

## CURRICULUM VITAE

*Adnan M. Shariah, Ph. D.*

### PERSONAL DATA:

Name : Adnan M. Shariah  
Date of Birth : Jan. 27, 1957  
Marital Status : Married  
Nationality : Jordanian  
Academic Rank : Associate Professor.  
Specialization : Physics/Renewable Energy.  
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### CURRENT POSITION:

Associate Prof. Department of Applied Physics-Jordan University of Science and Technology (JUST).

### EDUCATION:

- \* **Post-Doctoral**, Jan.1993 - Jan.1995, Colorado State University, Solar Energy Applications Laboratory, Fort Collins-Colorado, USA.
- \* **Ph. D.**, 1990, Physics, Middle East Technical University, Ankara-Turkey.  
Thesis: Analysis of Laminar Natural Convective Heat Transfer in a Triangular Enclosure.
- \* **M. Sc.**, 1986, Physics, Middle East Technical University. Ankara-Turkey.  
Thesis: Study of Triangular Built-in-Storage Solar Water Heaters.
- \* **B. Sc.**, 1980, Physics Engineering, Selcuk University, Konya-Turkey.

### WORK EXPERIENCE:

- \* Associate Prof., Sept/2003-Present, Applied Physics Department, Jordan University of Science & Technology, Irbid-Jordan.
- \* Fulbright Fellowship Scholar, Sept/2002- Sept/2003, Advanced Photovoltaic Research Center, University of Arkansas, Fayetteville-Arkansas, USA
- \* Associate Prof., Feb/2000-Sept/2002, Applied Physics Department, Jordan University of Science & Technology, Irbid-Jordan.
- \* Assistant Professor, 1995-2000, Department of Applied Physics, Jordan University of Science & Technology, Irbid-Jordan.
- \* Post-Doctoral, 1993-1995, Solar Energy Applications Laboratory, Colorado State University Fort Collins- Colorado, USA.
- \* Full Time Lecturer, 1991-1993, Department of Applied Physics, Jordan University of Science & Technology, Irbid-Jordan.

- \* Part Time Lecturer, 1990-1991, Department of Applied Physics, Jordan University of Science & Technology, Irbid-Jordan
- \* Research Assistant, 1986-1990, Physics Department, Middle East Technical University, Ankara- Turkey.
- \* Teacher of Physics, 1982-1983, Ministry of Education. Jordan.

## **RESEARCH PROJECTS:**

- 1- Design and test solar concentrator for bifacial solar cells, JUST, 2022.
- 2- Effect of concentrated light intensity and high temperature on the performance of solar cells, JUST, 2022.
- 3- Design and Testing of solar concentration system for Photovoltaic Applications, JUST, 2017
- 4- Design and installation of hybrid solar system for water distillation and heating the swimming pool at the university, JUST, 2016
- 5- Effect of Dust and Shading on the performance of Photovoltaic solar systems, JUST, 2016
- 6- Design and Installation of Hybrid PV plus Thermal solar systems, EU, 2015
- 7- Designing and Simulation of a Photovoltaic Solar system for Jordan University of Science and Technology Buildings, JUST, 2015
- 8- New Hybrid photovoltaic and thermal vacuum tube solar system, JUST, 2015
- 9- Low Emissive Paints to Camouflage Static Vehicles from IR Cameras, KADDB, 2009.
- 10- Electric field assisted crystallization of amorphous silicon thin film for solar cells applications, Funded by the Office of the Dean of Research, JUST, 2007.
- 11- Design and Testing of Solar Water Heating System for Domestic Use and Space Heating, Funded by the Office of the Dean of Research, JUST, 2007. Ongoing.
- 12- Contact resistance in backside of solar cells, Supported by DFG Germany, Stuttgart University Germany. 2006.
- 13- Design, Fabrication, and Testing of Economical Built in Storage Type Solar Water Heater, Funded by KADDB, 2006.
- 14- Electrical and Optical properties of Aluminum Induced Crystallized Amorphous Silicon Thin Films, Funded by the Office of the Dean of Research, JUST, 2005.
- 15- Low Cost Polycrystalline Solar Cells, Advanced Photovoltaic research Center, University of Arkansas, Fayetteville-Arkansas. USA. (Sept/2002-Sept/2003).
- 16- Amorphous Silicon Solar Cells, Solar Cells laboratory, Engineering Research center. University of Arkansas, Fayetteville, Arkansas, USA (summer 2000).
- 15- Optical Coating and Solar Cells, Fabrication of improved zinc oxide thin films doped silicon for energy-stored antireflection optical coating and solar cells. Funded by the Office of the Dean of Research, JUST, 1999.
- 16- Solar Cells. Crystallization of hydrogenated amorphous silicon at low temperatures for increasing the efficiency of the solar cells. Solar Cells Laboratory, Engineering Research center. University of Arkansas, Fayetteville, Arkansas, USA (summer 1999).
- 17- Solar and thermal energy gains through windows into buildings, Funded by the Office of the Dean of Research, JUST, 1995.
- 18- Optimization of design parameters of thermosyphon solar water heaters in Jordan, Funded by the Office of the Dean of Research, JUST, 1996.

- 19- Utilization of solar energy in refrigeration and air-conditioning, Funded by the Office of the Dean of Research, JUST, 1996.

## **PROJECTS WITH GRADUATE STUDENTS**

- 1- Electrical Properties of Crystallized Hydrogenated Amorphous Silicon. 2005  
Master student: Main Batayneh.
- 2- Optical Properties of Crystallized Hydrogenated Amorphous Silicon, 2005  
Master Student: Yazeed Qundus.
- 3- Electric field assisted crystallization of amorphous silicon thin films for solar cells application, 2008. Master student: Enas Hamasha.
- 4- a Fuzzy logic model of a tracking system for solar panels in northern Jordan based on experimental data, 2011. Nadia Al-Rousan.
- 5- Designing and Simulation of a Photovoltaic Solar system for Jordan University of Science and Technology Buildings, 2016. Master Student: Manal Al-taweel.
- 6- Effect of Shading and Dust accumulation on Performance of Photovoltaic Solar Systems. 2016, Master Student: Ihab Al-Ibrahim.
- 7- Design and Testing of solar concentration system for Photovoltaic Applications, 2017, Master Student: Imad Hasan.
- 8- Numerical optimization of Nano-crystalline emitter and back surface field layers of a silicon-based HIT Bifacial Solar Cell. 2023Ongoing, Master Student: Fida Mahasneh.
- 9- Optimization of grid patterns in interdigitated back contact solar cells. Ongoing (2022).

## **ATTENDED CONFERENCES AND SYMPOSIUMS: (not up dated)**

- 1- 1st International Conference on Water, Energy and Environment Nexus (WEEN-2019), 5-8/9/2019, Istanbul-Turkey.
- 2- PVCON2018, International Conference on Photovoltaic Science and Technologies, Middle East Technical University, 4-6 July, 2018/Ankara-Turkey
- 3- Material Science Conference 2, Jordan University of Science and Technology, Irbid, Jordan 2017.
- 4- The International Conference on Energy, Water & Environment (ICEWE), Zarka – Jordan 21-24 April, 1, 2013.
- 5- Fourth Global Conference on Renewables and Energy Efficiency for the Desert Regions, Amman 10-12 September, 2013.
- 6- Jordan New Energy Conference, Amman 16-19 September, 2013.
- 7- The 1st International Conference Solar Workshop and & 4th German - Jordanian 2012 held in The University of Jordan during the period from 27th – 29th February, 2012.
- 8- International **conference** on solar **energy** for MENA region. Amman 22-23 October 2012.
- 9- Jordan Engineers Association (JEA), Amman 20-22 September, 2011.
- 10- International Conference on Energy, Water & Environment (ICEWE), Amman, Jordan, December 12-15, 2010
- 11- 1st International Nuclear & Renewable Energy Conference, Amman – Jordan. March 21-24, 2010.

- 12- Euro Jordanian Renewable Energy Conference Amman - Jordan. 1-2 April, 2009
- 13- Global **Conference on Renewable Energy** Approaches for Desert Regions [GCREADER] Le Royal Hotel Amman, **Jordan** 18-22 September 2006
- 14- Training Program for Establishing Testing Facilities for Solar PV and Thermal Systems, and Energy Efficiency in Buildings. Florida Solar Energy Center, University of Central Florida. Cocoa, Florida, July 28 – August 15, 2003.
- 15- National solar Energy Conference, American Solar Energy society, June 21 – 26, 2003, Austin, Texas.
- 17- Arkansas Academy of Science Conference, April 4 -5, 2003, Fayetteville, Arkansas.
- 18- GlobeEx 2000, Global Energy Exposition and Energex 2000, July 23-28, 2000, Las Vegas, Nevada, USA.
- 19- IEC-200, The First International Energy Conference 2000, May 7-9, 2000 Al-Ain, United Arab Emirates.
- 20- Third International Conference on Solar Electricity: Photovoltaic and Solar Thermal Technologies, March 21-25, 1998 Sharjah, United Arab Emirates.
- 21- The 4th Jordanian Scientific Week, 27/8-3/9, 1996 Amman-Jordan. Workshop on the Engineering and
- 22- Architectural Designs, the Maintenance Problems and Energy Conservation in Buildings in The Arab Countries, 8-10 September, 1996, Jordan.
- 23- The 5th Arabic International Solar Energy Conference (AISEC-5), November 13-16, 1995, Bahrain.
- 24- 2nd Symposium on Household Energy Consumption Survey in Jordan, 29-30 March 1995, Ministry of Energy and Mineral Resources, Jordan.
- 25- 1994 ASME International Solar Energy Conference, March 27-30, San Francisco, California, USA.
- 26- 12th REL PV Program Review Meeting, Oct. 13-15, 1993, Denver Colorado, USA.
- 27- ASHRAE Annual Meeting, June 26-30, 1993, Denver, Colorado, USA.
- 28- The International Seminar on the Commercialization of Solar Energy and wind Energy Technologies, Amman (Jordan), 7-16 April 1992.
- 29- International Mediterranean Congress on Solar and other New-Renewable Energy Resources, Nov., 14-19, 1988, Antalya, Turkey.
- 30- The 4th Jordanian Scientific Astronomical Day, 21/2/1997, Jordan University of Science and Technology, Irbid-Jordan
- 31- Seventh Petra School of Physics, September 17-22, 2000, University of Jordan, Jordan.
- 32- International Conference on Energy Systems, September 25-28/2000, Amman-Jordan.

#### **COURSES TAUGHT:**

- 1- Phys- 772 (Physics of Semiconductor devices-graduate)
- 2- Phys- 774 (Solar Cells, graduate Course)
- 3- Phys- 471 (Solid State Physics)
- 4- Phys- 474 (Solar Cells)
- 5- Phys- 461 (Statistical Mechanics)
- 6- Arch-452 (Physics of Architecture; Acoustics and lightning)
- 7- Arch-451 (Solar Energy and Architecture Design)

- 8- Phys-433 (Thermal Physics) (at Physics Department, University of Arkansas, USA)
- 9- Phys-395 (Sources of Renewable Energy)
- 10- Phys-311 (Classical Mechanics)
- 11- Phys-395 (Solar and Renewable Energy) (using the internet)
- 12- Phys-281 (Optics)
- 13- Phys-251 (Modern Physics)
- 14- Phys-252 (Modern Physics Lab)
- 15- Phys-211 (Properties of Matter and Heat)
- 16- Phys-201 (Mathematical Physics)
- 17- Phys-221 (Properties of Matter and Heat Lab)
- 18- Phys-282 (Optics Lab)
- 19- Phys-283 (Waves and Vibrations)
- 20- Phys-200 (Introduction to Mathematical Physics)
- 21- Phys-101 & Phys-102 (General Physics 1 and 2)
- 22- Phys-105 and Phys-106 (General Physics Laboratory 1 and 2)
- 23- Phys-101A (General Physics, for Pre medical Students)
- 24- Phys-105A and Phys-106A (General Physics Laboratory 1 and 2, for Pre medical Students)

#### **AREAS OF INTEREST:**

- 1- Photovoltaic Effect and Solar Cells
- 2- Thin film Solar Cells
- 3- Preparation of nano-thin films
- 4- Crystallization of amorphous silicon thin films for solar cells applications
- 5- Characterization of amorphous and polysilicon thin films
- 6- Design of Solar Energy projects

#### **COMPUTER SKILL**

- 1- Professional in using personal computer and different types of software such as; Word-Perfect, Ms-Word, Excel, Grapher, Power Point,...etc.
- 2- Teaching courses using the Internet

#### **MEMBERSHIP:**

- 1- International Solar Energy Society
- 2- International Association for Hydrogen Energy
- 3- International Energy Foundation
- 4- Interagency Advanced Power Group

#### **REFERENCES:**

- 1- Prof. Hameed A. Naseem, Department of Electrical Engineering, 3217 Bell Engineering Center  
University of Arkansas, Fayetteville, Arkansas 72701. Tel: (479) 575-6052.  
E-mail: han@engr.uark.edu

- 2- Prof. Dr. A. Ecevit, Physics Department, Middle East Technical University, Ankara, Turkey.  
Tel: + 90 (312) 210-3296, E-mail: [ecevit@newton.physics.metu.edu.tr](mailto:ecevit@newton.physics.metu.edu.tr)
- 3- Prof. Surendra P. Singh, Department of Physics, University of Arkansas, Fayetteville, Arkansas 72701. Tel: (501) 575-7579, E-mail: [<ssingh@uark.edu](mailto:ssingh@uark.edu)
- 4- Prof. Dr. Fedda Alzoubi, Department of Physics, Jordan University of Science and Technology, Tel: 00962 (06) 7201000/22402, E-mail: [fedda@just.edu.jo](mailto:fedda@just.edu.jo)

## PUBLICATIONS:

- 1) **Adnan Shariah**, Crystallization of Hydrogenated Amorphous Silicon Thin Films Using Combined Continuous Wave Laser and Thermal Annealing, **Silicon**, 16, 4461–4470, (2024)
- 2) **Adnan Shariah** and Ehab Ali Al-Ibrahim. "Impact of Dust and Shade on Solar Panel Efficiency and Development of a Simple Method for Measuring the Impact of Dust." *Journal of Sustainable Development of Energy, Water & Environment Systems (JSDEWES)* 11, no. 2 (2023).
- 3) **Adnan Shariah** and Feda Mahasneh, Emitter layer optimization in heterojunction bifacial silicon solar cells, *J. Semicond.*, 43(12), 122701 (2023).
- 4) **Adnan Shariah** and Emad Hasan, Stationary Photovoltaic Concentrators for Bifacial Solar Panels, Design and Testing, **Clean Energy**, 7, 3, 509–518 (2023).
- 5) **Adnan Shariah** and Ma'in Bataineh, Electrical and Structural Properties of Crystallized Amorphous Silicon Thin Films, **Silicon**, 15: 2727-2735, (2023), [do.org/10.1007/s12633-022-02208-2](https://doi.org/10.1007/s12633-022-02208-2).
- 6) Ahmad. M. Alsaad, I. A. Aljarrah, A. A. Ahmad, Q. M. Al-Bataineh1, **A. Shariah**, M. A. Al-Akhras, A. D. Telfah. The structural, optical, thermal, and electrical properties of synthesized PEO/GO thin flms. **Applied Physics A** (2022) 128:676  
<https://doi.org/10.1007/s00339-022-05829-x>
- 7) E. Hamashaa, G. Masadeh, **A. Shariah**, M. M. Hamasha, K. Hamasha, Aluminum induced crystallization of amorphous silicon thin films with assistance of electric field for solar photovoltaic applications, **Solar Energy**, Volume 127, Pages 223-231, April 2016.
- 8) K. Hamasha, E. Hamasha, G. Masadeh, **A. Shariah**, M. Hamasha, Aluminum Induced Crystallization of Hydrogenated Amorphous Silicon Thin Films With Assistance of Electric Field for Solar Photovoltaic Applications, **Journal of Display Technology**, Volume 12, 01/(2016).
- 9) N. Al-Rousan, M. Al-Rousan, **A. Shariah**, H. Al-Najjar, Choosing the efficient tracking method for real time tracking system in Jordan and it's neighbors to get maximum gained power based on experimental data. International Conference Renewable Energy Research and Applications (ICRERA), 2012, Nagasaki, Joapan.
- 10) N. Al-Rousan, M. Al-Rousan, **A. Shariah** , A fuzzy logic model of a tracking system for solar panels in northern Jordan based on experimental data. International Conference Renewable Energy Research and Applications (ICRERA), 2012, Nagasaki, Joapan.
- 11) Deifallah Dajeh and **Adnan Shariah**, Effect of glazing type on solar heat gain through windows in Amman, Abhath Al-yarmouk "Basic Sci. & Eng.", Vol. 18, No 1, p. 27, 2009.
- 12) Hameed A. Naseem, Husam H. Abu-Safe, Marwan Barghouti, Maruf Hussain, Khalil Sharif, Ram Kishore, **Adnan Al-Shariah**, And William D. Brown "Large grain polycrystalline and epitaxial silicon films "Formed at low temperatures using metal-induced crystallization of

- hydrogenated amorphous silicon" Global Conference on Renewable Energy Approaches for Desert Regions, Amman, Jordan, 18-22 September **2006**.
- 13) **Adnan Shariah** " Effect of Window Area on Heating and Cooling Loads in Residential Buildings in Jordan". Global Conference on Renewable Energy Approaches for Desert Regions, Amman, Jordan, 18-22 September **2006**.
  - 14) **Adnan Shariah**, "Performace of Thermosyphon Solar Water Heaters In Jordan", Global Conference on Renewable Energy Approaches for Desert Regions, Amman, Jordan, 18-22 September **2006**.
  - 15) Sampath K. Paduru\*, Husam H. Abu-safe, Hameed A. Naseem, **Adnan Al-Shariah**, and William D. Brown "CW Argon-ion laser initiated aluminum induced crystallization of amorphous silicon thin films" Mat. Res. Soc. Symp. Proc. Vol. 808 (**2004**).
  - 16) M. Al-Dhafiri' H. A. El-Jammal' **A. Al-Shariah**' H. A. Naseem' and W. D. Brown, Influence of Nitrogen Trifluoride and Nitrogen Plasma Treatment on the Formation of Hillocks during Aluminum Induced Crystallization of a-Si:H". **Thin Solid Films**. Vol. 422, pp 14-19, (**2003**).
  - 17) **A. Shariah**, M-Ali Al-Akhras and I. A. Al-Omari, "Optimizing of Tilt Angle of Solar Collectors". **Renewable Energy**, Vol. 26, p. 587 (**2002**).
  - 18) **A. Shariah**, H. A. Naseem and S. Singh, "Low temperature and fast crystallization of a-Si:H by laser and thermal annealing for Photovoltaic applications", GlobeEx **2000**, Global Energy Exposition and Energex 2000, July 23-28, 2000. Las Vegas, Nevada, USA.
  - 19) Albiss, B.A.; Hasan, M.K.; Al-Akhras, M.A.; Al-Omari, I.A.; **Shariah, A.**; Shobaki, J. Azez, K.A.; Ozkan, H. " Dissipative behavior and gamma –irradiation of silver-sheathed Bi<sub>1.8</sub>Pb<sub>0.4</sub>Sr<sub>2</sub>Ca<sub>2</sub>Cu<sub>3</sub>O<sub>x</sub> tape". **Physica C**, Vol. 331, P. 297 (2000).
  - 20) A. Rousan and **A. Shariah**. "Effects of Operating Conditions on Design Parameters of a Thermosyphon Solar Water Heaters", IEC-2000, The First International Energy Conference 2000, May 7-9, 2000 Al-Ain, United Arab Emirates.
  - 21) **A. M. Shariah**, A. Rousan, Kh K. Rousan and A. A. Ahmad, "Effect of Thermal Conductivity of Absorber Plate on Performance of Solar Water Heaters". **Applied Thermal Engineering Journal**, Vol. 19, pp. 733-741 (**1999**).
  - 22) **Shariah**, D. Dajeh and N. Malhi, "Best Connection Scheme of Collector Modules of Thermosiphon Solar Water Heater Operated at High Temperatures". **Renewable Energy** Vol. 17, pp. 573-586 (**1999**).
  - 23) G. Akinoglu, **A. M. Shariah** and A. Ecevit "Solar Domestic Water Heating in Turkey" **Energy**, Vol. 24, pp. 363-374 (**1999**).
  - 24) **A. Shariah**, B. G. Akinoglu and A. Ecevit, Application of TRNSYS to the Mediterranean Climate of Turkey. **World Renewable Energy Congress V**, 20-25 September, Florence, Italy, (**1998**).
  - 25) **A. Shariah**, B. Shalabi, A. Rousan and B. Tashtoush, "Effects of Absorptance of External Surfaces on Heating and Cooling Loads of Residential Buildings in Jordan", **Energy onversion and Management**, Vol. 39, pp. 273-284 (**1998**).
  - 26) **A. Shariah** and B. Shalabi, "Optimal Design for Thermosyphon Solar Water Heater", **Renewable Energy**, Vol. 11, pp. 351-361 (**1997**).
  - 27) **A. Shariah** and G. O. G. Lof. "Effects of auxiliary heater on long-term performance of Thermosyphon solar water heater under variable operation conditions" **Solar Energy**, Vol. 60, pp. 119-126 (**1997**).

- 28) **A. Shariah**, B. Tashtoush, and A. Rousan. "Cooling and Heating Loads in Residential Buildings in Jordan", **Energy and Buildings**, Vol. 26/2, p. 137 (1997).
- 29) **A. M. Shariah** & G. O. G. Lof, "The Optimization of Tank Volume to Collector Area Ratio for Thermosyphon Solar Water Heater", **Renewable Energy**, Vol. 7, p. 289 (1996).
- 30) A. Rousan and **A. Shariah**. "Solar and Thermal Energy Gain Through Windows in Jordan" **Renewable Energy**, Vol. 7, pp. 251-269 (1996).
- 31) **A. M. Shariah**, Long-Term Performance of Thermosyphon Solar Water Heater in Jordan. Presented at the **5th Arabic International Solar Energy Conference**, 13-16 November Bahrain (1995).
- 32) **A. M. Shariah** & A. Ecevit. "Effect of Hot Water Load Temperature on the Performance of Thermosyphon Solar Water Heater with Auxiliary Electric Heater", **Energy Conversion and Management**, Vol. 36, pp. 289-296 (1995).
- 33) **A. M. Shariah**, D. C., Hittle, & G. O. G. Lof. "Computer Simulation and Optimization of Design Parameters for Thermosyphon Solar Water Heater" Presented at **SME/JSME/JSES International Solar Energy Conference**, at San Francisco, California, USA, pp. 393-391, March 27-30, (1994).
- 34) **A. M. Al-Shariah**, A. Ecevit " Natural Convective Heat transfer in Triangular Enclosure Having Various Aspect Ratios and Inclination Angles." **Turkish Journal of Physics= dogu Turk**. Vol. 16, No 5, P 340, (1992).
- 35) A. Ecevit, M. A. M. Chaikh Wais, and **A. M. Al-Shariah**, " A comparative Evaluation of the Performances of Three Built-in-Storage-Type Solar Water Heater." **Solar Energy**, Vol. 44, No. 1, P. 23, (1990).
- 36) A. Ecevit, **A. M. Al-Shariah**, and E. D. Apaydin." Triangular Built- in-Storage Solar Water Heater." **Solar Energy**, Vol. 42, No. 3, P. 253, (1989).
- 37) A. Ecevit and **A. M. Al-Shariah** "Experimental Study on Triangular Built-in-Storage Solar Water Heater." **International Mediterranean Congress on Solar and other New Resources**. Antalya (Turkey). 14-19 Nov. (1988).