

Hazem S. Abusara

CONTACT INFORMATION

Department of Physics
An-Najah National University
Nablus, Palestine

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Home address: Kofr Aqab, East Jerusalem
Date of Birth: July 4th 1984

RESEARCH INTERESTS

Theoretical Nuclear Structure

EDUCATION

Mississippi State University, Mississippi State, Mississippi USA

Ph.D. , Applied Physics, December 15th 2011

- Dissertation Topic: “Nuclear Phenomena in Covariant Density Functional Theory”
- Advisor: Anatoli V. Afanasjev

M.S., Physics, December 2008

Birzeit University, Birzeit, Palestine

B.S., Major: Physics/ Minor: Mathematics, July, 2005

POSITIONS

1. Assistant Professor, An-Najah National University, Aug 26th 2012-Present
2. Assistant Professor, Palestine Polytechnic University, Jan 22nd 2012- June 15th 2012

HONORS AND AWARDS

Travel Assistance Grant for Graduate Students, office of graduate school, Mississippi State University, in the amount of 1,200\$, Oct 2010.

President of the Physics Graduate Student Association at Mississippi State University.

Research/Teaching Assistantship, Department of Physics and Astronomy, Mississippi State University, MS, USA, Jan 2007-Dec 2011.

Elected Associate Member of Sigma Xi Research Society.

Elected student member to the faculty of science council.

Musa Naser Scholarship, Department of Physics, BirZeit University, BirZeit, WestBank, 2003-2005.

PUBLICATIONS IN PEER REVIEWED JOURNALS

A.V. Afanasjev and H. Abusara, Hyperdeformation in the cranked relativistic mean field theory: the Z= 40-58 region of the nuclear chart, Phys. Rev. **C78**, 014315 (2008).

H. Abusara and A. V. Afanasjev, Hyperdeformation in the Cd isotopes: A microscopic analysis, Phys. Rev. C **79**, 024317 (2009).

Q.A.Ijaz, W. C. Ma, H. Abusara, A. V. Afanasjev, Y. B. Xu, R. B. Yadav, Y. C Zhang, M. P. Carpenter, R. V. F. Janssens, T. L. Khoo, T. Lauristen, and D. T. Nisius, Excited superdeformed bands in 154Dy and cranked relativistic mean field Phys. Rev. C **80**, 034322 (2009).

A.V. Afanasjev and H. Abusara, Time-odd mean fields in covariant density functional theory: Non-rotating systems, Phys. Rev. **C81**, 014309 (2010).

A.V. Afanasjev and H. Abusara, Time-odd mean fields in covariant density functional theory: Rotating systems, Phys. Rev. **C82**, 034329 (2010).

H. Abusara, A. V. Afanasjev and P. Ring, Fission barriers in actinides in covariant density functional theory: role of triaxiality, Phys. Rev. C **82**, 044303 (2010).

A.V. Afanasjev, H. Abusara, E. Litvinova and P. Ring, Spectroscopy of the heaviest nuclei, Journal of Physics: Conference Series, 312 092004, (2011).

P. Ring, H. Abusara, A. V. Afanasjev, G.A. Lalazissis, T. Niksic and D. Vretenar, Modern applications of covariant density functional theory, Int. Jour. of Mod. Phys. E volume 20(2) pp235-243, 2011

H. Abusara, A. V. Afanasjev and P. Ring, Fission barriers in covariant density functional theory: extrapolation to superheavy nuclei, Phys. Rev. C **85**, 024314 (2012).

A. V. Afanasjev, H. Abusara and P. Ring, Recent Progress In The Study Of Fission Barriers In Covariant Density Functional Theory, Int. Jour. of Mod. Phys. E volume 21(5) pp 1250025 , May 2012

A. V. Afanasjev, H. Abusara, Covariant density functionals theory: Time-odd channel investigated, AIP Conf. Proc.-Aug 2009- Volume 1165, pp. 283-286, Nuclear Structure And Dynamics 09: Proceedings of the International Conference

CONFERENCE
PRESENTATIONS

American Physical Society, Nuclear Physics Division, Oakland, Ca, USA, Oct 23-25 2008, Recent Advances in the study of Hyperdeformation.

Mississippi State University, Department of Physics and Astronomy, MS, USA, Mar 25th 2009, Hyperdeformation: motivation, properties and prediction.

8th International Conference on Radioactive Nuclear beam, Grand Rapids, MI, USA, May 26-30 2009, Hyperdeformation at high spin: general features and the best candidate for observations. (Poster Presentation).

8th International Conference on Radioactive Nuclear beam, Grand Rapids, MI, USA, May 26-30 2009, Time-odd mean fields and their impact on physical observables. (Poster Presentation).

American Physical Society, Nuclear Physics Division, Santa Fe, NM, USA, Nov 2nd-6th 2010, The effect of gamma deformation on the height of the fission barriers in actinides.

American Physical Society, Nuclear Physics Division, East Lansing, MI, USA, Oct 26th-29th 2011, Exploring the fission barrier of superheavy nuclei in covariant density functional theory.

Third Palestinian Conference on Modern Trends in Mathematics and Physics, PCMTMP-III, Hebron, Palestine, 16-18 July 2012, Fission Barriers from Actinides to Superheavies

Fourth Palestinian Conference on Modern Trends in Mathematics and Physics, PCMTMP-IV, Jerusalem, Palestine, 10-14 August 2014, Time-odd mean field in covariant density functional theory

FOR ASSOCIATE PROFESSORSHIP

J.B. Snyder, W. Reviol, D.G. Sarantites, A.V. Afanasjev, R.V.F. Janssens, H. Abusara, M.P. Carpenter, X. Chen, C.J. Chiara, J.P. Greene, T. Lauritsen, E.A. McCutchan, D. Seweryniak, S. Zhu, High-spin transition quadrupole moments in neutron-rich Mo and Ru nuclei: testing γ softness. *Physics Letters B* **723** (2013) 61-65

Hazem Abusara and Laila Eid, Study of numerical accuracy of quadratic penalty method in covariant density functional theory, *Al-Aqsa University Journal (Natural Sciences Series)*, Vol.17, No.1, Pages 49-57, Jan.2014 ISSN 2070-3155

A. V. Afanasjev, H. Abusara, and P. Ring, Nuclear fission in covariant density functional theory, *EPJ Web of Conferences Volume 62, 2013 Fission 2013 Fifth International Workshop on Nuclear Fission and Fission Product Spectroscopy*

Conference organizing

Member of the organizing committee, National Research day on theoretical and experimental physics, An-Najah National University

Member of the organizing committee, fourth Palestinian Conference on Modern Trends in Mathematics and Physics, PCMTMP-IV, Jerusalem, Palestine, 11-13 Aug. 2014

Member of the scientific committee, third Palestinian Conference on Modern Trends in Mathematics and Physics, PCMTMP-III, Hebron, Palestine, 16-18 July 2012

MEMBERSHIP

American Physical Society

Sigma Xi Scientific Research Society

COMPUTER SKILLS

- Programming Languages: C++, Fortran77, MPI parallel processing library.
- Applications: XMGRACE plotting software, \LaTeX , and presentation software
- Operating Systems: Unix/Linux, Windows.

COURSES TAUGHT

MISSISSIPPI STATE UNIVERSITY 2010-2011

1. General Physics I Lab
2. General Physics I (Algebra based)

PALESTINE POLYTECHNIC UNIVERSITY SPRING 2012

1. General Physics I (Calculus based)
2. General Physics II (Calculus based)
3. Radiation Protection and Safety

AN-NAJAH NATIONAL UNIVERSITY FALL 2012-PRESENT

1. General Physics I (Calculus based)

2. General Physics I Lab
3. General Physics II (Calculus based)
4. General Physics II Lab
5. General Physics III
6. Quantum Mechanics I (Undergraduate Students)
7. Quantum Mechanics II (Undergraduate Students)
8. Nuclear Physics (Undergraduate Students)
9. Atomic Physics (Undergraduate Students)
10. Nuclear Physics (Graduate Class, Master students)
11. Special Topics: Quantum Optics (Graduate Class, Master students)
12. Quantum Mechanics I (Graduate Class, Master students)
13. Quantum Mechanics II (Graduate Class, Master students)
14. Advanced Quantum Mechanics (Graduate Class, PhD students)
15. Quantum field theory (Graduate Class, PhD students)

REFERENCES

- Prof. Anatoli V. Afanasjev, Department of Physics & Astronomy, Mississippi State University.
- Prof. Wenchao Ma, Department of Physics & Astronomy, Mississippi State University.
- Prof. Sami Jaber, Department of Physics, An-Najah National University.
- Prof. Ahmed Khamyseh, Department of Mathematics, Palestine Polytechnic University.