

Curriculum Vitae

Name : **Mohammad S. A. Al-Ayed**

Academic Status : **Professor**

Permanent Address : Physics and Astronomy Department, College of
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Field : Physics

Sub-Field : Radiation & Biophysics

Degrees :

- 1975 B.Sc. : With 1st honor in physics and chemistry
King Saud University, Riyadh, Saudi Arabia
- 1981 M.Sc. : Physics department
Colorado state university, fort Collins, Co. USA
- 1983 H. diploma : High Diploma in ionization physics. Physics department,
University of Wales, University collage of Swansea, Swansea, Wales, UK.
- 1986 Ph.D : Physics department,
University of Wales, University collage of Swansea,
Swansea, Wales, UK.

Current Specialization & Research Activity:

- . Collisions and interaction of ionizing and non-ionizing Radiations (Particles & Photons) with matter (gas, liquid & solid states) and interaction of radiations with plasmas.
- . Application, Technologies of Radiations includes Bio & medical application (Nuclear Medicine, Radiation therapy & Diagnostic Radiology)
- . Radiation Biology includes the Biological Effects of radiation in the cell. Radiation interaction mechanisms with biological systems.
- . Radiation Protection; includes Personnel doses, Monitoring, waste disposal and shielding.

Non-Research University Activity- Administrative Responsibilities and committees:

- 1) Vice dean, College of Science, 1st March 1995- 20th Dec 1999
- 2) Vice dean, Deanship of libraries affairs, 3rd October 1990- 24 November 1992
- 3) Member of the permanent high committee for non-faculty members cooperated with KSU at King Saud Univ. 1999 – now.
- 4) Member of the permanent high committee for Radiation Protection at King Saud University, 8 February 1999 – now.
- 5) Member in the expertise and scientists list in the Atmospheric science committee and the environmental impacts committee – the UN environment program- MAEP – Kingdom of Saudi Arabia, 27 October 1994 – Present
- 6) Member of Saudi environmental awareness project committee since 26 October 1994 – present
- 7) Member of higher committee for the first university and public week held at KSU during the period 27/5 – 2/6/1997
- 8) Member of higher committee for the second university and public week held at KSU during the period 25/4 – 1/5/1998
- 9) Member of the Evaluation and judgment committee for the scientific creativity and researches competition – the deanship of students affairs – KSU, 1988-1990
- 10) President of the permanent registration committee in the collage of science from 1990-1994

- 11) Member of the examination for admission committee in the college of medicine 1990 – 2002
- 12) Member of the academic advisory committee in the college of science from 1986 – 1988
- 13) Member of the examination committee in the college of science from 1988-1990
- 14) Head of the Biomedical physics research group at the department of physics and astronomy, 2002 – now
- 15) Member of the postgraduate committee at the department of physics and astronomy, 2001 – now
- 16) President of the academic promotion committee at the department of physics and astronomy, 2004 – now
- 17) Contributing, participating and involving in several meetings committee and conferences on the departmental, college, university, government, GCC and several other institutional levels.

University and community services:

- Chairmen for an election subcommittee and voter reg. during the 1st municipal council election . in Riyadh- election center 40/ region 4 in the period 23/11- 22/12/2004.
- Supervision committee member during the election day (10/2/2005).
- Participating in the evaluation discussion for the national strategic project "Health and Environment" with the Health and Environment committee at the Shoora Council, 2005.
- Participating in the evaluation of Saudi specification project of radiation protection limits for electromagnetic fields in the frequency range 3-300 kHz at the Saudi Standard and Calibration Commission, 2005.
- Participating during the Gifted youth students gathering held at KSU in the period 18/6-15/7/2004.
- An External Examiner for Ph. D. student at College of Education for Girls, Jeddah, 2005.
- Member of examination committee for M.Sc. Student at College of Education, KSU, 2001. Supervision of King Saud University Section at Paris International Book Fair Exhibition during the period 18 – 24 /3/1992.
- Participation in the meeting of Libraries Deans of Universities in the countries represented in the education bureau of the Arab Gulf State – Sultan Qaboos University – Muscat – Sultanate of Oman during the period 11-13/3/1992.
- King Saud University representative in the proposed team work suggested by the general committee of the Gulf Cooperation Council (GCC) to arrange the graduation requirements for the Physics students in the Faculties of Science in the Council states in 21-12-1988.
- Participating in teaching Physics in the training program at the Armed Forces Hospital, Riyadh as part of the training course for the medical Saudi Technicians in the period of the Gulf Second War (Liberation of Kuwait) during the period 27-10-1990 to 11-2-1991.
- Principal Investigator for a set of researches project in the field of environmental radiation pollution and the health hazards associated with it submitted to King Saud University project for environment development initiated by the institute of research and consultation studies at the university (Prince Sultan Project for environment)

These projects were as follows:

1. Study of the background activity and determination of the radioactive materials in the building substances in Saudi Arabia.
2. Study and surveying the underground water radioactive pollution in different regional area in the Kingdom.
3. Study and surveying the concentration of radioactive (natural and artificial) materials extracted from sands in some of sea-shores extended along the red sea and the Arabian gulf in the Kingdom.
4. Study the concentration of radon in different areas in the Kingdom.

- Principle investigator of a research project on the effect of ionizing radiation on the physical, mechanical and molecular bond properties of the polymeric materials produced by the Saudi Company for basic industry (SABEC). The project was supported by the company started in 11/12/1996.
- Contributing in planning and execution of a practical training course on the hazards of the radiation leakage . This course was carried out at Naif Arab Academy for security sciences during the period 6-24/12/1997.
- Series of lectures, on the environmental impact due to the destruction in the ozone layer and on the green house effect. These lectures were carried out in the general court of the Civil Defense, in Riyadh during the academic year 1412/1413, 1413/1414H.
- Contributions in a large numbers of courses given by the faculty of science with collaboration of the physics department and the Deanship of the community service center each for a period of at least one week. They were as follows:
 1. In the academic year 1407/1408H
Principles of atomic and nuclear radiation protection..
Application of emission and absorption spectra.
 2. In the academic year 1408/1409H
Radiation protection
Radiation environmental pollution.
 3. In the academic year 1408/1409H
Principles of atomic and nuclear radiation in the military fields.
 4. In the academic year 1410/1411H
Principles of atomic and nuclear radiation protection.
 5. In the academic year 1410/1411H
Principles of atomic and nuclear radiation protection
Principles of atomic and nuclear radiation protection
 6. In the academic year 1412/1413H
Principles of atomic and nuclear radiation protection
Principles of atomic and nuclear radiation protection
 7. In the academic year 1413/1414H
Principles of atomic and nuclear radiation protection
Principles of atomic and nuclear radiation protection
 8. In the academic year 1414/1415H
Principles of atomic and nuclear radiation protection
 9. In the academic year 1417/1418H
Principles of atomic and nuclear radiation protection.
- Contribution in the training course for the protection of workers in the field of radiation in hospitals and medical centers in collaboration with the general court for preventive medicine, Ministry of Health during the period 10-15/10/1998.
- Contribution in the consultant program of Al-Howty – Stanglar Co. Ltd. in the fields of instruments used in radiation protection, radiation dose measurements, diagnosis and the biological effect of radiation assessment during the period 10-15/4/1999.
- Contribution in Al-Sharq Company for plastic consultant program in the field of instruments used in radiation protection and the biological effect of radiation during the period of 28/10 – 9/11/1998.
- Contribution in Al-Kaaky company program in the field of instruments used in testing and radiation protection during the period 3-8/10/1998.
- External referee for some of the scientific journals and scientific researches applied from Research Centers and institutes existed in more than Saudi universities and KACST.

List of Publications:

(A) Papers Published or Accepted for Publication in Academic, Specialized and Refereed Journals:

1. Al-Ayed, M.S.: "Hematological Effects of ^{60}Co Gamma Irradiation on Japanese Quails".
Bull. Egypt. Soc. Physiol. Sci. Egypt, (1997), Vol. 19, No.2, pp. 254-271.
2. Al-Ayed, M.S.: "Growth and Some Metabolic Changes in Cucurbitapepo Under Water Stress and Ultraviolet – B. Radiation".
Saudi J. Bio. Sci., Saudi Arabia (1998), Vol. 5, No. 1 pp, 45-55
3. Al-Ayed, M.S.: Al-Dhafiri, A.M., Bin Mahfoodh, M. "Global, Direct And Diffuse Solar Irradiance In Riyadh".
Renewable energy, Great Britain (1998), Vol. 14, Nos. 1-4, pp. 249-254.
4. Al-Ayed, M.S.: "Magnetic Field – Ethanol Interaction in Gerbil – Effect on Monamineoxidase and Adenosine Triphosphate Activities in the Central Nervous System".
Egypt. J. Biophys., Egypt (1999) Vol. 5, No.2, pp. 79-93.
5. Al-Ayed, M.S.: and U.A. Elani. "The Effect of Solar Ultraviolet Radiation on Vitamin (D) Deficiency in Riyadh Area".
Egypt. J. Biophys., Egypt (1999) Vol. 5, No.1, pp. 186-196.
6. Al-Dhafiri, A.M., M.S. Al-Ayed and M. Bin Mahfoodh, "Long-Term Monitoring and Analysis of Hourly Solar UV Radiation in the 290-380 μm Range in the Middle Region of Saudi Arabia"
J. Air and Waste Mang. Association., USA (2000), Vol. 50 (June), pp. 1045-1049.
7. Al-Ayed, M.S., S.U. El-Kameesy and M. Mordy, "Gamma Transitions in the β^- Decay of ^{182}Ta ".
Arab J. Nucl. Sc. and Applications, Egypt (2002), Vol. 35(.3), pp. 133-143.
8. Al-Ayed, M.S. "Biophysical and Interaction Effect of UV-B Radiation and Water Stress on Cucurbita Pepol".
Saudi J. Bio. Sc., Saudi Arabia (2003), Vol. 10 (2), pp 121- 130.
9. Bin Mahfoodh, M., M.S. Al-Ayed and A.M. Al-Dhafiri, "Measurement and Assessment of Ultraviolet Radiation In Riyadh, Saudi Arabia"
Int. J. of Sus. En., UK (2003), Vol. 23 (1-2), pp. 31-38.
10. Al-Ayed, M.S., M.S. Al-Garawi, S.S. Al-Ghamdi., A.M. Al-Soroya and S.U. El-Kameesy, "Environmental Radiation Doses at King Saud University Campus".
J. King Saud Univ., College of Science, Saudi Arabia (2003), Vol. 17 (2), pp71-79.
11. Ghannam, M.M., Al-Talhan., M.S. Al-Ayed and A.M. Azeer, "Study of The Physical Properties of Laser Exposed Liposomes".
Egypt. J. Biophys., Egypt (2003), Vol. 9 (1), pp. 9-29.
12. Shafey, T.M., M.M. Ghannam., H.A. Al-Batshan and M.S. Al-Ayed, "Effect of Pigment Intensity and Region of Eggshell on the spectral Transmission of Light that passes the Eggshell of Chickens".
Int. J. Poultry Sci., Germany (2004), Vol. 3 (3), pp. 228-233.
13. Al-Ayed, M.S., M. Ghannam and El-Sayed., M. El-Sayed, "Effect of Low Powr Microwave Irradiation on the Properties of Liposomes"
Arab J. Nucl. Sc. and Applications, Egypt (2004), Vol. 37(1), pp 137-185
14. Al-Ayed, M.S., S.U. El-Kameesy., N. El-Faramawy., S, Abd El-Ghany and M. Morsy. "Studies of Some Nuclear Properties in the α – Decay of ^{244}Cm to ^{240}Pu ."
Bulkan phys. Lett. (BPL), Turkey, (2004), Vol. 12 (3), pp 141-151.

15. May H. AL-Jasser, Samir U. El- Kameesey and Magdi M. Ghannam N. Al- Essa, F. Al-Saleh, I. Zagloul, M. Radwan, H. Al-Mubbarak, H. Al-Zuhair, M. Al-Garawi and M. Al- Ayed.
"Radioactivity Concentration in Surface Soil Samples from Al-Muzahmia Area, south West of Riyadh, Kingdom of Saudi Arabia".
Istopes and Rad. Res., Egypt (2004), Vol. 36 (4), pp 727-733.
16. Al-Salhi, M.S., M.M. Ghannam, M.S. Al-Ayed., S.U. El-Kameesy and S. Roshdy.
"Effect of γ – Irradiation on the Biophysical and Morphological Properties of Corn"
Nahrung / Food, Germany, (2004), Vol. 48 (2), pp 95-98.
17. .shafey, T.M., H.A. Al-Batshan, M.M. Ghannam., and M.S. Al-Ayed
"Effect of Intensity of Eggshell Pigment Illuminated Incubation on Hatchability of Brown Eggs"
British Poultry Science, UK (2005), Vol. 46 (2), pp 190-198.
18. Al-Jaser, M.H., S.U. El-Kameesy., M.M. Ghannam., F. Al-Saleh., I. Zagloul, M., Radwan, M. Al-Garawi and M.S. Al-Ayed. "Radioactivities of ^{226}Ra , ^{228}Ra and ^{40}K in The Ground Waters around Buraidah Treatment Plant in the North West of Riyadh, Kingdom of Saudi Arabia"
Egypt. J. Biophys, Egypt (2005), Vol. 11 (1), pp. 45-53.
19. Al-Salhi, M.S., M.S. Al-Ayed and U.A. Elani, " A Simplified Method for Infrared and Ultraviolet Solar Radiation Analysis in Riyadh, Saudi Arabia"
J. Asso. Arab Univ. Basic & Appl. Sc. (JAAUBAS), Bahrain (2006)
20. Al-Ayed, M. S. " Biophysical studies on the liposome-albumin system"
Indian J. Biochem. Biophys. (IJBB), India (2006), Vol. 43 (June).
21. Al-Ayed, M. S. " Natural Radioactivity Concentrations in Surface Soil Samples in Al-Qasim Region in The Northwest of Riyadh, Saudi Arabia"
Egypt. J. Biophys., Egypt (2006), Vol. 12(2),
22. Abdelhalim, M.A.K & AL-Ayed, M.S. "effect of high Cholesterol and saturated fat diet on the Aortic wall structure of Newzeland white male rabbits"
Saudi J.Bio.sci. 14 (2) , 2007, Saudi Arabia vol.14,no.2,
23. Abdelhalim, M.A.K , AL-Darwish, R.O & AL-Ayed, M.S. "Assessment of patient doses levels during X-Rays diagnostic Imaging using T L dosimeters and comparison with local and international levels"
Trends med . Res. 3(2): 72-81, 2008,USA
24. Abdelhalim, M.A.K , siddiqi, N.J, ALhomida, A.S & AL-Ayed, M.S. "Effects of feeding periods of high cholesterol and saturated fat diet on blood biochemistry and hydroxyproline fractions in Rabbits"
Biointormatics and Biology insights 2:239-244, 2008,UK.
25. Siddiqi, N.J , Abdelhalim, M.A.K , ALhamida, A.S & AL-Ayed, M.S. "Effect of high cholesterol diet on Aortic Hydroproline and collagen content in Rabbits".
Res.Rev.Bio science , 2008, USA.
26. Ghannam, M.M , AL-Ayed, M.S & ALi, A.A.
"Effect of Micronave Irradiation on the physical properties of nano-Liposomes"
Int.Con on nano tech. ICON008 , 17-19 June,2008,KAU-Jeddah,Saudi Arabia.
27. Mohammed Anwar K. Abdelhalim, N.J. Siddiqi, A.S. Alhomida and Mohammed S Al-Ayed:
_"The changes in various hydroxyproline fractions in aortic tissue of rabbits are closely related to the progression of atherosclerosis"

Lipids in Health and Disease 2010, 9(1) :26. ISI

28. Mohammed Anwar K. Abdelhalim, Mohsen M. Mady, Magdy M. Ghannam, Mohammed S Al-Ayed, *As Alhomida: "The effects of gold nanoparticles size and concentration on viscosity, flow activation energy, dielectric and optical properties"*

African Journal of Biotechnology, 10 October 2011, 10(61) :13121-13127. ISI

29. Mohammed Anwar K. Abdelhalim, Mohammed S Al-Ayed, Sherif A. Abdelmottaleb moussa: "Elucidation the response of heavy elements levels to intraperitoneal administration of different GNP sizes into rats for period of 3 days in vivo."

African journal of Microbiology research, 30 September 2011, 5(20) : 3267-3272. ISI

30. Mohamed Anwar K Abdelhalim, , Mohammed S Al-Ayed, Abdullah S. Alhomida, Sherif A. Abdelmottaleb moussa: "[Absorption optical density as a diagnostic tool for indicating the toxicity of gold nanoparticles](#)"

African journal of Microbiology research Volume: 10 Issue: 73 Pages: 16654-

16660 Published: NOV 21 2011

(ISI Journal, Science Citation Index Expanded, Impact Factor 0.556)

31. Mohammed Anwar K. Abdelhalim, N.J. Siddiqi, A.S. Alhomida, Mohammed S Al-Ayed: "Size effect of gold nanoparticles on various trace elements levels in different tissues of rats".

African journal of Microbiology research, 16 March, 2012, 6(10);2246-2251

(ISI Journal, Science Citation Index Expanded, Impact Factor 0.54)

32. Haseeb A. Khan , Mohamed Anwar K Abdelhalim, Mohammed S Al-Ayed, Abdullah S. Alhomida: "Effect of gold nanoparticles on glutathione and malondialdehyde levels in liver, lung and heart of rats"

Saudi J. Bio. Sc., Saudi Arabia 2012 19, 461-464. ISI

33. Haseeb A. Khan , Mohamed Anwar K Abdelhalim, Abdullah S. Alhomida, and , Mohammed S Al-Ayed: " Effects of Naked gold nanoparticles on proinflammatory Cytokines mRNA Expression in Rat Liver and Kidney"

Int. BioMed Res. volume 590730.2013/2013/10.1155/org.doi.dx//Pages http 590730,6 Article ID

(ISI Journal, Science Citation Index Expanded, Impact Factor 2.880)

34. Haseeb A. Khan , Mohamed Anwar K Abdelhalim, Mohammed S Al-Ayed, and Abdullah S. Alhomida: "Transient increase in IL-1 β , IL-6 and TNF- α genes expression in liver of rats exposed to gold nanoparticles"

Genetics and Molecular Research 12 (4): 5851-5857 (2013)

(ISI Journal, Science Citation Index Expanded, Impact Factor 1.184)

35. Magdy M. Ghannam, Mohsen M. Mady, Amat-AlRahman M AlSabie, Mohammed S. Al-Ayed: "Effect of Gamma Radiation on Dielectric Properties of Different Gold Nanoparticles Sizes"

SYLWAN., 158(6), Poland 2014 ISI Indexed

36. Abdulhalim MAK, Al-Ayed MS, Moussa SAA: "The effects of intraperitoneal administration of GNPs size and exposure duration on the oxidative stress and antioxidants levels in the various organs of rats"

Pakistan Journal of Pharmaceutical Science (letter of acceptance: Vol. 28/29 of 2015/2016)

(ISI Journal, Science Citation Index Expanded, Impact Factor 0.950)

(B) Refereed Books Which Include Textbooks, Scientific References, Edited Classical Books, and Translated Books:
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– *El-Sayed, M. El-Sayed and M.S. Al-Ayed "An Introduction to Biophysics and its Medical Applications (Arabic)".*

(C) Other Unrefereed Works

- Preparing and Publishing Several Studies and Booklets in the Filed of Radiation-(*Sources, Hazards*) *Contaminations, Handling and Protection*), In Arabic and English, Full List Is Given Below;
- 1- Radiation and Radioactivity (*in Arabic*), Physics Dept., College of Science, KSU.
- 2- The Ozone Layer – the Importance of its Protection for better environment and living (**in Arabic**), Physics Dept., College of Science, KSU.
- 3- The Eternal and Internal Hazards of Ionizing Radiation (*in Arabic*), Physics Dept., College of Science, KSU.
- 4- Radiation Accidents due to Handling of Radioactive Materials, (*in Arabic*), Physics Dept., College of Science, KSU.
- 5- Biological Effects of Radiation (*in Arabic*), Physics Dept., College of Science, KSU.
- 6- X – Rays , their Properties and productions (*in Arabic*), Physics, Dept., College of Science \ KSU.
- 7- Handling, Transport and Storage of Radioactive Material (*in Arabic*), Physics Dept., College of Science, KSU.
- 8- Contamination and Decontamination of Surfaces (*in English*), Physics Dept., College of Science, KSU.
- 9- Zoning (*in English*), Physics Dept., College of Science, KSU.
- 10- Radiation Protection in Industry (*in English*), Physics Dept., College of Science, KSU.
- 11- The Science of Biophysics (in Arabic), Science and Tech., KACST Publication (2002), No.62, pp. 4-6.
- 12- Microwaves and Radiowaves .Their properties, Production and their Bioapplactions Science and Tech. Mag., KACST Publication (2002), No. 63, pp. 14-16.

