Dr. Amani Gandour

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EDUCATION

Uppsala University, Sweden (1991 – 1995)

Ph.D. in Physics, 1995

Filosofie Licentiat in Physics, 1993

University of Khartoum, Sudan (1981 – 1991)

MS in Physics, 1991

BS in Physics, 1986

Major: Mathematics with Honor in Physics.

TEACHING EXPERIENCE

Effat University (2007 – Now)

- Assistant Professor of Physics, at the Natural Sciences, Mathematics, and Technology Unit, College of Engineering.
- Instructor in Mawhiba Program which is sponsored by "King Abdulaziz & his Companions Foundation for Giftedness & Creativity" Summer 2011, Summer 2012, Summer 2013, Summer 2014, Summer 2015, Summer 2016, Summer 2017.

University of the Sciences, Philadelphia, USA **(2002 – 2007)**

- Assistant Professor of Physics, at the Department of Mathematics, Physics and Computer Science, Misher College of Arts and Sciences.

Al-Aqsa Islamic Academy, Philadelphia, USA **(1999 – 2001)**

- Head Teacher of Mathematics and Science.

University of Pennsylvania, Philadelphia, USA **(1996 – 1999)**

- Project Supervisor at the Laboratory for Research on the Structure of Matter (LRSM).

Uppsala University, Uppsala, Sweden **(1993 – 1995)**

- Teaching Assistant, Mathematics and Science for Middle and High School

University of Khartoum, Khartoum, Sudan **(1985 – 1989)**

- Teaching Assistant at the Department of Physics College of Science

Omdurman Al-Ahlia University, Omdurman, Sudan **(Fall 1988)**

- Lecturer at the Department of Physics College of Science

RESEARCH EXPERIENCE

Effat University (2007 – Now)

Assistant Professor.

• Physics Education Research (2008 – Now)

University of the Sciences in Philadelphia (Jan. 2002 – 2007)

Assistant Professor.

• Developing an Inquiry-Based teaching and learning; physics and mathematics integrated model, during Summer Institute for Middle Grade Science Teachers (Summer 2006 and Summer 2007).

• Research in physics education. Mathematics and physical science curriculum teaching development applied to middle and high School Level. (2004-2005)

University of Pennsylvania (March 1996 – 1999)

Visiting Scholar

• Investigated gel formation using Diffuse Photon Density Waves during cheese making process.

• Monitored the heterogeneous flow of opaque colloidal mixtures.

• Designed a Diffuse Transmission Spectroscopy setup incorporating a varying wavelength light source, integrating sphere, optical detection system, electronics and computer-apparatus interface.

• Analyzed experimental data using computer models.

Uppsala University (Sep. 1989- April 1995)

Research Assistant

• Performed Mössbauer Spectroscopy experiments for magnetic, non-magnetic and superconducting systems.

• Experienced in analyzing data using statistics based computer models.

• Expert in local probe methods to study how the microscopic properties of a material such as crystal and electronic structures are related to its macroscopic properties.

• Used the hyperfine structure changes to get information on local atomic arrangements, chemical state, magnetic state, electron-density variations, and lattice dynamics.

• Calculated, with in the Local Density Molecular cluster approach, the hyperfine field and electric field gradient on Cd probe atoms at 3d-transition-metal surfaces.

• Contributed to original changes to the computer-code to enhance its performance.

• Performed calculations on different bulk-like clusters of Fe and FeF2. Directed and supervised graduate and undergraduate students in research projects.

University of Khartoum (Nov.1986- Jul. 1989)

Research Assistant

• Calculated mathematically the contributions of conduction electrons to the contact magnetic field.

• Studied soil samples using Mössbauer Spectroscopy.

• Analyzed data using computer programs and geographical information about the sites

PUBLICATIONS

- A. Gandour and A. Salih, workshop presentation: "***Course Assessment as a Means of Linking SLO's to PLO's***", 2nd ICA-Qiyas 2015, Riyadh, KSA, Dec 2015.
- Workshop Presentation: "***Development of a Social Media Curriculum for High School Students***", the 8th annual learning and Technology Symposium, 2010.
- Presentation: "Edutainment Applied to the Classroom: ***Learning Physical Concepts Through Personal Response Device***", the 7th annual Learning and Technology Symposium, 2009.
- Presentation: "***The Use of Personal Response Devices in the Classroom***", the 6th annual Learning and Technology Symposium, 2008
- Amani M. Ghandour*, Lennart Häggstrom and Kristina Edstom, "***^{57}Fe Mössbauer Studies of Ba^{2}+ -doped Potassium Ferrite***". J.Phys.,Condensed Matter 7(1995)5657.
- Amani M. Ghandour*, Tore Ericsson, Per Nordblad and Per Onnerud, "***α-Co_2As Studies ^{57}Fe - Mössbauer Spectroscopy, SQUID Magnetometry and Neutron Diffraction***". Conference proceedings Vol. 50 "ICAME '95". I. Ortalli (Ed.) .SIF, Bologna, 1996.

- Rolf Berger, Lars-EricTergenius, Amani M.Ghandour* and Lennart Häggstrom; "***Magnetic Coupling in Two Isostructural Complex Iron Germanides Containing Silicon or Phosphorus***" Manuscript.
- B. Lindgren and A.M. Ghandour*, "***Calculations of the Cd hyperfine field and EFG on Ni surfaces***". Hyperfine Interactions 78(1993)291.
- Amani M. Ghandour* and Bengt Lindgren, "*Magnetic Hyperfine Fields and Electric-Field Gradients on 3d Metal Surfaces*". Submitted to J. Surface Sci. (1996).
- Amani M. Ghandour*, Lennart Häggstrom, Pedro Berastegui, Lars-Gunnar Johansson and Johan Magnusson, "***Mössbauer Study of ^{57}Fe Doped $YBa_2Cu_4O_8$ and $Y_2Ba_4Cu_7O_{15-y}$ Superconductors***". Physica Scripta 52(1995)395.
- A.M. Ghandour*, L. Häggstrom, B. Nolang, "***Mössbauer Studies of ^{57}Fe-Doped 3d Transition-Metal Monopnictides***". Manuscript.
- E. Lindstom, A.M. Ghandour*, L. Häggstrom and Y. Andersson, "***X-ray Diffraction and Mössbauer Studies of CeT_2Sn_2 (T=Cu, Pdand Pt)***". J. Alloys Comp. 232(1996)95.
- Lennart Häggstrom, Erik Nordstrom and Amani Ghandour*, "***Lattice Softening in the Superconductor $YBa_2Cu_4O_8$***" ICAME'96. Accepted Il Nuovo Cimento (1996).

*I was also publishing under the name Amani Ghandour.

PATENTS

PRESENTATIONS

- Attendance and participation in the Second International Conference in Assessment and Evaluation (ICA-Qiyas 2015)
- Annual Participation in Learning and Technology Symposium at Effat University.
- Participated many conferences and symposia in Sweden, Denmark, Sudan, and USA concerning Spectroscopy, Material Physics, and Condensed Matter Physics.
- Attended many workshops in Electronics, and Electronic Circuits.
- Attended the Annual Meeting of the American Association of Physics Teachers Pennsylvania Chapter.

GRANTS AND FELLOWSHIPS

- University of the Sciences, the Lindback Foundation Minority Junior Faculty Award Grant, 2004 – 2006.
- University of Pennsylvania, Post doctoral Fellowship, 1996 – 1999.
- Uppsala University, Doctoral fellowship 1991 – 1995.
- The International Atomic Energy Agency (IAEA) Scholarship through ISPP 1999 – 1991.
- The International Programs in the Physical Sciences, Sweden, Scholarship, 1989 – 1990.

- University of Khartoum, Faculty of High Studies, Master of Science Scholarship 1986 – 1988.

AWARDS AND HONORS

- Queen Effat Award for Excellence in Teaching for Outstanding Teacher Performance for 2018 – 2019.

THESIS SUPERVISIONS

PROFESSIONAL MEMBERSHIPS

American Physical Society

RELEVANT SKILLS

- Experienced in written and oral presentation of material to international audiences.
- Possesses high self-teaching skills and techniques.
- Command strong self-motivation discipline with the initiative to work well within a group environment.
- Extensive experience, in developing and analyzing, quantitative models of complex systems.

REFERENCES