**C.V**

**Prof. Sami M. AL-Jaber Department of Physics**

**AN-Najah National University Nablus, West Bank, Palestine.**

**Name:** Sami Mohammad AL-Jaber

**Birth:**  Jan. 26, 1959

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**Position:** Distinguished Professor in theoretical physics.

Department of physics, An-Najah N. University, Nablus, Palestine.

**Education:**

* PhD : Theoretical physics, SIU-C, USA, 1991.
* M.A: Theoretical physics, SIU-C, USA, 1985.
* B.Sc. : Physics, An-Najah N. University, 1982.

**Academic Experience:**

* Distinguished professor: 2016 – present.
* Professor: 2003 – 2016.
* Associate professor: 1998 – 2003.
* Assistant professor: 1992 – 1998.
* Visiting professor: 1991-1992, physics department, SIU-C, USA.
* Teaching undergraduate, Master, PhD courses in theoretical physics.

**Administrative Experience:**

* Vice President for Academic Affairs: ANNU, August 18, 2013 – Aug. 2014.
* Dean of faculty of Science: ANNU, July 2012 – August 17, 2013.
* Dean of scientific research: ANNU, Jan. 2012 – July 2012.
* Dean of graduate study & scientific research: Sabbatical leave, PTUK, 2009-2010.
* Dean of scientific research: ANNU, 2007 – 2009.
* Dean of faculty of science: ANNU, 2004 – 2007.
* Dean of graduate study: ANNU, 2002 – 2004.
* Chairman of Department of Natural Sciences for graduate studies, ANNU, (Oct. 2000 – Oct.2002).
* Chairman of Physics Department, ANNU, (Oct. 1999 – Oct.2000).

**Professional positions:**

* Member in Higher council of Excellence & Innovation, 2012 – 2016.
* Member of Higher education council, 2021 – present.
* Member of scientific research council at ministry of higher education.
* Promotion committee member, PTUK: 2012 – 2022.
* Promotion committee member, ANNU: 2017 -2019.
* Promotion committee member, ANNU: 2007 -2009.
* Member of University Council, ANNU, Nablus, ( 1999 – 2014).
* Member of Dean's Council, ANNU, Nablus, Palestine, (2002 – 2014).
* Member of the college of sciences council, ANNU, Nablus, (1995 – 1996, 1998 – 2000, 2004 – 2007, 2012 - 2013).
* Member of the graduate school council, ANNU (2000 – 2004).
* Editorial Board member, AN-Najah J. Res., ANNU, 1999 – 2001, 2007-2009.
* Chairman of promotion committee in physics, ANNU, over 10 years.
* Member of University Council, ANNU, ( 1999 – 2014).

**Professional activities:**

* Editorial member in Journal of Modern Physics 2011 – present.
* Currently: Chairman of committee of quality & development of all Master and PhD programs at ANNU.
* Board of trustees member of school for gifted and talented students.
* Chairman of PCMTMP II, ANNU, 2-4, Aug. 2010.
* Signing mutual scientific agreement between CERN & ANNU, 2013.
* Establishing MOU between Paris Sud. XI & ANNU, 2005.
* Reviewing many papers in international physics journals.
* An official invitation for one week visit to Singapore to discuss higher education, research and development – Singapore case, 2015.
* Evaluator of many applications for promotion to associate & full professors.
* Evaluator of some graduate physics programs at some universities.
* Coordinator of PhD physics program at ANNU.
* Chairman of committee for establishing Applied physics and technology program at ANNU, which is under review at MOHE.
* Member of organization committee for the second physics conference, ANNU, 2007.
* Member of the organization committee of mathematics and physics conference at Bir Zeit university, July, 2008.
* Member of the organization committee of mathematics and physics conference at Bir Zeit university, July, 2022.
* Member of the Institute of Physics (IOP), London, United Kingdom.
* Physics graduate committee member, Physics department, ANNU, over 15 years.
* Physics research committee member, Physics department, ANNU, over 10 years.
* Chairman of organization committee for physics conference, ANNU, 2000.

# Awards & Prizes

* Amideast Scholarship, Washington D.C., USA, 1983 – 1985.
* Dissertation Research Award, graduate school, SIU – C, Carbondale, Illinois, USA, 1990.
* The Islamic bank Award in Physics and Chemistry, 2005. Participant.
* AN-Najah Research Prize in natural Sciences, 2007.
* PFDP teaching excellence award 2010.
* Best oral presentation in Doha conference, 2015.

# Conferences and workshops:

* APS March Annual Meeting, St Louis, MO, USA, 1989.
* Summer School of High Energy Physics and Cosmology, International Center for Theoretical Physics (ICTP), Trieste, Italy, 1989.
* Illinois Physics Teacher Association, St. Louis, MO, USA, 1990.
* Condensed matter workshop, International Center for Theoretical Physics (ICTP), Trieste, Italy, 1994.
* DAAD sponsored visit, Invited by Prof. Beckmann, University of Mainz, Mainz, Germany, summer 1995.
* Second Symposium on Magnetism and Magnetic Materials, Yarmouk University, Irbid, Jordan, 1996.
* British Council sponsored visit, Invited by Sir Prof. Michael Berry, Bristol university, Bristol, United Kingdom, 1998.
* Fourth International Conference on Condensed Matter Physics, University of Jordan, Jordan, 2000.
* Seventh Petra School in Physics, University of Jordan, Jordan, 2000.
* International Conference on Condensed Matter Physics, ANNU.
* University of Paris sponsored visit, Invited by Prof. Roland Lombard, University of Paris Sud XI, Orsey, France, 2003.
* University of Paris sponsored visit, Invited by Prof. V. Rivasseau, University of Paris Sud XI, Orsay, France, 2005.
* Aleppo University, Syria, College of sciences Dean's meeting, Nov., 2006.
* Electrostatic Conference 2007, Oxford, U.K, March 25-29, 2007.
* Second Physics conference, An-Najah National University, May 7-8, 2007.
* CICUP meeting 2007, Paris, France, Nov.6, 2007.
* Research Development. March Meeting 2008, Ministry of Higher education, Ramallah.
* Invited speaker at International conference on modern trends in mathematics and physics, July 28-30, 2008. Birzeit university, Ramalla, Palestine.
* Nanotechnology conference, Nov. 10-13, 2008, Jordan university.
* Cairo Conference on FP7 calls, May 18 – 19, 2009.
* CMMP IOP conference, University of Warwick, UK, Dec. 16-18, 2009.
* International workshop on advanced materials. Ras AL-Khaimeh, UAE, Feb.16- 18, 2010.
* DAAD sponsored visit, Invited by Prof. A. Hujeirat, University of Heidelberg, Heidelberg, Germany, Summer 2011.
* Modern Trends in Mathematics & Physics: Summer 2012.
* EPIC Scholarship visit, Technique University of Berlin, June 3 – July 3, 2013.
* Avepace II short visit, Technique University of Berlin, June 1 – July 1, 2014.
* Fiftieth Anniversary of ICTP visit, Trieste, Italy, October 2014.
* Doha conference, January 2015, Best oral presentation in the conference.
* EL-Gouna conference, October 2015. EL-Gouna, Egypt.
* Second International conference on nanotechnology and materials, an-Najah N. University, March 24 -25, 2016.
* Work shop on higher educations at AL-Quds University, May 2-3, 2016.
* Short visit at Bristol University, UK, July 20 –August 15, 2016.
* 90 Years of Quantum Mechanics conference at NTU, Singapore, January 23-26, 2017.
* DAAD two months visit to Heidelberg University, Germany. May 18-July 18, 2017.

**Publications:**

1. Sami M. AL-Jaber and Walter C. Henneberger (1990). The restricted rotor: the effect of topology on quantum mechanics. J. Phys.A: Math. Gen. 23, 2939.
2. Sami M. AL-Jaber, Xingshu Zhu, and Walter C. Henneberger (1991). Interaction of a moving magnetic dipole with a static electric field. Eur. J. Phys.12, 268.
3. Sami M. AL-Jaber and Walter C. Henneberger (1992). Topological considerations in quantum theory. IL. Nuovo Cimento, 107B, No.1, 23.
4. Sami M. AL-Jaber and Walter C. Henneberger (1992). Momentum conservation in theAharonov – Bohm effect. IL. Nuovo Cimento, 107B, No.4,485.
5. Sami M. AL-Jaber (1995). Momentum conservation in the Aharonov – Casher effect. IL. Nuovo Cimento, 110B, No.8, 993.

6 Sami M. AL-Jaber and Walter C, Henneberger (1995). Decay of the charged harmonic oscillator. AN-Najah J. Res. 3, No.9,

1. Sami M. AL-Jaber (1995). Quantization of angular momentum in the N- dimensional space. IL. Nuovo Cimento, 110B, No.8, 1003.
2. Sami M. AL-Jaber (1996) . Origin of the Darwin term. AL-Manarah, 1, No.3, 47.
3. Sami M. AL-Jaber (1997). On the radial part equation of the wave function inN dimensions. IL. Nuovo Cimento, 112B, No. 5, 761.
4. Sami M. AL-Jaber (1998). The fine structure of the hydrogen atom in N dimensions. IL-. Nuovo Cimento, 113B, No. 5, 651.
5. Sami M. AL-Jaber (1998) . Hydrogen atom in N dimensions. International

J. Theor. Phys. 37, No.4, 1289.

1. Sami M. AL-Jaber (1999). Fermi gas in D – dimensional space. International J. Theor. Phys., 38, No. 3, 919.
2. Sami M. AL-Jaber (2000). N – Dimensional bound states for an inverse fraction power potential. AN-Najah J. Res., 14, 53.
3. Sami M. AL-Jaber ( 2000). The second derivative of a delta – function potential: An exactly solvable model. IL. Nuovo Cimento, 115B, No. 12, 1397.
4. Sami M. AL-Jaber and Subhi K. Salih ( 2000 ). Energy consideration in the two- capacitor problem. Eur. J. Phys., 21, No. 6, 341.
5. Sami M. AL-Jaber ( 2001). Evaluation of the product of a finite sum of associated Legendre Polynomials. AL – Manarah
6. Sami M. AL-Jaber ( 2001). Ground – state energy of the N – dimensional atoms. IL. Nuovo Cimento, 116B, No. 5, 593.
7. Sami M. AL-Jaber ( 2001). Photoionization of a one – electron N – dimensional atom. International J. Theor. Phys., 40, No. 11, 2045.
8. Sami M. AL-Jaber ( 2002). Some aspects of an infinite N – dimensional spherical potential well. Pakistan J. of Applied Sciences, 2, No. 2, 228.
9. Sami M. AL-Jaber ( 2003). Planck's spectral distribution law in N dimensions. International J. Theor. Phys., 42, No. 1, 111.
10. Sami M. Al-Jaber (2002). Harmonic oscillator in an impenetrable spherical well. IL. Nuovo Ciminto, 117B, No. 4, 433.
11. S.M. AL-Jaber and R.J. Lombard (2005). Connection Between the

Moments of the Ground-Stae Density in N-Dimensional Space. J. Phys. A: Math. Gen. 38, 4637.

1. S. M. AL-Jaber (2005). Strongly Singular Potentials in One dimension Najah. J. Res. 19.
2. A. M. Abu-Labdeh and S. M. AL-Jaber, 2008. Energy consideration from non-equilibrium to equilibrium state in the process of charging a capacitor. Journal of Electrostatics, Vol. **66**, 190 – 192.
3. S.M. AL-Jaber (2008). A confined *N*-Dimensional Harmonic Oscillator. Int. J. Theor. Phys., Vol. 47, no.7, 1853-1864.
4. S. M. AL-Jaber (2008). Harmonic Oscillator in an Impenetrable, *N*- Dimensional Spherical Well. Union Arab Journal., Vol.6, p.1-13.
5. S. M. AL-Jaber (2008). Ideal Bose Gas in Higher Dimensions. AN-Najah J. Res., vol. 22, p. 167-180.
6. S. M. AL-Jaber (2008). Degenerate Electron Gas and Star Stabilization in D Dimensions. Nuovo cimento Vol. 123B, no. 1, 17-2
7. M. Shaqqoor and Sami M. AL-Jaber (2009). A confined hydrogen atom in higher space dimensions. International Journal of Theoretical Physics, Vol. 48, no.8, 2462-2472.
8. S. M. AL-Jaber (2010) Energy and Momentum Considerations in an Infinite Solenoid. JEMAA, vol. 2, 169-172.
9. S. M. AL-Jaber (2010) Multidimensional Electrostatic Energy and Classical Renormalization. J. Natural Science, Vol. 2, no. 7, 760-763.
10. S. M. Al-Jaber (2010) Variational Methods for Ground State energy of Helium Atom in Higher Space Dimensions. IL-Nuovo Comento B, Vol. 125, no. 9, 1099-1108.
11. S. M. AL-Jaber (2010) Some Remarks on approximation methods for quantum systems in higher space dimensions. JAAUBAS, Vol. 9, 18-22.
12. S. M. AL-Jaber and Abdel-Rahman Abu-Labdeh (2011) Effect of a magnetic field on atomic orbital. J. Modern Phys., Vol.2, 1-4.
13. S. M. Al-Jaber and A. R. Abu-Labdeh (2011) Energy Consideration in Process of Transition Equilibrium State. J. Natural Science, Vol. 3, No.2, 136-140.
14. S. M. AL-Jaber (2011) Path Integral Approach to Faraday's Law of Induction, JEMAA, Vol.3, No.6, 184-186.
15. S. M. AL-Jaber (2013) , Solution of the Radial N-Dimensional Schrödinger Equation Using Homotopy Perturbation Method, Romanian J. Physics.
16. S. M. AL-Jaber (2013) Role of Angular Impulse Exerted on a Moving Electron in a Magnetic field, N. J. Res. Vol. 27, Issue 1, 151 – 158.
17. S. M. AL-Jaber (2015) Generalization of Faraday’s Law of Induction: Some Examples, J. Advances in Physics, vol. 8, no.1, 1982-1987.
18. S. M. AL-Jaber (2016) Uncertainty Relations for Some Central Potentials in

*N-* dimensional Space, Applied Mathematics, Vol. 7, pp. 508-517.

1. Sami M. Al-Jaber, Iyad Saadeddin (2020) Theoretical and Experimental Analysis of

Energy in Charging a Capacitor by Step-Wise Potential, JAMP, VOl. 8, no. 1

1. Sami AL-Jaber (2019) Application of Exponential Kernel to Laplace Transform, J. of Applied mathematics and physics, vol, 7, no. 5.
2. Sami M. Al-Jaber, Iyad Saadeddin (2019) Fourier-Series Representation of Discontinuous Functions and Its Physical Applications, Applied mathematics, Vol. 10, no. 4.
3. A. Jabr, A. Shaer, S. Mukheimer, Sami AL-Jaber (2022) Nunerical calculations of energies for an infinite potential well with sinusoidal bottom, J. J. physics, Vol. 15, no. 5, 469 – 476.

# Research Interest:

* N – dimensional problems in quantum theory and mathematical physics.
* Confined quantum systems
* Aharonov – Bohm and Aharonov – Casher effects and their applications.
* Point interactions or the so called zero – range potentials.
* Fundamental problems in the foundations of quantum mechanics.

**My personal vision on higher education:**

To deliver highly motivated graduates with scientific critical thinking , innovative skills in their fields, and possess high capability to contribute to the economic and development of the nation and to the mankind prosperity.

## A statement of Teaching Philosophy

As a professor of theoretical physics, I am interested in teaching students to develop critical and creative thinking ability, which is consistent with university mission. Critical thinking and problem-solving skills are some of the most important assets that physics has to offer students regardless of their major field. This necessarily requires teaching effectiveness which implies the ability to instill in students the love of learning and teach them that the real value in their education is not found in their grade point average, but in knowledge and way of thinking that

they take away when they graduate. It is imperative that I do everything I can to see that they leave classroom with critical thinking and problem-solving skills to face future challenges, as well as an appreciation of the beauty and wonder of physics and the natural universe.

The pedagogy of teaching physics presents unique challenges. For undergraduate students, great effort must be made to engage them in the learning process. For graduate students, topics are far more specialized and focused, so students do not need to be convinced for the value of experience since they are there because they choose to be. I strongly believe that to be an effective professor, I need to be current in literature and research. Scholarly research and teaching effectiveness are intertwined and inseparable. Fore example, I have some publications that deal with basic concepts and fundamentals in physics at the freshman students level and others at senior level in the field of quantum mechanics. I usually touch the results of these publications in teaching relevant courses and my observation tells that this stimulates the awareness and curiosity of students. Therefore, my approach in teaching is a reflection of my approach to physics research. It gives a pleasure in attacking complex problems, not because they are complex, but because by breaking them down and systematically unraveling the mysteries they hold I can hope to gain insight into the fundamental physical principles at their core.

Active teaching techniques and interaction in the classroom are great tools when used in an appropriate and effective manor. So as a physics professor, I implement different teaching styles to meet different learning styles of students, e.g lecturing, solving home work style problems, asking peer-instruction questions, and demonstrations. Learning is a journey with a professor and students walking together through the material. The journey is easier to follow if there are clear objectives and goals and boundaries laid out at the beginning of the semester. These form the basis of the journey, same as the road map of a tour journey in a big crowded city like Chicago.

Since physics is about mastering concepts, students need to be challenged by throwing less information and formulas but more understanding. To keep students engaged, starting with my own

enthusiasm for the subject, exciting demos, and humorous examples. Physics is built on the notion that a few physical laws govern the world around us, students respond favorably when I connect physics to real-life situations. Challenging students to think about what they observe in everyday situation is a great way to open their mind. I spend most of class time discussing and applying major results rather than detailed derivation. My focus on ideas and concepts and understanding extends beyond classroom. On home works and exams, I require students to

explain and illustrate their work. All the exams I give (except introductory physics courses) are open book ones. This allows enough time for students to spend on understanding the ideas, concepts, and the mathematical formulas, and to learn how and when to use them for solving problems. Student always come to my office and express their appreciation for my strategy of lecturing and open book exams, rather than just memorizing formulas for the exam and forget them afterwards. I also noticed that students subject to this learning strategy feel and taste the beauty of physics and they acquire high self confidence in what they learn.

It is important for the professor to be well prepared for class with well-thought out lesson plans and materials. A successful professor makes objectives clear and breakdown concepts into pieces being small enough to digest, but contain enough substance to remain interesting. This keeps students engaged and continued to be motivated.

I feel very strongly that to be an effective professor, I need to treat students with respect. I must attempt to know each student strength and weaknesses, and accommodate comments and questions at any time. My job is not to show them what I know, but to teach them what they need to know and above all to facilitate their learning.

I must mention here that this teaching philosophy is in part founded during my graduate study for the M.Sc and Ph.D degrees in Illinois in the United States. There I met some great professors who had their impact and influence on my vision of teaching philosophy.

# References:

1. His excellence Prof. Marwan Awartan, Minister of education.
2. Prof. Ali Zaidan, president of AAUJ.
3. Prof. Abdel-Naser Zaid, president of ANNU.
4. Prof. Sir.Michael V. Berry, H.H. Wills Physics Laboratory, Royal Fort, Tyndall Avenue, Bristol University, Bristol, United Kingdom.
5. Prof. Roland Lombard, IPN, Physics Department, University of Paris Sud XI, Orsey, Paris, France.
6. Prof. Walter C. Henneberger, Physics Department, Southern Illinois University, Carbondale, IL., USA.