film Solar Cells

Mehrdad Moradi, Mohamad Bagher Ghorashi, Mostafa Zahedifar, Mehrdad Mehrjoee, Tayebbeh Ghorbani, Mohsen Saadat, Ehsan Ghanbari

9. Calualation of In and Cu-Ga Layer Thicknesses for Optimizing the Performance of CIGS Thin Film Solar Cell

Mehrdad Moradi, Mohamad Bagher Ghorashi, Mostafa Zahedifar, Tayebah Ghorbani, Mohsen Saadat, Mehrdad Mehjooei, Ehsan Ghanbari

Executive activities

مشاوره دانشجویان کارشناسی

from 1402/11/21 - to 1403/04/04

مشاوره دانشجویان کارشناسی

from 1402/07/01 - to 1402/11/05