

Curriculum Vitae

DIA-EDDIN M. ARAFAH

Professor of Solid State Physics

Faculty of Science, Department of Physics

The University of Jordan

Amman 11942, JORDAN

Phone(Priv.): +962 6 52 33218

(Mobile): +962 779 927222

(Office): 962 6 53 55000 /22052

FAX: +962 6 53 55599

E-mail: darafah@ju.edu.jo

Date of birth: 14/10/1953

Place of birth: Jerusalem

Nationality: Jordanian

Marital status: Married; four children.

Linguistic Competence: Arabic/English



I. Higher Education:

- B.Sc., Physics, The University of Jordan, 1976.
- M.Sc., Nuclear Physics, The University of Jordan, 1978.
- D.Phil., Condensed Matter Physics, University of Sussex, England - United Kingdom, 1984.

II. Experience (place, job and dates):

- Royal Jordanian Airlines, ALIA, Non-destructive testing NDT, of materials; Amman Airport, 1976-1978.
- Lufthansa, German Airlines, Federal Republic of Germany, Training for Non-Destructive-Testing (NDT) of materials, 1978.
- The University of Jordan, Physics Department, Amman, Jordan; **Lecturer**; 1978-1980.
- University of Sussex, School of Mathematical and Physical Sciences, England, Lab. Instructor, 1983-1984.
- The University of Jordan, Physics Department, Amman, Jordan, **Assistant Professor**, 1985-1990.
- The University of Jordan, Physics Department, Amman, Jordan, **Associate Professor**, 1990-1998.
- The University of Jordan, Physics Department, Amman, Jordan, **Professor**, 1998.
- Al-Hashemite University, **Chairman Physics Department**, 1998/1999.
- The University of Jordan, **Chairman Physics Department**, 02/2003 and 03/2004
- The University of Jordan, **Vice Dean Faculty of Science**, Sept. 2004/ Jan. 2005.
- The University of Jordan, **Dean Faculty of Science**, Jan. 2005/August 2005.
- The University of Jordan, **Dean of Academic Research**, August 2005/August 2007.
- The University of Jordan, **Vice President for Development, Planning and Quality Assurance**, August 2007-2008.
- The University of Jordan, **Vice President for Scientific Faculties and Institutes**, August 2008-August 2010.
- The Middle East University, **Vice President for Academic Affairs**, July, 2011- August 2012.
- **Member of Higher Education Council**, Ministry of Higher Education and Scientific Research, March, 2012 -
- The Middle East University, **Acting President**, June 23, 2012 - August 2012.

III. Fields of Study and Thesis Work Titles:

1) M.Sc.: Nuclear Physics, thesis title:

"Even Parity States of ^{16}O "

Publication from Master:

- "Even parity states of ^{16}O ", Kassis N. and Arafah D.-E., J. Phys. G: Nuclear Physics 7 (1981) 165.

2) Doctor of Philosophy: Condensed Matter Physics, thesis title:

"Defects studies in insulators using ion beam

techniques"

Publications from Doctorate:

- "RBS studies of implanted heavy ions in CaF₂ and LiF single crystals", Bangert U., Thiel K., Kerr W. and Arafah D.-E., GSI Annual Report, 1981, 196.
- "Ion range studies of cerium implanted CaF₂", Arafah D.-E., Bangert U., Thiel K. and Townsend P.D., Nucl. Instr. and Methods, **209/210** (1983) 1105.
- "Radiation enhanced diffusion of Krypton and Uranium impurities in LiF", Bangert U, Arafah D.-E., Sassmannhausen U., Thiel K. and Townsend P.D., Nucl. Inst. and Methods, **209/210** (1983) 1111.
- "Preferential sputtering and ion induced changes in the composition of pure and U-doped LiF single crystals", Thiel K. Sassmannhausen U., Arafah D.-E. and Recker K., Nucl. Inst. and Methods **B1** (1984) 282.
- "Changes in RBS spectra resulting from surface charge effects", Arafah D.-E. and Townsend P.D., Nucl. Inst. and Methods **B4** (1984) 399.
- "Lattice location of Ce implanted in CaF₂", Arafah D.-E., Georgiacodis D.N., Townsend P.D., Hogg C.W. and Chadwick A.V., Proc. Int. Symp. On Three Day in Depth Review of Particle Accelerator Impact in the Interdisciplinary Field, LNL-Padova, Italy, (1985) 38.

IV. Scientific Grants and Visits:

- British Council Scholar, 1980-1981.
- The University of Jordan Scholar, 1981-1984.
- Short-term visit to the Institute of Nuclear Chemistry (IKC), Koln University, supported by the University of Sussex, May 1982.
- Scientific visit to IBM Research Laboratories, York Town Heights, New York, and New York University at Sunny Albany, USA, May/June 1982.
- Research grant on the use of nuclear techniques in research and applications including Nuclear reaction analysis, activation analysis; Nuclear Physics Institute, Goethe University, Frankfurt, FRG, 1/6-1/9/1987; supported by DAAD.
- "Orientation dependence of stopping powers studied in GaAs by nuclear reactions", Arafah D.-E., Qumri N. Meyer J.D., Thomas T. and Bethge K., IKF Annual Report, 1987.
- Research grant from the Deanship of Research, The University of Jordan, contract number 2/3/87.
- Scholar from Goethe University, Frankfurt, FRG, Joint Research; 1/6-20/7/1988.
- Research grant to the University of Padova, supported by the International Center for Theoretical Physics, ICTP, Trieste, Italy, 1/6-20/9/1989.
- Research grant from Stiftung Volkswagenwerk in collaboration with the Institut für Kernphysik der Universität Frankfurt, "Modification of the properties of materials during ion implantation and their analysis", 1989-1991.
- Research grant on the use of nuclear techniques in research and applications; Nuclear Physics Institute, Goethe University, Frankfurt, FRG, 15/6-15/8/1995; supported by DAAD.
- Research grant from GTZ and DAAD in collaboration with the Institut für Kernphysik der Universität Frankfurt, "Materials analysis using ion beams", 1997-1999.
- Deanship of Academic Research, The University of Jordan, 2007-

V. Academic Supervision:

A. Master of Science theses works: (* = Classification number at the University of Jordan library)

1. "Rutherford backscattering studies of impurities doped glass", [Ayman K. Sbouh](#), The University of Jordan, Physics Department, May 15, 1988. - **539.754 S276***
2. "Stopping power measurements using the Rutherford backscattering spectrometry technique", [Rafiq I. Al-Amleh](#), The University of Jordan, Physics Department, March 30, 1989. - **539.754 A517***
3. "Rutherford backscattering simulation", [Wong C. Pak](#), The University of Jordan, Physics Department, May 27, 1990. - **539.754 P152***
4. "Diffusion in glass", [Abdel-halim S. Mubarak](#), The University of Jordan, Physics Department, August 20, 1990. - **544.5 M941***
5. "Ion beam mixing of Au/Sb thin films", [Awwad A. Sharaf](#), The University of Jordan, Physics Department, September 27, 1990. - **532.6 S531***

6. "Construction and testing of a Parallel plate avalanche detector, (PPAD)", [Khalidoun S. Al-Khayyat](#), The University of Jordan, Physics Department, February 4, 1991. - **537.125 K45***
7. "Analysis of pure and Eu-doped single crystalline CaF₂ by nuclear reactions", [Badie R. Gaith](#), The University of Jordan, Physics Department, February, 29 1992. - **539.75 G412***
8. "Concentration and time dependencies of the diffusion processes in glass", [Mohammad I. Al-Qabaha](#), The University of Jordan, Physics Department, June 23, 1992. - **536.2014 Q1***
9. "Ion beam mixing: theory and experiment", [Lubna K. Hamdan](#), The University of Jordan, Physics Department, August 9, 1992. -
10. "Thermoluminescence studies of irradiated doped insulators", [Mohammad H. Al-Turany](#), The University of Jordan, Physics Department, October 9, 1994. - **535.35 T948***
11. "Characterization of TL emission spectra resulting from sensitized TLD-100", [Asma G. Mahmoud](#), The University of Jordan, Physics Department, November 14, 1995. - **535.3 M215***
12. "Electric field enhanced diffusion in glass", [Mufied Al-Mughrabi](#), The University of Jordan, Physics Department, March 22, 1995. - **530.475 M951***
13. "Ion mixing of Ag/Cd thin films", [Nazeih Masoud](#), The University of Jordan, Physics Department, April 20, 1997. - **530.43 M412***
14. "Thermoluminescence emission spectra of Dy doped CaSO₄ phosphor crystals", [Lubna N. Tu'meh](#), The University of Jordan, Physics Department, April 13, 1997. - **535.35 T925***
15. "Trapping parameters determination using the inflection points method and distribution of frequency factor", [Bilal Al-Qassem](#), The University of Jordan, Physics Department, June 18, 1997. - **535.35 Q1***
16. "A study of the Environmental radioactivity in water", [Fuad Shreiteh](#), The University of Jordan, Physics Department, March 1998.
17. "Normal and enhanced ion-exchange processes of Ag and TL ions in glass", [Sharif Hussein](#), The University of Jordan, Physics Department, October 1998. -
18. "Ion-exchange studies of Bi⁺³ and La⁺³ in glass with dimethyl-formamide (DMF) as a solvent", [Maha Tumalieh](#), The University of Jordan, Physics Department, October 1998. - **530.416 T661***
19. "Thermoluminescence of LiF based dosimeters and their applications in radiation diagnosis", [Shada Al-Ramahi](#), The University of Jordan, Physics Department, July 1998. - **535.35 R165***
20. "Characterization of ion implanted quartz by Rutherford backscattering and Thermoluminescence", [Khadijeh Abu-Sleimeh](#), The University of Jordan, Physics Department, June 2000. **530.41 I82***
21. "Characteristics of Irradiated Germanium Thin Films Deposited onto Silicon Substrates by Rutherford Backscattering and Thermoluminescence", [Thanaa Abdel-Aziz](#), The University of Jordan, Physics Department, January 2002. - **530.4175 S562***
22. "Thermoluminescence Characteristics of Mixed Alkali Sulphates Doped with Rare Earth Elements", [Mahmoud Al-Eleimi](#), The University of Jordan, Physics Department, June 2003. - **535.35 E37***
23. "Characterization of ion implanted quartz by Rutherford backscattering and Thermoluminescence", [Shadi Salem](#), The University of Jordan, Physics Department, June 2003. **530.4175 S163***
24. "Characteristics of Irradiated Germanium Thin Films Deposited onto Silicon Substrates by Rutherford Backscattering and Thermoluminescence", [Radhi Al-Unaizi](#), The University of Jordan, Physics Department, June 2003. - **530.4175 E58***
25. "Thermoluminescence Characteristics of Post-Irradiation of Ag-Thin Films Deposited onto Glass", [Hala Jaber](#), The University of Jordan, Physics Department, August 2003. - **535.35 J11***
26. "Sensitization of the Thermoluminescence Response of KBr Phosphor ", [Samer Dabeit](#), M.Sc. Thesis, The University of Jordan, Physics Department, February 2005. - **530.412 D112***
27. "Studies of the Characteristics of Doped and Ion Irradiated KBr Phosphors by Rutherford Backscattering", [Laith Al-Dalabeeh](#), M.Sc. Thesis, The University of Jordan, Physics Department, February 2004. - **530.416 D756***
28. "Studies of Fluoride Deposition in the Dental Enamel Following the use of Fluoride-containing Gel by (p,αγ) Nuclear Reaction", [Anna-Hita Nasr](#), M.Sc. Thesis, The University of Jordan, Physics Department, February 2004. - **530.41 N264***
29. "Characterization of Si-Fe Systems by Rutherford backscattering spectrometry", [Tahani Bouzieh](#), M.Sc. Thesis, The University of Jordan, Physics Department, February 2004. -
30. "Thermoluminescence characteristics of mixed alkali sulphates doped with Rare Earth elements" [Lauy Barham](#), M.Sc. Thesis, The University of Jordan, Physics Department, January 2005. - **535.35 B251***
31. "Characterization of thin Co/Fe films deposited onto Silicon", [Zainab Al-Asfar](#), M.Sc. Student, The University of Jordan, Physics Department, Joined November, 2007. - **530.41 A817***

32. "Emission spectra and thermoluminescence glow curves of doped mixed alkali sulphates", [Ola Sawaftah](#), M.Sc. Student, The University of Jordan, Physics Department, May, 2007. **530.416 S271***
33. "Thermoluminescence response of doped LiF : Mg, Ti TLD materials", [Rasha Abu-Ruz](#), M.Sc. Student, The University of Jordan, Physics Department, May, 2008. - **530.412 R987***
34. "Characterization of Doped Sodium Chloride (NaCl) using Thermoluminescence", [Laila Habash](#), M.Sc. Student, The University of Jordan, Physics Department, April, 2011.

B. Doctor of Philosophy theses works: (* = Classification number at the University of Jordan library)

1. "Environmental Studies in the attenuation of Radiation and transfer effects of radionuclides", [Mohammad Awadallah](#), Ph.D. Thesis, The University of Jordan, Physics Department, August 2003. - **539.752 A964***
2. "Charge states of post accelerated thin solid films resulting from ion-atom exchange phenomena", [Abdullah Mahasneh](#), Ph.D. Thesis, The University of Jordan, Physics Department, September, 2005. - **539.72112 M214***
3. "Characterization of thin films deposited onto quartz by Rutherford backscattering and Thermoluminescence", [Noura Al-Dahabi](#), Ph.D. Thesis, The University of Jordan, Physics Department, 2005. -
4. Improvement of the thermoluminescence properties of co-doped alkali sulphates", [Mohammad Al-Elaimi](#), Ph.D. Thesis, The University of Jordan, Physics Department, 2010. - **530.416 U36***
5. "Correlation of Backscattered and Recoil Ions in Violent Ion-Atom Collisions by Coincident Rutherford Backscattering Spectrometry", [Hanan Saadeh](#), Ph.D. Thesis, The University of Jordan, Physics Department, 2010. - **539.757 S111***
6. "Characterization of Cement using Thermoluminescence", [Manal Dahab](#), Sudan, Ph.D. Student, The University of Jordan, Physics Department, Joined December, 2011.
7. "Synthesis and Characterization of Thermoluminescence Properties of as Prepared and Doped SiO₂-Glass", [Fawzeiyeh Khamis](#), Libya, Ph.D. Student, The University of Jordan, Physics Department, Joined May, 2012.

VI. Conference and Workshop Participation:

- 9th. Int. Conf. on Atomic Collisions in Solids, "ACIS", Lyon, France, July, 1981.
- Analysis by High Energy Ion Beams: Developments and New Applications, Brighton, England, June 1983.
 - Research title: "Changes in RBS spectra from surface charge effects".
- 11th. Int. Conf. on Atomic Collisions in Solids, "ACIS", Grenoble, France, July 1983.
- Int. Symp. on Three Day in Depth Review on Nuclear Accelerators Impact in the Interdisciplinary Field, LNL-Padova, Italy, May 1984.
 - Research title: "Lattice location of Ce implanted in CaF₂".
- Summer Workshop in Condensed Matter Physics, ICTP, Trieste, Italy, August 1985.
- 1st. Workshop on Van de Graaff Accelerators in Research, Training and Technological Applications, "ARTTA'85", September 1985, The University of Jordan, Physics Department, Amman, Jordan.
 - Research title: "Effects of biasing on RBS measurements".
- 1st Conf. on Condensed Matter Physics "PCM'86", July 1986, University of Jordan, Physics Department, Amman, Jordan.
- I.C. Summer School on Ion Beam Analysis of Solids, "CIBAS", Jena University, DDR, 1-13 Sept. 1986.
 - Research title: "Charge states separation and measurements".
- 1st. Conf. of the Jordanian Chemical Society, Phosphate Mining Comp., Amman, Jan. 1986.
 - Research title: "Materials analysis using high energy ion beams".
- 2nd. Workshop on Van de Graaff Accelerators in Research, Training and Technological Applications, "ARTTA'87", Oct. 1987, The University of Jordan, Physics Department, Amman, Jordan.
 - Research title: "Thickness determination by RBS technique".
- 2nd Conf. of the Jordanian Chemical Society, Phosphate Mining Comp., Amman, Jan. 1987.
 - Lecture title: "Glass and fiber optics".
- Summer Workshop in Condensed Matter Physics, ICTP, Trieste, Italy, August 1988.
 - Research title: "Changes in the composition of soda-lime glass resulting from doping".
- 2nd. Conf. on Condensed Matter Physics "PCM'86", April 1989, The University of Jordan, Physics Department, Amman, Jordan.
 - Research title: "Radiation enhanced diffusion in glass".
- Int. Conf. on Condensed Matter Physics and Applications "ICCPA", 13-16 April 1992, University of Bahrain, Department of Physics, Issa Town, Bahrain.

- Research title: "Characterization of pure, ion-exchange and ion implanted glass".
- 3rd. Int. Conf. Solar Electricity (ICSE): Photovoltaics and solar thermal technologies, The Emirate of Sharjah, March 21-25, 1998.
 - Research title: "Substrate temperature effects on the processing of CdTe and CdS thin films".
- 2nd. Physics Palestinian Workshop on Condensed Matter and Applications, An-Najah National University, Nablus, Palestine May 3-4, 2000.
 - Research title: "Characterization of defects induced in thin films"
- Int. Symposium On Utilization of Accelerators, Sao Paulo, Brazil, November 26-30, 2001.
 - Research title: "Characterization of defects induced by Ar beam irradiation in thin films used for solar cell devices".
- TMS-2006: Nanomaterials: Materials and Processing for Functional Applications of Nanoscale Materials; San Antonio, Texas, March 12-16, 2006.
 - Research title: "nanostructure materials fabricated by ion beam mixing".
- TMS-2007: Recent Developments in Semiconductor, Electro Optic and Radio Frequency Materials: Recent Advances in Semiconductor Technologies; TMS-2007, Orlando, Florida, February 25-March 2, 2007.
 - Research title: "Silicon Germanium Nanostructures Doped with Rare Earth Materials".
- Strategic Planning in Jordanian Higher Education Institutions, 1-2/12/2007, Sheraton Amman, Amman, Jordan.

VII. Committees Membership:

A. University, Faculty and Department Committees:

- Chair of committee for **Curriculum Development** at University level.
- **Graduate studies committee at Department, Faculty of Science and Faculty of Graduate Studies..**
- **Nuclear energy**, The University of Jordan and Ministry of Energy.
- Member of **waste disposals and pollution issues and problems**.
- Department and Faculty for the **nuclear Van de Graaff accelerator**.
- Second Workshop **ARTTA'87 Organizing committee**.
- Third Workshop **ARTTA'95 Organizing committee**.
- Chair of Committee for **Strategic Planning 2007-2012, Executive and action Plan**, at the University of Jordan.
- Chairman of committee for **Center of Excellence on Energy, Water and Environment (EWE)** at The University of Jordan 2010.
- Board Member of Research Center for Water and Environmental Studies Council, The University of Jordan, 2005-2007.
- Board member of for Marine Sciences Station Council, The University of Jordan, Aqaba, Jordan, 2005-2009.
- Board Member of Hamdi Manco Center for Scientific Research, The University of Jordan, 2005-2008.
- Member of Research Center for Water and Environmental Studies Council, The University of Jordan, 2005-2007.
- Committee member of History of Bilad Al-Sham, The University of Jordan, 2006-2007.
- Committee member for Appointment at the University of Jordan, 2005-2009.

B. Universal Committees:

- Chairman of national committee for "**International Geo-sphere Bio-sphere Programme: IGBP, Global change**", Finland, 2010.
- Organizing Committee: **TMS-2007**; "Metrologies for Advanced Materials and Devices: Characterization, Measurement and Testing Science: Metrology for Micro and Nano Structures" / "Recent Developments in Semiconductor, Electro Optic and Radio Frequency Materials: Progress in Semiconductor Optoelectronics and Beyond", **Orlando, Florida**, February 25-March 2, 2007.
- Member of the **New York Academy of Sciences**.
- **Non-destructive Testing (NDT) Society**.
- **International Training Committee on Synchrotron Radiation (SESAME project)** - UNISCO.
- Committee member for Technical Committee for Higher Education Development, 2006-2008
- Chairman of committee for "**Open Mind Academy**" Project on Multidisciplinary fields in cooperation with several universities in Europe such as Lund in Sweden and SAWAS in England, 2008-2010.

- Chair of committee for the **Competence Center** in cooperation with the **University of Lichee, Italy and The University of Jordan**, 2007-2010.
- Higher Education of Scientific Research, Ministry of Higher Education and Academic Research. Jordan / Aug.2005-Aug.2007.
- **Higher Education Strategy and Reform initiative in Higher Education - "ERFKE- Education Reform for Knowledge Economy"** through the World Bank 2005.
- Member of committee for student's **selection for Study grants at the French Embassy**, in Jordan, 2008-2012.
- Chair of committee of: "Governance in Higher Education ", Conference in collaboration with Arab Universities Union, Amman, November 13-14, 2012.
- Member of committee for Jordan Higher Education Strategy, Curriculum of Academic Programs, Ministry of Higher Education and Scientific Research, Amman June 2012.

C. Research and Scientific Award Committees:

- Chair of Committee "Incentive Prize" on behalf of the Ministry of Higher Education and Scientific Research, Jordan, 2005.
- Member of Committee "**Abdul-Hamid Shouman for Arab Youth Scientists**", 2005/2006.
- Chair of Committee "**Abdul-Hamid Shouman for Science Schools Teachers**" - Several times.
- Chair of evaluation Committee "**Hisham Adib Hijjawi**, Industrial and Energy Technology Sector, 2010 and 2011.
- Chair of evaluation Committee "**Jordanian Society for Scientific Research**" , Patency Sector, 2011.

D. Scientific Committees:

- **Editor in Chief**, "**Dirasat**", Scientific Publication Journal, Published by the Deanship of Academic Research, The University of Jordan / Aug.2005-Aug.2007.
- Committee member of the "**Jordan Journal of Physics**", Scientific Publication Journal, Published by the Deanship of Academic Research, Yarmuk University and the Ministry of Higher Education and Academic Research, 2007-Now, Jordan.
- **Organizing committee of ICCMPA, 1992, Bahrain.**
- Member of Committee for MOHE on **Programs Accreditation in Physics at the Jordanian Universities** 2005-2007.
- Peer Reviewer in: *PHYSICA B: Condensed Matter; Journal of Optoelectronics and Advanced Materials (JOAM)*.

E. Scientific Programs and Projects:

- Chair of supervising committee for the Diploma program on "**Information and Communication Technology in Education**" (ICTE); conducted at The University of Jordan in cooperation with IAI-Faysal Academy, Saudi Arabia, and Ohio University, Athens, April 2007-August 2010
- Supervising the project on **Human Resource Development of Youth Palestinians**, –"**Stepping Stones**", funded by King Abdullah The Second for Development and conducted at Birzeit University in cooperation with The University of Jordan, April 2007-August 2010.
- **International consultant** for the **evaluation of existing academic science programs in Palestinian Universities, Accreditation and Quality Assurance Commission (AQAC)** at the Ministry of Education & Higher Education *MOEHE, Ramallah – West Bank, Palestine*, 10/05/2011 (Chair of Team)
- Chair of committees for **Higher Education Projects** at The University of Jordan, 2005-2010.
- Chair of Projects at The University of Jordan and supported by the Higher Council for Science and Technology, HCST, Jordan, 2007.
- Member of the **national committee for virtual Center of Excellence (CoE) at the Jordanian Atomic Energy Commission.**

VIII. Other Activities:

- Founder of the Jordanian Physics Associations / 1975.
- Establishing a new experimental condensed matter physics laboratory at the Physics Department The University of Jordan.
- Best Research Award / The University of Jordan.
- Obtaining a financial support and Equipments from:
 1. Deanship of Research, The University of Jordan, 1987, 2001, 2007.
 2. Goethe University, Frankfurt, FRG, 1988
 3. Volkswagen Stiftungwerk, Hannover, FRG, 1989-1992.
 4. University of Padova, Italy, 1989.
 5. Center of Theoretical and Experimental Physics, Irbid, 1991.
 6. DAAD and GTZ, Hannover, Berlin, 1997-1999.
 7. Higher Council for Science and Technology, Jordan, 2000.

IX. Academics and Education:

- Teaching most courses in physics for undergraduate and some postgraduate levels.
- Establishing Computer interactive courses in Physics.
- Organizing Training Session for the Excavation of Jordanian Archeology, held in cooperation between The University of Jordan and IAEA (2009).

X. List of Publications:

1. "Even parity states of ^{16}O ", Kassis N. and [Arafah D.-E.](#), *J. Phys. G: Nuclear Physics* 7 (1981) 165.
2. "RBS studies of implanted heavy ions in CaF_2 and LiF single crystals", Bangert U., Thiel K., Herr W. and [Arafah D.-E.](#), *GSI Annual Report*, 1981, 196.
3. "Ion range studies of cerium implanted CaF_2 ", [Arafah D.-E.](#), Bngert U., Thiel K. and Townsend P.D., *Nucl. Instr. and Methods*, 209/210 (1983) 1105.
4. "Radiation enhanced diffusion of Krypton and Uranium impurities in LiF ", Bangert U, [Arafah D.-E.](#), Sassmannhausen U., Thiel K. and Townsend P.D., *Nucl. Inst. and Methods*, 209/210 (1983) 1111.
5. "Preferential sputtering and ion induced changes in the composition of pure and U-doped LiF single crystals", Thiel K. Sassmannhausen U., [Arafah D.-E.](#) and Recker K., *Nucl. Inst. and Methods B1* (1984) 282.
6. "Changes in RBS spectra resulting from surface charge effects", [Arafah D.-E.](#) and Townsend P.D., *Nucl. Inst. and Methods B4* (1984) 399.
7. "Lattice location of Ce implanted in CaF_2 ", [Arafah D.-E.](#), Georgiacodis D.N., Townsend P.D., Hogg C.W. and Chadwick A.V., *Proc. Int. Symp. on Three Day in Depth Review of Particle Accelerator Impact in the Interdisciplinary Field*, LNL-Padova, Italy, (1985) 38.
8. "PIXE facility at Jordan Van de Graaff accelerator", Saleh N.S., Hallak A.B., Saleh K.A. and [Arafah D.-E.](#), *Appl. Phys. Comm.* 5(4) (1985/86) 253.
9. "Assessment of Jordanian salt using nuclear techniques", Saleh K.A., [Arafah D.-E.](#), Jabr I.J. and Saleh N.S., *Appl. Phys. Comm.* 7(3) (1987) 195.
10. "Quantitative analysis of stainless steel using nuclear techniques", Abu-El-Haiga A.J., Saleh K.A., [Arafah D.-E.](#), Halim N.A., Kamal M.R., Khalifeh J.M. and Saleh N.S., *Mat. Sci. and Eng.* 95 (1987) 267.
11. "Combined nuclear measurements of yeast", Saleh N.S., Saleh K-A., [Arafah D-E.](#) and Halim N.A., *Nucl. Inst. and Methods B23* (1987) 379.
12. "Anomalies in the depth distribution of Kr implanted into SiO_2 ", [Arafah D.-E.](#), *Phys. Stat. Solidi (a)* 103 (1987) K7.
13. "Orientation dependence of stopping powers studied in GaAs by nuclear reactions", [Arafah D.-E.](#), Qumri N. Meyer J.D., Thomas T. and Bethge K., *IKF Annual Report*, 1987, p.138.
14. "Inherent peculiarities in nuclear reaction analysis", [Arafah D.-E.](#) and Meyer J.D., *J. Appl. Phys.* 64(3) (1988) 1557.
15. "Charge-state measurements of backscattered ions from Au films", [Arafah D.-E.](#), Meyer J.D., Sharabati H.H. and Mahmoud A.M., *Phys. Rev. A* 39(8) (1989) 3836.
16. "Anomalous behavior in the performance of Van de Graaff accelerators", [Arafah D.-E.](#), Bulous B.R., Al-Ramadin Y.I. and Mahmoud A.M., *Appl. Phys. Comm.* 9(1) (1989) 99.
17. "Radiation enhanced diffusion of Ag produced by Ar implantation into Ag-doped glass", Sbouh A.K., [Arafah D.-E.](#) and Al-Ramadin Y.I., *J. Phys.: Condensed Matter* 1 (1989) 5045.

18. "Changes in the composition of soda-lime glass resulting from Ag-doping", Sbouh A.K., [Arafah D.-E.](#) and Al-Ramadin Y.I., *Mat. Sci. and Eng. B3* (1989) 473.
19. "Fluence dependence of the depth distribution of Kr implanted into SiO₂", [Arafah D.-E.](#) and Shahin I.S., *Dirasat* 17(2) (1990) 129.
20. "Influence of electronic compensation on Rutherford backscattering spectra of biased insulators", Meyer J.D. and [Arafah D.-E.](#), *Nucl. Inst. and Methods B50* (1990) 109.
21. "Photoacoustic measurement of the absolute optical absorption coefficient of opaque solids", Shahin I.S. and [Arafah D.-E.](#), *Dirasat* 18B (3) (1991) 30.
22. "Characterization of pure ion-exchange and ion implanted glass", [Arafah D.-E.](#), Al-Ramadin Y. and Sharabati H., *Proc. 1st. Int. Conf. on Condensed Matter Physics and Applications "ICCPA"*, Bahrain University, 13-16 April, 1992, Bahrain, p.163-170.
23. "Aging effects of polypropylene used in heating systems", [Arafah D.-E.](#), Al-Ramadin Y., Hammad M. and Zihlif A., *Radiat. Phys. and Chem.* 41(3) (1993) 553.
24. "Radiation enhanced diffusion in ion implanted glass", [Arafah D.-E.](#) and Al-Ramadin Y., *Appl. Phys. A* 56 (1993) 555.
25. "Nuclear reaction studies of pure, Eu-doped and ⁴⁰Ar⁺ ion irradiated CaF₂", Gaith B., [Arafah D.-E.](#) and Sharabati H., 3rd. *European Conf. on Accelerators in Applied research and Technology, "ECART 93"*, 31 August - 4 September 1993, France.
26. "Materials analysis using nuclear techniques: Rutherford backscattering (RBS)" [Arafah D.-E.](#), *Proceedings of the Atomic Arab Energy Agency*, 1994, 1-21.
27. "Parallel plate avalanche detector: construction and testing", Khayyat Kh.S., [Arafah D.-E.](#) and Sharabati H., *Proceedings of the Atomic Arab Energy Agency*, 1994, 22-35.
28. "أساسيات الكهرياء والمغناطيسية"، معروف عبد الله، [ضياء الدين عرفة](#) وجميل خليفة، 1995، دار الفكر، عمان، الأردن.
29. "Characterization of TL-glow curves resulting from sensitized TLD-100", Mahmoud A. G., [Arafah D.-E.](#) and Sharabati H., *J. Phys. D: Applied Physics* 31 (1998) 224-230.
30. "Processing effects on the structure of CdTe, CdS and SnO₂ thin films", Ahmad-Bitar R. and [Arafah D.-E.](#), *Solar Energy Materials and Solar Cells* 51 (1998), 83-93.
31. "Influence of substrate temperature on the preparation of CdTe and CdS thin films", [Arafah D.-E.](#) and Ahmad-Bitar R., *Semiconductor Science and Technology*, 13 (1998) 322-328.
32. "Equilibrium charge state fractions of ⁴He ions backscattered from Au-films", [Arafah D.-E.](#), *ILL Nuovo Cimento D*, 20 (3) (1998) 261-271.
33. "Working life effects on the properties of plastic thermopipes", Hammad M., [Arafah D.-E.](#), Al-Ramadin Y. and Zihlif A., *J. Mater. Science*, 33 (1998), 4167-4171.
34. "Thermoluminescence in LiF TLD-100 after β-irradiation", AL_Turany M.H., [Arafah D.-E.](#) and Sharabati H., *Dirasat*, 26(2) (1999) 151-165.
35. "Ion beam mixing of Ag/Si bilayer", Masoud N. and [Arafah, D.-E.](#), *Phys. Stat. Solidi (a)* 172 (1999) .155.
36. "Induced defects and structural changes resulting from the processing of CdTe and CdS thin films", [Arafah D.-E.](#) and Ahmad-Bitar R., *Solar Energy Mater. and Solar Cells* 64 (2000) 45-54.
37. "Characterization of Defects Induced by ⁴⁰Ar⁺ Beam irradiation in Thin Films used for Solar Cell Devices", [Arafah D.-E.](#), Masoud N. and A. Mahmoud, *Proceeding of the International Symposium on Utilization of Accelerators*, Sao Paulo, Brazil 26-30 November, 2001. International Atomic Energy Agency (IAEA) Publications, 2002.
38. "Ion beam mixing of Ag/Si bilayer: flux dependence", Masoud N., [Arafah, D.-E.](#), and Becker, K.H., *Nucl. Inst. and Methods*, 209/210 (2003) 1111.
39. Maghrabi M. and [D.-E. Arafah](#). 2003. Sensitization of the thermoluminescence response of CaF₂ phosphors, *Phys. Stat. Sol. (a)* 195, No. 2, 459– 467.
40. "Ion beam mixing of Silicon-Germanium for solar cell applications", Abedrabbo S., [Arafah, D.-E.](#), Salem S., and Ravindra, N.M., *13th. Workshop on Crystalline Silicon Solar Cell Materials and Processes*, Vail, Colorado, August 10-13, 2003.
41. "Ion Beam Mixing of Silicon-Germanium Thin Films", Abedrabbo S., [D.-E. Arafah](#) and S. Salem, *Journal of Electronic Materials*, 34(5) (2005) 468-473.
42. "Ion Beam Mixing for Processing of Nanostructure Materials", Abedrabbo S., [D.E. Arafah](#), O. Gokce, L. Wielunski, O. Celik, and N.M. Ravindra, *Journal of Electronic Materials*, 35 (5) 2006 834-839.

43. Processing and characterization of Nanostructures of silicon-on-dielectrics. Abedrabbo, S.; [Arafah, D.-E.](#); Wielunski, L. S.; Gharaibeh, M.; Ravindra, N. M, *The Minerals, Metals & Materials Society - TMS Letters* (2006), 3(2), 33-34.
44. "The Effect of Rare Earth Doping on the Glow Peak Positions of LiNaSO₄ , Maghrabi M., [D.-E. Arafah](#), L. Barham and M. Olaimi, *Radiation Measurements* 42 (2007) 163-169.
45. Mixed Order and General Order Kinetics Applied to Selected Thermoluminescence Glow Curves, M Maghrabi, J Jundi and [D.-E. Arafah](#), *Radiation Protection Dosimetry* (2008) 130(3): 291-299 *first published online March 12, 2008 doi:10.1093/rpd/ncn061*.
46. An IGBP National Committee in Jordan: another step towards environmental solutions in the Kingdom, Tareq Hussein and [Dia-Eddin Arafah](#), *iLEAPS News Letter*, 8 (2009) 38-39.
47. "Fine Particle Number Concentrations in the Urban/Suburban Atmosphere in Amman, Jordan, Tareq Hussein, Rasha Abu Al-Ruz, Tuukka Petäjä, [Dia-Eddin Arafah](#), and Markku Kulmala, *Aerosol and Air Quality Resesrch*, online doi: 10.4209/aaqr.2010.08.0066.
48. "Local air pollution versus short-range transported dust episodes: A comparative study for submicron particle number concentration, Tareq Hussein, Rasha Abu Al-Ruz, Tuukka Petäjä, Heikki Junninen, [Dia-Eddin Arafah](#), Kaarle Hämeri, Markku Kulmala, *Aerosol and Air Quality Resesrch*, 11 (2011) 109-119.
49. "Coincident Rutherford Backscattering Spectrometry: Novel Technique for Measuring Charge State Distributions in Violent Ion-Atom Collisions", H. Sa'adeh, R. Ali, and [D.-E. Arafah](#), *Nuclear Instruments and Methods in Research B* 269 (2011) 2111-2116.
50. "Charge-State Distributions of Energetic ⁴He Ions Backscattered from Kr Gas Target", H. Sa'adeh, R. Ali, and [D.-E. Arafah](#), submitted: *Nuclear Instruments and Methods in Research B*271 (2012) 33-38..