CV: Khaldoun M. Tarawneh

Associate Professor of Physics
Department of Basic Sciences
King Abdullah II School for Electrical Engineering
Princess Sumaya University for Technology
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EDUCATION

The University of Jordan, Amman, Jordan Ph.D. Degree in Physics **25/08/2008**
Thesis: "Quantization of Lagiangian Systems Containing Fractional Derivatives using the Caputo Approach" Supervisor: Professor Humam Ghassib

The University of Jordan, Amman, Jordan M.Sc. Degree in Physics **08/09/2003**
Thesis: "Magnetic Structure of Cr/V Systems"
Supervisor: Professor Tayel Khajil

Mutah University, Al-Karak, Jordan **15/02/1998**
B.Sc. Degree in **Physics**

WORK EXPERIENCE

Princess Sumaya University for Technology, Amman, Jordan **13/9/2020 – present**
Associate Professor of Physics

Higher Colleges of Technology, Fujairah, UAE **12/8/2018 – 1/9/2020**
Visiting faculty member of Physics

Taibah University - Al Ula branch, Al Ula, Saudi Arabia **08/9/2017 – 11/8/2018**
Visiting Associate Professor of Physics (On sabbatical leave
From Princess Sumaya University for Technology)

Princess Sumaya University for Technology, Amman, Jordan **15/9/2015 – 07/9/2017**
Associate Professor of Physics

University of Nebraska at Omaha, Nebraska, USA **01/9/2014 – 31/7/2015**
Fulbright Scholar

Princess Sumaya University for Technology, Amman, Jordan **15/7/2014 – 31/8/2014**

Associate Professor of Physics

Princess Sumaya University for Technology, Amman, Jordan **16/9/2012 – 31/8/2014**
Chair, Basic Sciences Department

Princess Sumaya University for Technology, Amman, Jordan **18/9/2011 – 15/9/2012**
Chair, Science and Arts Department

Princess Sumaya University for Technology, Amman, Jordan **14/9/2008 –17/9/2011**
Assistant Professor of Physics

Princess Sumaya University for Technology, Amman, Jordan **19/9/2004 –13/9/2008**
Lecturer of Physics

Princess Sumaya University for Technology, Amman, Jordan **24/5/2000 – 18/9/2004**
Physics Lab Instructor

Ministry of Education, Al-Karak, Jordan **01/8/1998 – 01/3/2000**
Physics Teacher

FELLOWSHIPS AND SCHOLARSHIPS

- Best researcher award, Princess Sumaya University for Technology, 2016
- Fulbright research scholar Fellowship, University of Nebraska at Omaha, 2014-2015.
- Princess Sumaya University for Technology, Amman, Jordan, Full scholarship for Ph.D. study, 2004-2008.
- Ministry of Education, Amman, Jordan, Full scholarship for B.Sc. study, 1994-1998.

RESEARCH INTEREST AND COMPUTATIONAL TECHNIQUES:

I am working in the field of theoretical and computational condensed matter physics. In particular, I am interested in understanding the structural, electronic and transport properties of semiconductors and nanomaterials using the first principles computational methods implemented in the following codes.

- *ab* initio/ Density functional theory (DFT) techniques.
- SIESTA (Spanish Initiative for Electronic Simulations with Thousands of Atoms) code based on DFT.
- VASP (Vienna Ab-initio Simulation Package) code based on DFT.
- TranSIESTA electron transport code based on DFT coupled with nonequilibrium Green's function (NEGF) method.

PEER-REVIEWED PUBLICATIONS

Published

1. **K. Tarawneh**, B. Hamad, and J. Khalifeh, *Dimensional and Proximity Magnetic Effects in Cr/V Systems*, Surf. Sci. 600, 1026, (2006).

2. **K. Tarawneh**, E. Rabei, and H. Ghassib, *Lagrangian and Hamiltonian Formulations of the Damped Harmonic Oscillator Using Caputo Fractional Derivative*, Journal of Dynamical Systems and Geometric Theories, 8, 59, (2010).

3. P. Kharel, X. Z. Li, V. R. Shah, N. Al-Aqtash, **K. Tarawneh**, R. F. Sabirianov R. Skomski, and D.J. Sellmyer, *Structural, magnetic, and electron transport properties of MnBi:Fe thin films*, Journal of Applied Physics, 111, 07E326, (2012).

4. P. Kharel,Y. Huh, V. R. Shah, X. Z. Li, N. Al-Aqtash, **K. Tarawneh**, E. S. Krage, R. F. Sabirianov, R. Skomski, and D. J. Sellmyer, *Structural and magnetic properties of Mn2TiSn*, Journal of Applied Physics, 111, 07B101, (2012)

5. Nabil Al-Aqtash, **K. M. Tarawneh**, Tarek Tawalbeh, and Igor Vasiliev, *Ab initio study of the interactions between boron and nitrogen dopants in grapheme,* Journal of Applied Physics, 112, 034304, (2012).
6. **K. M. Tarawneh**, and Nabil Al-Aqtash, *Boron- and Nitrogen-Doped Carbon Nanotubes with Surface Defects: An ab initio Study*, Journal of Computational and Theoretical Nanoscience, 10, 1-7, 2013.

7. **K. M. Tarawneh**, and Nabil Al-Aqtash, *First-principles Study of Boron- and Nitrogen-Doped Graphene in the Presence of Point Surface Defects*, Journal of Computational and Theoretical Nanoscience, 10, 1-8, 2013.

8. **K. M. Tarawneh**, and Nabil Al-Aqtash, *Role of Vacancies in Zigzag Graphene Nanoribbons: An Ab Initio Study*, Journal of Nano Research, 27, 65 *(2014).*

9. **K. M. Tarawneh**, Nabil Al-Aqtash, and R. F. Sabirianov, *Large Magnetoresistance of MnBi/Bi/MnBi Spin Valve,* Journal of Magnetism and Magnetic Materials, 363, (2014).

10. **K. M. Tarawneh**, Nabil Al-Aqtash, and R. F. Sabirianov, *Large Magneto-resistance in a Planar Fe/MoS_2/Fe tunnel junction,* Computational Materials Science, 124, (2016).

11. H. Al-Taani, **K. Tarawneh**, Y. Al-Khatatbeh and B. Hamad, *The high-pressure stability of Ni2In-type structure of ZrO2 with respect to OII and Fe2P-type phases: A first-principlesstudy,* IOP Conference Series: Materials Science and Engineering, Volume 305, conference 1

12. Y. Al-Khatatbeh, **K. Tarawneh**, and B. Hamad, *The Prediction of a New High-Pressure Phase of Hafnia using first-principles Computations*, IOP Conference Series: Materials Science and Engineering, Volume 305, conference 1

13. Y. Al-Khatatbeh, **K. Tarawneh**, H. Al-Taani, and K. K. M. Lee, *Theoretical and Experimental Evidence for a Post-Cotunnite Phase Transition in Hafnia at High Pressures*, J. Superhard Mater. 40, 374–383 (2018). https://doi.org/10.3103/S1063457618060023.

14. **K. Tarawneh,** *Density Functional Theory Studies of Vacancies in Penta-Graphene Nanoribbons*, Advances in Science and Engineering Technology International Conferences (ASET), Dubai, United Arab Emirates, 2020, pp. 1-4, doi: 10.1109/ASET48392.2020.9118169.

15. R. D. Forrest, Z. Shareef and **K. Tarawneh,** *Comparing online and paper-based testing for physics courses at HCT, UAE* Advances in Science and Engineering Technology International Conferences (ASET), Dubai, United Arab Emirates, 2020, pp. 1-4, doi: 10.1109/ASET48392.2020.9118228.

In Preparation

1. N. Al-Aqtash, K. M. Tarawneh and R. F. Sabirianov, *Atomic structure prediction of metal clusters using the evolutionary algorithm.*

2. K. M. Tarawneh, N. Al-Aqtash, Nan Shao,Wai-Ning Mai, Chin Li Cheung and R. F. Sabirianov, *Structure and Electron Localization of Reduced Ceria (CeO2) Surfaces*.

PRESENTATIONS

1. "Fractional Calculus in Modern Physics" The Scientific Research Committee Seminars, Princess Sumaya University for Technology, Amman, Jordan, December 10th, 2008.

2. "Role of vacancies in graphene" International Conference on Nanoscience and Nanotechnology, January 20-23, 2012, Hyderabad, India.

3. "Ab initio studies on 2-dimensional systems" Middle East Technical University, Ankara, Turkey, September 5th, 2016.

4. "Graphene and its applications" The Scientific Research Committee Seminars, Princess Sumaya University for Technology, Amman, Jordan, December 14th, 2016.

5. "Effect of Vacancy in Penta-Graphene Nanoribbons: A First Principles Study", Frontier in Theoretical and applied physics, AUS, UAE, February 22-25, 2017.

CO-AUTHORED PRESENTATIONS

1. *First Principles Study of Energetics, Local Electronic States and Adsorption of H2O and H2O2 on Reduced CeO2 Surfaces,* APS March Meeting 2017; New Orleans, Louisiana.

2. *Structure and Electron Localization of Reduced Ceria Surfaces,* APS March Meeting 2015; San Antonio, Texas.
3. *Large Magnetoresistance of MnBi/Bi/MnBi Spin Valve,* APS March Meeting 2013; Baltimore, Maryland.

4. *Ab Initio Study of the Interactions between Dopant Atoms in Graphene,* APS March Meeting 2012; Boston, Massachusetts.

5. *Atomic structure prediction of metal clusters using the evolutionary algorithm,* APS March Meeting 2015; San Antonio, Texas.

RERERENCES

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