

# Dr. Ayman Sweiti

## *Curriculum Vitae*

🏠 Palestine Polytechnic University  
☎ +972 598516300  
✉ sweitia@ppu.edu

### WORK EXPERIENCE

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**Assistant Professor of Physics** *2009-present*  
Department of Physics, Palestine Polytechnic University, Hebron, Palestine.

**Research Assistant Professor of Physics** *2006-2008*  
Department of Physics, Florida Atlantic University, Boca Raton, Florida, USA.

**Adjunct Instructor** *2003-2006*  
Department of Physics, Florida Atlantic University, Boca Raton, Florida, USA.

**Adjunct Instructor** *1999-2006*  
Science Department, Palm Beach State Community College, Boca Raton, Florida, USA.

**Teaching Assistant** *1999-2003*  
Department of Physics, Florida Atlantic University, Boca Raton, Florida, USA.

### RESEARCH EXPERIENCE

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**Quantum Optics** *2006-2008*  
Florida Atlantic University, Boca Raton, Florida, USA  
Transfer of orbital angular momentum states through space via laser beams that involve production of states, propagation, sorting, manipulating light beams, wavefront control and optical signal processing using computer generated holography.

**Photoluminescence and Raman Spectroscopy** *2003-2007*  
Florida Atlantic University, Boca Raton, Florida, USA  
Probing the electronic structure of semiconductors, Bandgap determination, impurity levels, defect detection, and recombination mechanisms.

**X-Ray Fluorescence** *1990-1992*  
University of Jordan, Amman, Jordan  
Using XRF as a non-destructive analytical technique to determine trace element analysis, thin film characterization, and quality control on environment by monitoring toxic pollutants in air, water, soil, and food.

### TECHNICAL EXPERIENCE

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**LabVIEW Programming**  
Data acquisition, signal processing, temperature control systems. Configuration of a motion control system; motion trajectories; feed back control loops. Data acquisition involving analog I/O; digital I/O; analog triggering. Installation and configuration of the hardware interface and using LabVIEW software to build a specific application. I could use Arduino to do less advanced applications than LabVIEW.

### EDUCATION

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1999 – 2003 **Doctor of Philosophy**  
Physics  
*Florida Atlantic University, USA*

1990 – 1992 **Master of Science**  
Physics  
*University of Jordan, Jordan*

1987 – 1990 **Bachelor of Science in Physics**  
Physics  
*University of Jordan, Jordan*

### AWARDS

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Drs. Ayman Sweiti, Warner Miller, Mark Gruneisen, Mr. Raymond Dymale awarded the United States Air Force Research Laboratory Team Research Paper of the Year 2007. January 30th, 2007.

### COMPUTER SKILLS

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Computer skills in Matlab, Origin Lab, L<sup>A</sup>T<sub>E</sub>X, MS Word, Excel, Access, PowerPoint, and Webpage design. Excellent experience educational technology applications, web-based course delivery, and distance learning instruction in online learning using different platforms such as Canvas, Blackboard, E-learning, and Moodle.

### PROFESSIONAL AFFILIATIONS

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American Physical Society

### PATENTS

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Ayman Sweiti and Warner Miller, A Digital Sorter of Photon Beams That Carry Orbital Angular Momentum, application pending.

### TALKS GIVEN AT

### INTERNATIONAL CONFERENCES

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Characteristics of the Near Field Diffraction of Laguerre-Gaussian Modes Using Computer Generated Holograms  
Quantum Communication with a Twist: QKD via Photon Orbital Angular Momentum (OAM). APS meeting, Denver, Colorado, March 8, 2007.

## TRAINING COURSES

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### **Project design**

*January 31, 2011 to February 4, 2011*

International Atomic Energy Agency (IAEA). Vienna, Austria  
Using Logical Framework Approach (LFA) to design, monitor and evaluate international development projects supported by the International Atomic Energy Agency

### **Fellowship in radiation shielding and commissioning**

*June 1, 2013 to August 30, 2013*

Florida Atlantic University, Florida, USA

### **Scientific visit**

*January 14, 2013 to January 28, 2013*

International Atomic Energy Agency (IAEA). Vienna, Austria  
Scientific visit includes training in the field of applied atomic and nuclear spectroscopic techniques and their various applications. Topics include total reflection x-ray fluorescence spectrometry, energy dispersive x-ray fluorescence spectrometry, gamma ray spectrometry

## COURSES TAUGHT AND DEVELOPED

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### **Undergraduate:**

Quantum Mechanics I, Quantum Mechanics II, Classical Mechanics, Electrodynamics, Solid State Physics, Modern Physics, Optics, Thermal Physics, Atomic and Nuclear Spectroscopy, General Physics (1<sup>st</sup> and 2<sup>nd</sup> semester calculus and non-calculus base), Physics for Life Sciences.

### **Graduate:**

Quantum Mechanics, Classical Mechanics, Electrodynamics, Statistical Mechanics.

## INVITED SEMINARS AND

## WORKSHOPS

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Photoluminescence spectroscopy of  $\text{Cd}_x\text{Zn}_{1-x}\text{Se}$ . Florida Atlantic University, Boca Raton, Florida, January 23, 2004.  
Project design workshop at the international atomic energy agency (IAEA), Vienna, Austria, 31 January - 4 February 2011.

## PUBLICATIONS AND PREPRINTS

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A. Sweiti, F. Medina, L. Martinez, and A. Lopez-Revera, Photoluminescence spectroscopy and effective concentration determination of  $\text{Cd}_x\text{Zn}_{1-x}\text{Se}$ , journal of semiconductors science and technology, 23, 035019, 2008

M. T. Gruneisen, W. A. Miller, R. C. Dymale, and A. Sweiti, "Holographic generation of complex fields with spatial light modulators: Application to quantum key distribution," Applied Optics, Vol. 47, Issue 4, pp. A32-A42, 2008