

Name: Hamad Abdullah Alhendi

Citizenship: Saudi

Marital Status: Married with children

Present Academic Rank: Associate Professor of Physics

Address: Department of Physics and Astronomy

College of Science

King Saud University

P.O. Box 2455

Riyadh 11451

Saudi Arabia

Email: alhendi@ksu.edu.sa

General Specialization: Physics

Specific Specialization: Elementary Particle Physics (high energy physics)

Academic position: Associate professor

Academic Qualifications: B.sc (with honor degree) King Saud

University 1973. D.I.C Imperial College University of London UK 1974

in Elementary Particle Physics. Ph.D University of Texas at Austin CPT.

USA 1982 in Elementary Particle Physics.

Positions Held:

-Associate professor 1988.

-Assistance professor 1983.

-Demonstrator 1973-1974.

Administrative Activities

-Head of theoretical group (2003-2005)

- Supervisor of atomic spectroscopy lab (1990- 1994)

- Supervisor of gamma spectroscopy lab (2001-2003)

-Member of the academic accreditation and assessment committee (2012-2014)

- Head of Ph.D comprehensive exam committee (2013 – present)

- Member of nuclear group (1988- present)

- Member of theoretical group (1988- present)

- Secretary of the physics department council (1985-1987)

- Representative of the physics department at the college council (1986-1987)
- Member of training committee of the college (1985-1994)
- Member of physics and society group (1986-1994)
- Member of graduate studies committee (1989-1991, 2002-2004)
- Member of demonstrators and distinguished students (2002-2009)
- Member of self-evaluation committee at the college (1991)
- Member of research and labs at college (1985-1989)
- Member of foreign universities collaboration committee at the college (1986-1994)
- Member of evaluation committee for technicians' job at the university (1986-1994)

Conferences:

1- Deformed $su_q(2)$ with deformed Coriolis effect description of superdeformed nuclei in $A \sim 190$ region. Alharbi, Hamoud; Alhendi, Hamad; Aloyayd, Turki (APS April Meeting 11-15- 2015, abstract #E5.008, 04/2015).

2- Kaon production in central Au+Au collisions at 30 A and 45 A GeV

(poster) Hamoud Alharbi (KACST), Hamad Alhendi (King Saud

University), Masaud Almalki (KACST), Magdi Bajusair (King Saud

University). 3rd European Nuclear Physics Conference. August 31 –

September 4, 2015 | Groningen, the Netherlands.

3- Kaon production in central Au+Au collisions at 30 A and 45 A GeV

Hamoud Alharbi (KACST), Hamad Alhendi (King Saud University),

Masaud Almalki (KACST), Magdi Bajusair (King Saud University). Fifth

Saudi international meeting on frontiers of physics. 16-18 February 2016,

Jazan University, Saudi Arabia. Letter of acceptance is attached.

4- Separable instant form model for pion-nucleon interaction at 1.0 GeV.

Hamoud, Alharbi; Hamad, Alhendi, and Emad Raslan. Fifth Saudi

international meeting on frontiers of physics. 16-18 February 2016, Jazan

University, Saudi Arabia. Letter of acceptance is attached.

Publications:

Author and co-Author of more than 32 papers in peer refereed scientific journals.

- 1- Radiative Decay of the $J(\psi)$ In Spectrum – Generating SU(4). H. Al-Hendi, A. Bohm, M. Hossain, B.A. Kagali, M. Moylan, R. Teese Phys. Rev D15, 348 (1977).
- 2- More on Generalized Gauge Hierarchies with Two–Loop β -function. H. Al-Hendi, M. Ozer Phys. Lett B166, 183 (1986).
- 3- Comparison of Variational Solutions of the Thomas – Fermi Model in Terms of the Corrected Ionization Energy H. Al-Hendi, I. Al-Agil, A. Al-Harkan, A. Al-Naghmoosh Z. Natur Forsch 42a, 943 (1987).
- 4- String Solutions with Finite Tension Strings in SU(2) Gauge Theory H. Alhendi Phys. Lett B195, 456 (1987).
- 5- The Higgs Boson Mass In Standard Electroweak Theory H. Al-Hendi, M.O. Taha, Z. Phys. C Particles and Fields 36, 639 (1987).
- 6- Top Quark Mass from GUT Mass Relations H. Al-Hendi, M. Ozer, M.O. Taha Phys. Lett B213, (1988).
- 7- Calculating the Two-Loop Effective Potential of the Weinberg-Salam Model. H. Alhendi Phys. Rev D37, 3749 (1988).

- 8- Validity of Variational Solutions of the Thomas-Fermi Model of Many Electrons Atom. H. Alhendi, A. Al-Harkan, A. Al-Nagmoosh, I. Al-Agil, J. King Saud University Vol. 1 Science 2, 105 (1989).
- 9- Electronic Potential of Neutral Atoms. H. Alhendi, A. Al-Harkan J. King Saud University Vol 2, Science 2, 115 (1990).
- 10- The Effective Potential and the Renormalization Groups Equation H. Alhendi and M. Taha Europhys. Lett 15(8), 827 (1991).
- 11- Asymptotic Behavior of the Higgs Coupling in $SU(2) \times U(1)$, H. Al-Hendi, M. Ozer, M.O. Taha Phys. Rev D46, 928 (1992).
- 12- Massless 4 -Theory Is Not Asymptotically Free H. Alhendi and M.O. Taha Phys. Lett B300, 373 (1993).
- 13- Spectroscopic Study of Metallic Constituents in some Underground Water. M.S. Garawi, H. Alhendi Arab. Gulf. J. Science. Res II (1), 97, 1993.
- 14- Translation: Vibration and Waves In Physics H. Al-Hendi, A. Hasseeb. Second Edition (2005). King Saud University Press.

15- QED radiative corrections for elastic $e(\mu)p$ scattering in hadronic

variables. A. Akhundov, H. alharbi, and H. Alhendi.

Phys. Rev. C70, 028202 (2004).

16- Symmetric Triple Well with Non-Equivalent Vacua: Instantonic

Approach. H. AlHendi, E. Lashon Mod. Phys. Lett A19, 2103 (2004).

17- Nuclear Study of Some Actinide Nuclei H. Al-Harbi, H. Alhendi, S.

El-Khamessy NUSTAR'05 Conference. Nuclear Structure, Astrophysics

and Reaction, University of Surrey, Guildford U.K. 5-8 Jan 2005, and

J.Phys. G. Nucl. Part. 31s ,1831 (2005).

18- High precision numerical determination of eigenvalues for a double-

well potential related to Zinn-Justin conjecture. H. Alhendi and E.

Lashin. J. Phys. A 38, 6785 (2005).

19- Spectrum of One-Dimensional an Harmonic Oscillators.

H. Alhendi, E. Lashin Can. J. Phys. 83, 541 (2005).

20- Application of improved exponential model to some nuclei in the

region $A=100-192$. H. Alhendi, H. Alharbi, and S. El-Khameesy. J.Phys.

G. Nucl. Part. 32 ,83(2006).

21- Backbending phenomena in light nuclei at $A \sim 60$ mass region. S. El-Khameesy, H. Alharbi, and H. Alhendi. AIP conference proceeding 831, 448 FINUSTAR KOS Greece (2006).

22- Textures with two traceless submatrices of the neutrino mass matrix. H. Alhendi, E. Lashin, and Abeer. A. Mudlej. Phys. Rev. D7. 013009 (2008).

23- Description of superdeformed nuclei in $A \sim 190$ region by generalized $su_q(2)$. H.H.Alherbi, H.A.Alhendi, and F.S.Alhakami. Phys. Rev.C 79. 054324 (2009).

24- Higgs boson self-coupling from two-loop analysis.

H. A. Alhendi, T. Barakat, and I. Gh. Loqman. Phys. Rev. D82. O53008 (2010).

25- Exponential Models Description of Superdeformed Mercury Nuclei.

H. A. Alhendi and H. H. Alharbi, proceedings of the fifth Saudi physical society conference AIP conf. Proc. 1370, 305-312 (2011).

26- Generalized Dirac Equation with Induced Energy-Dependent

Potential via Simple Similarity Transformation and Asymptotic Iteration

Methods. T. Barakat, and H. A. Alhendi. Found Phys. 10.1007/s107701-013-9738-0 (2013).

27- Deformed $su_q(2)$ with deformed Coriolis effect description of superdeformed nuclei in $A \sim 190$ region. Alharbi, Hamoud; Alhendi, Hamad; Aloyayd, Turki (APS April Meeting 2015, abstract #E5.008, 04/2015).

28- Kaon production in central Au+Au collisions at 30 A and 45 A GeV (poster) Hamoud Alharbi (KACST), Hamad Alhendi (King Saud University), Masaud Almalki (KACST), Magdi Bajusair (King Saud University). 3rd European Nuclear Physics Conference. August 31 – September 4, 2015 | Groningen, The Netherlands.

29- Kaon production in central Au+Au collisions at 30 A and 45 A GeV Hamoud Alharbi (KACST), Hamad Alhendi (King Saud University), Masaud Almalki (KACST), Magdi Bajusair (King Saud University). Fifth Saudi international meeting on frontiers of physics. 16-18 February 2016, Jazan University, Saudi Arabia.

30- Separable instant form model for pion-nucleon interaction at 1.0 GeV. Hamoud, Alharbi; Hamad, Alhendi, and Emad Raslan. Fifth Saudi international meeting on frontiers of physics. 16-18 February 2016, Jazan University, Saudi Arabia.

31- Strong decay constants of heavy tensor mesons in light cone QCD sum rules. H. A. Alhendi, T. M. Aliev, M. Savci (submitted to Eur. phys. Lett. A 2015).

32- Inhomogeneous and Homogeneous Renormalization Group Equations for the Effective Potential. H. I. Alrebdi, H. A. Alhendi, and T. Barakat (submitted to the International Journal of Modern Physics. A 2015).

Electronic Publication On arXiv hep-ph :

a. Description of Superdeformed Nuclei in the $A \sim 190$ Region by

Generalized Deformed $su_q(2)$. H. Alharbi, H. Alhendi, and Fathia. S. Alhakami. arXiv nucl-th/0810.5525V1 (2008).

b. Improved Exponential Model with Pairing Attenuation and the Back bending Phenomenon.

H. Alhendi, H. Al-Harbi, S. EL – Khamessy arXiv nucl – th / 0409065.

c. The Cosmology of tetradic theory of gravitation. H. Alhendi, E. Lashin
arXiv grav – ph / 0708.

d. Symmetric Triple Well with Non-Equivalent Vacua: Simple Quantum
Mechanical Approach.

H. Alhendi, E. Lashin arXiv quant – ph / 0406075

e. Spectrum of One-Dimensional Multiple Well Oscillators.

H. Alhendi, E. Lashin arXiv quant – ph / 0306016.

f. Higgs boson self-coupling from two-loop analysis

H. Alhendi, T. Barakat , and I. Gl. Loqman arXiv hep-ph/1005.0536

Authors of Books.

g. Strong decay constants of heavy tensor mesons in light cone QCD sum
rules. H. A. Alhendi, T. M. Aliev, M. Savci arXiv hep-ph/ 1509.06044v1.

h. Inhomogeneous and Homogeneous Renormalization Group Equations
for the Effective Potential. H. I. Alrebdi, H. A. Alhendi, and T. Barakat
arXiv hep-ph/1509.03971v1.

- **Co-author** of more than twelve books for the Gulf States unified program for the three levels of secondary schools, For Arabic center for educational research in Gulf States. Kuwait 1995.

Translation of book:

Waves and Vibration in Physics by I. G Main. Into Arabic , published by King Saud University Press 1420H.

Supervisor of Thesis:

1. Ph.D Calculation of higher order radiative corrections of the effective potential (principle advisor).
2. Ph.D, Neutrino masses and Oscillations (principle advisor).
3. Ph.D, Radiative Corrections to Higgs Boson mass in the standard model, (principle advisor).
4. Ph.D, Improved WKB Approximation (associate advisor).
4. M.Sc, Application of Extended Exponential Model and deformed $su_q(2)$ Lie Algebra in the region $A \sim 190$, (principle advisor).
5. M.Sc, Study of the low temperature behavior of quantum mechanical systems in thermal equilibrium, (associate advisor).

6. M.Sc. Kaon production in heavy- ion collision at 30 GeV(principle advisor)

7- M.Sc. Baryon Polarization Effects in the Decay of the hyperon Λ_b into hyperon Λ and neutrino and anti-neutrino in the Two Higgs Doublet Model (principle advisor).

8- Separable Potential Model for Pion Nucleon Interaction at energy 1 GeV (principle advisor).

9- Exciton effects on the optical absorption in a parabolic quantum dot (associate advisor).

10- Description of quark-anti-quark bound states using the semi-relativistic wave equation (associate advisor).

11- For undergraduate, several projects in:

- In gamma spectroscopy

- Nuclear models (Deformed nuclei)

-Super-symmetric Q.M

External Examiner

Ph.D thesis:

Study of the electroweak phase transition at finite temperature

M.sc thesis:

1. Spherical Bag Model of Particles Confinement with Impedance

Boundary Conditions.

2. S-wave bound state QQ- system in power law potential.

3. Spontaneous symmetry breaking in the standard model.

4. Investigation on string-motivated scalar field cosmology.

5. Study of electroweak phase transition at finite temperature.

6. Electroweak physics at future linear electron-proton colliders.

Postdoctorate

A postdoctoral Research visitor, DPMP Cambridge university UK.

Teaching Experience

Ph.D program:

1. Elementary Particle Physics

2. Electroweak Model

3. Quantum Chromodynamics

4. Grand Unified Theory

5. Advanced Quantum Field Theory

6. Quantum field theory

M.sc. Program:

1. Quantum mechanics

2. Mathematical Physics

3. Particle Physics

B.sc. Program

1. General Physics

2. Classical Physics

3. Quantum Mechanics

4. Wave and Vibration Physics

5. Complex Variable

Consultations and Collaborations

1. Member of the primary selection committee of King Faisal Prize in Science (Physics) for several years till now.

2. Member of the primary selection committee of Almarai Prize in Science Physics.

3. Reviewer of ten papers (two works each is five) for Almarai Prize in Physics.

4. Member of Saudi Science Society for Physics and member of the organization committee for two conferences and member of editorial board for the Saudi society for physics.

5. Member of national family at the ministry of education for several years.

6. Member of the editorial board of Arabic Gulf Journal (for several years).

7. Cooperative with National Center of Mathematics and Physics. King Abdullaziz City for several years.

8. Member of the committee of gifted of King Abdullaziz and His Men for the gifted (for some years).

9. Non free consultant for Princess Nora Bint Abdullaziz University.

10. Member of energy and future committee at King Abdullaziz City.

Attending a workshop entitled " 11 المستقبل علماء " at Kacst in 2012.

Reviewer:

- 1- A number of articles for the Arabic Gulf Journal.
- 2- A number of articles for science journal for king Abdullaziz university
- 3- A number of article for Um algura journal
- 4- مسفر بن نجم تاليف "المختصين لغير دردشة-الفيزياء نظريات احدث " كتاب محكم
الاعلام و الثقافه وزارة جائزة – الحصيني
- 4- For projects to King Abdullaziz City
- 5- For gifted people
- 6- For promotion at King Saud University
- 7- External and Internal examiner for Ms and Ph.D thesis

Society Services and general Public talks

Courses description in physics for:

- Arabic educational office
- Ministry of education
- King Faisal College
- King Abdualaziz Army College
- Series of lectures at army hospital

- Several others participations (see Arabic CV)

Honors and rewards

- Dure from Ummam university
- Dure from King Abduallaziz city
- Membership of the Royal Society at Imperial College
- Membership of American Physical Society

Fields of research interest

- Elementary particle physics
- Nuclear physics
- Atomic physics
- Theoretical Physics

Dr. Hamad Abdullah Ali Alhendi

College of Science

Department of Physics and Astronomy

King Saud University

Mobil: 0504218341