

## CURRICULUM VITAE

### Distinguished Professor Dr. Mohammed M. Shabat

**Position Title:** Professor of Theoretical Physics and Applied Mathematics

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**Date of Birth:** 26 May 1960

**Sex:** Male

**Websites:** <http://site.iugaza.edu.ps/shabat/>, [www.ico-optics.org/ico\\_jan07.html](http://www.ico-optics.org/ico_jan07.html), <http://www.oe.uni-duisburg-essen.de/persons/shabat/index-eng.asp>, <http://www.ico-optics.org/Goldenbook.html>

[http://www.webmedcentral.com/advisory/advisory\\_member\\_details/3030](http://www.webmedcentral.com/advisory/advisory_member_details/3030)

**Awards and Prizes:**

1. The TWAS Arab Regional Prize for 2016, Building Scientific Institutions, The World Academy of Sciences for the advancement of science in developing countries- Arab Regional Office), Egypt, 2016
2. ICPSR, ISSESCO Prize in Science and Technology, Islamic Educational, Scientific and Cultural Organization (ISESCO), 2010, <http://www.isesco.org.ma/english/prizes/sc/Technology%202010.php>, <http://www.isesco.org.ma/english/news/news.php?id=1046>.
3. ICO Galileo Galilei Award 2006, <http://www.ico-optics.org/awards.html>.
4. Shoman Prize for the Arab Youth Scientist, [www.shoman.org](http://www.shoman.org), Jordan 1995.
5. The Distinguished Scholar Award, the Arab Fund Fellowship Program, <http://www.arabfund.org/Felship-e.HTM>, Kuwait, 2007
6. The Alexander von Humboldt Foundation Fellowship, [www.avh.de](http://www.avh.de), Germany, 1998-2007.
7. Laureate of the IBC's (International Biographical Centre), Leading Educators of the World, <http://www.internationalbiographicalcentre.com/>, Cambridge, U.K, 2005.
8. Scientific Research Award for Natural and Engineering, Islamic University of Gaza, Gaza Strip, 2005.

**Education & Qualifications**

1978 GCSE in Science, Beit -Hanuan Secondary School, Gaza

1984 B.Sc. in Physics (Very Good with honours degree), Al-Azhar University (Cairo, Egypt)

1990 PhD in Computational and Theoretical Physics, Electromagnetic Waves (Optical Science), Salford University, Manchester, (U.K) , [www.salford.ac.uk](http://www.salford.ac.uk)

**Professional Experience:**

2011- Present Distinguished Professor of Physics, Islamic University, Gaza, Palestine, [www.iugaza.edu.ps](http://www.iugaza.edu.ps),

2008- 2011 Professor of Physics, Islamic university, Gaza, Palestine, [www.iugaza.edu.ps](http://www.iugaza.edu.ps),

2006-2008 Visiting Professor, Max Planck Institute for the Physics of Complex Systems, Nöthnitzer Straße 38, 01187 Dresden, Germany, [www.mpi-pks-dresden.mpg.de](http://www.mpi-pks-dresden.mpg.de)

2000 - 2006 Professor of physics, Physics Department, Islamic University of Gaza (IUG), Gaza, Palestine, [www.iugaza.edu.ps](http://www.iugaza.edu.ps)

1998-1999 Visiting Professor, Institute of Opto-electronics ZHO, Faculty of Electronic and Electrical Engineering, Gerhard Mercator University, Lothar Strasse 55, 47057 Duisburg, Germany, <http://www.oe.uni-duisburg-essen.de/persons/shabat/index-eng.asp>

1996- 2000 Associate Professor at Physics Department, Islamic University, Gaza, Gaza Strip

1992-1995 Assistant Professor, Physics Department, Islamic University, Gaza, Gaza Strip

Jan.1992-Sept.1992 Research Fellow at Department of Electrical Engineering and Electronics, University of Manchester Institute of Science and Technology, UMIST, U.K, [www.umist.ac.uk](http://www.umist.ac.uk)

1989-1991 Research Fellow at Centre of Electronic Materials, University of Manchester Institute of Science and Technology, UMIST, U.K and Visiting Fellow at Applied Optics Group, Salford University, U.K, [www.salford.ac.uk](http://www.salford.ac.uk).

1985-1985 Teacher of Mathematics and Physics, Gaza, Palestine

#### **Consultations Services:**

- 1- Commissioner of the Accreditation and Quality Commission, Ministry of Higher Education, Palestine, 2011-present
- 2- International expert, ENPI Project Team leader, Euro-Mediterranean University (EMUNI), 2010
- 3- Survey of Science, Innovation, & Technology at Palestinian Higher Education Institutions & Research Centres", Applied Research Institute Jerusalem, Ministry of Higher Education & UNESCO, Palestinian Authority, 2009
- 4- Commissioner of the Accreditation and Quality Commission, Ministry of Higher Education, Palestine, 2001-2005
- 5- Ministry of Planning and International Co-operation, (MOPIC), Science and Technology Planning Unit, Palestine, (Scientific Research Project), Current status on R&D Programs of Research Centres, 1996-1998.
- 6- Consultant to Chairman, Palestinian Energy Authority, 1999-2003.
- 7- A member of the Palestinian National Committee of Ministry for Higher Education for Science, Technology and Research, (White and Green Papers), Palestine, 1997-1999
- 8- The Palestinian Scientific Centre for Energy Research (As foundation member) 1998

#### **Academic Activities:**

1. Member, Management Board, The Euro-Mediterranean University (EMUNI University), Slovenia, Elected 2013
2. Member, The Senate, The Euro-Mediterranean University (EMUNI University), Slovenia, Elected 2013
3. Vice Chairman, The Senate, the Board of Trustee, University of Palestine, Gaza, Gaza Strip, Palestine, 2014-
4. Member of the Mediterranean Institute of Fundamental Physics, <http://www.mifp.eu/>, Rome, Italy, 2013
5. Member of the Search Commission for the Post of President, The Euro-Mediterranean University (EMUNI University), Slovenia, 2013
6. Member, Habilitation Commission, The Euro-Mediterranean University (EMUNI University), Slovenia, Elected 2013
7. Referee to the Academic Promotion, King Abdulaziz University, Jeddah, Saudi Arabia.
8. Referee to the Academic Promotion, Bagdad University, Iraq.
9. Member of the Selection Committee for the ICO Galileo Galilei Award, 2008-2011.
10. Member of the Selection Committee for the Shoman Prize for the Arab Youth Scientist, 2006.
11. Commissioner of the Accreditation and Quality Commission, Ministry of Higher Education, Palestine, 2001-2006
12. Chairperson of the session of the Computational Electromagnetic at The 9th International Symposium on Microwave and Optical Technology (ISMOT-2003) Ostrava, Czech Republic, 11-15 August, 2003
13. Referee of the World Scientific and Engineering Academy and Society, U.S.A.
14. Member of the Promoting Committee of the Al-Aqsa University, 2001-2004, Palestine.
15. Member of the Steering Committee of World Renewable Energy Congress and World Renewable Energy Networks, U.K
16. An active member of Scientific Committees for establishing new programs at IUG (Master program in Mathematics, Master program in physics, Master program in Electrical Engineering, BSc. Programs in Computer Science, Environmental Sciences, and Optometry).
17. Committee member of many university councils as the scientific research, editorial boards of the Islamic journals, examination committee etc
18. The significant and sustained contributions to the development of undergraduate physics and electrical engineering laboratories and undergraduate education
19. Help the university by connecting the e-mail services and Internet

20. Initiated a National Research Group among the Professors, postgraduate students and researchers at Palestinian Universities (Islamic University of Gaza, Al-azhar University, and Al-Aqsa University) in Gaza Strip, Palestine

21. Referee to the international journals:

1. Sensors and Actuators
2. International Journal of modern Physics B
3. Journal of Modern Physics
4. Analytical Chemistry
5. IEEE Journal of Quantum Electronics
6. Optics Communications
7. Optical and Quantum Electronics
8. Indian Journal of Science and Technology
9. Islamic University Journal
10. Sensors Journal
11. Journal of Optics
12. Journal of Optics and Photonics
13. International Journal of Theoretical and Mathematical Physics
14. Advancement in Science and Technology Research

22. Reviewer of the International Journals and Conferences

1. Microelectronics and Solid State Electronics.
2. The International Journal of Optoelectronic Engineering
3. The International Journal of Theoretical and Mathematical Physics
4. International Journal of Electromagnetic and Applications
5. The International Conference on Technological Advances in Electrical, Electronics and Computer Engineering (TAECE2013), Konya, Turkey on May 9-11, 2013.
6. 2014 Global Conference on Polymer and Composite Materials (PCM 2014), May 27-29, Ningbo, China.
7. Journal of Energy and Power Engineering ISSN 1934-8975, USA.
8. Special Track on Optical Engineering and Photonic Technology: OEPT 2014 in the context of The 7th International Multi-Conference on Engineering and Technological Innovation: IMETI 2014, July 15 - 18, 2014 – Orlando, Florida, USA
9. Advances in Research
10. British Journal of Applied Science & Technology
11. SciTechnol
12. The Seventh International Conference SETIT 2016, Hammamet 18-20 December 2016 Tunisia

#### Career Interests:

Nonlinear optics, Optoelectronics, Photonic Crystals, Photovoltaic Solar Cells, waveguides, Electronics and Communications, Optical fibre communications, Optical sensors, Quantum Computing, Electricity and Magnetism, Electromagnetic waves, Metamaterials, Environmental Physics, Resources Management, Peaceful Applications of Nuclear Physics, Water desalination, Renewable energy, Nanotechnology, History of Science, Education, and Cognitive Education.

#### **Members of Editorial Board**

1. American Journal of Nanoscience and Nanotechnology, 2013-present
2. American Journal of Optics and Photonics, 2013- present.
3. Journal of the Association of Arab Universities for Basic and Applied Sciences, College of Science, University of Bahrain
4. Optics
5. Islamic University Journal, 1992 – present.
6. IEEE Transactions on Magnetic, 1996-1997
7. IUG Journal of Natural and Engineering studies (IUGNES), Islamic University of Gaza, Gaza Strip, Palestine

**Teaching Experience (for BSc degree):**

Computational Physics, Quantum mechanics, Classical mechanics, Mathematical Physics, Numerical Analysis, Laser & Advanced optics, Applied mathematics, Quantum electronics, Optical fibre, Opto-electronics, FORTRAN, Statistical physics, Spectral Domain Technique, Finite element method, Electrodynamics and General Physics, Space Weather.

**Teaching Experience (MSc degree):**

Numerical Techniques, Computational Physics, Mathematical physics, Quantum physics, Modern physics, Applied Mathematics for Electrical Engineering Students, Statistical Physics, Space communications, Optical Communications, Photonic Crystals and Metamaterials and Space Weather

**Leadership Experience:**

2013- 2015 Vice President for Research & Graduate Studies, Islamic University of Gaza, Gaza, Palestine  
 2009 - 2103 Vice president for Academic Affairs, Islamic University of Gaza, Gaza, Palestine  
 2001- 2005 Vice president for Administrative Affairs, Islamic university, Gaza, Palestine  
 1999- 2001 Deputy Dean, Faculty of Science, Islamic University of Gaza, Gaza, Gaza Strip, Palestine  
 1993 - 1997 Dean of Faculty of Science, Islamic University of Gaza, Gaza, Gaza Strip, Palestine  
 Jan.1993 - Sept.1993 Assistant, Vice President for Academic Affairs, the Islamic University, Gaza, Palestine  
 May - Dec. 1992 Director of Public Relations, the Islamic University, Gaza, Palestine

**Membership:**

1. Member, The International Solar Energy Society, ISES, 2016- .
2. President, Alexander von Humboldt-Fellow Club, Gaza, Gaza Strip, Palestine, 2013- present
3. Member, WebmedCentral Advisory Board, Webmed Limited, UK, 2011, [http://www.webmedcentral.com/about\\_us](http://www.webmedcentral.com/about_us)
4. Senior Member of the Institute of Electrical and Electronics Engineers, IEEE, [www.ieee.org](http://www.ieee.org), (U.S.A)
5. Member of the Optical Society of America, [www.osa.org](http://www.osa.org)
6. Senior Member of the IEEE Magnetic Society (U.S.A)
7. Fellow of the Academy of Sciences for the Developing World (TWAS), Elected 2004, [www.twas.org](http://www.twas.org)
8. Fellow of the Academy of Sciences for the Developing World ,(TWAS), TWAS Arab Regional Office (TWAS-ARO) <http://www.bibalex.org/twasaro/members/list.htm>
9. Member of Palestinian delegation to the 44<sup>th</sup> meeting of the International Atomic Energy Agency (IAEA), Vienna, Austria, September 2000, as a Scientific Advisor to the Chairman of the Palestinian Energy Authority.
10. Senior Member of the IEEE Microwave Theory and Techniques Society (U.S.A), [www.ieee.org](http://www.ieee.org)
11. Senior Member of the IEEE Laser & Electro-Optics Society (U.S.A)
12. Senior Member of the Palestinian Society of Mathematical Sciences, (Palestine)
13. Senior Member of the Palestinian Physical Society, (Palestine)
14. Member of New York Academy of Sciences, (U.S.A)
15. Fellow of the Palestinian Academy of Sciences, (Palestine)
16. Senior Member of the Abdus Salam International Centre for Theoretical Physics, Italy, [www.ictp.it](http://www.ictp.it)
17. Alumni, Salford University, Manchester, U.K
18. Alumni, Duisburg-Essen University, Germany
19. Alumni, DAAD, The German Academic Exchange Service (DAAD), Jerusalem, West Bank, Palestine
20. The World Association for al-Azhar Graduates, Cairo, Egypt.

**Served/Serving on Technical Program Committee of the following conferences:**

1. Member, Technical Committee, The Fifth Palestinian Conference on Modern Trends in Mathematics and Physics (PCMTMP-V) July 31-August 2, 2016, the Arab American University in Jenin (AAUJ), Palestine.
2. The Seventh International Conference on Sensor Device Technologies and Applications, SENSORDEVICES 2016, July 24 - 28, 2016 - Nice, France

3. Member, Organizing Committee, The International Seminar on Applied Physics, Optoelectronics and Photonics (APOP 2016), May 28-29, 2016, Shanghai, China
4. Member, International Conference Committee, The ICCP 2016: 18th International Conference on Computational Physics, May 16-17, 2016, Paris, France
5. International Conference committee, ICCP 2016 : 18th International Conference on Computational Physics, Mar 24-25, 2016, Madrid, Spain  
International Conference committee, ICCP 2016 : 18th International Conference on Computational Physics, Apr 25-26, 2016, Boston, USA
6. Reviewer, 2016 Spring International Conference on Material Sciences and Technology (MST-S), Suzhou China, April 17-19, 2016
7. Member, Organizing Committee, 2016 International Conference on Physics and Physics Education (ICPHY2016)
8. Member, Organizing Committee, 2016 International Conference on Nanotechnology and Materials Science (NANOMS2016), Xi'an, China, Jul. 23-24, 2016
9. Member, Technical Committee, The International Symposium on Photonics and Optoelectronics (SOPO 2016), August 26 to 28, 2016 in Xi'an, China.
10. Member, Technical Committee, The 2nd Int'l Conference on Polymer Materials Science (PMS 2016), January 14 to 16, 2016, Bangkok, Thailand.
11. Member, International Program committee, International Conference on Sensors Engineering and Electronics Instrumental *Advances*, in conjunction with: 1<sup>st</sup> International Workshop on Recent Advances on Electrical, Sensors and Transducers Equipements, 21-22 November 2015, Dubai, UAE.
12. Member, Technical Committee, Mediterranean Conference on Information & Communication Technologies 2015, Saidia, 5-7 May 2015
13. Member, Technical Committee, The International Symposium on Photonics and Optoelectronics (SOPO 2015), Shanghai, 22-24 August 2015
14. The 2<sup>nd</sup> Laser and Optoelectronics Conference (LOC 2015) will be held from November 18 to 20, 2015 in Suzhou, China
15. Member, Technical Committee, The International Arab Conference on Quality Assurance in Higher Education (IACQA'2014), Zarqa University, Jordan, 1-4 April 2014
16. Member, International Scientific Committee, International Conference / Humboldt Kolleg, Building International Networks for Enhancement of Research in Jordan, Amman, Jordan April 3 – 5, 2014.
17. Member, International Advisory Board, 2014 International Conference on Electrical and Electronics Engineering (ICEEE 2014), Antalya, Turkey, April 21-23, 2014
18. Member of the Scientific Committee, the Fifth International Conference on Engineering and Sustainability (ICES5), Islamic University of Gaza, in Gaza City, Palestine, 4-5 November 2014
19. Member of Conference Committee, ICPO 2014 : International Conference on Photonics and Optoelectronics, Madrid, Spain, 27-29 March 2014
20. Member of Conference Committee, ICMON 2014: International Conference on Microelectronics, Optoelectronics, and Nanoelectronics, Oslo, Norway, 22-23 July 2014
21. Member of Conference Committee, ICMON 2014: International Conference on Microelectronics, Optoelectronics, and Nanoelectronics, Stockholm, Sweden, 15-16 July 2014
22. Member of the Scientific Committee, the Fourth Palestinian Conference on Modern Trends in Mathematics and Physics, PCMTMP-IV, Al-Quds University in Abu Dies, Jerusalem, Palestine, 11-13 August 2014
23. Member of the Programme Committee, The 4<sup>th</sup> EMUNI Conference on Higher Education and Research, EMUNI University, Brdo pri Kranju, Slovenia, 21-22 November 2013
24. Member of Conference Committee, ICMON 2013: International Conference on Microelectronics, Optoelectronics, and Nanoelectronics, Bali, Indonesia, 30-31 October 2013
25. Member of the International Scientific committee, 12<sup>th</sup> International Conference on Education and Training in Optics and Photonics, Faculty of Sciences of the University of Porto, Portugal, July 23 - 26, 2013
26. Member, Technical Editors, International Conference on Electronics and Opto-electronics Science (ICEOS 2013), Istanbul, Turkey, March 15-16, 2013.
27. Member of Steering Committee, The Mediterranean Green Energy Forum 2013 (MGEF-13), Fes, Morocco, 16 - 21 June 2013, <http://seb.sustainedenergy.org/papers.php>

28. Member, National Advisory Committee, the Third Palestinian Conference on Modern Trends in Mathematics and Physics, PCMTMP-III, 16-18 July 2012, the Palestine Polytechnic University in Hebron, Palestine.
29. The International Arab Conference on Quality Assurance in Higher Education (IACQA'2012), Gulf University, Bahrain, April 4th-5th, 2012
30. Member, International Committee, International Topical Meeting on Information Photonics IP2011, <http://www.uop.ca/communications/ip2011>, Ottawa, Canada, 2011
31. Member, International Committee, The XII<sup>th</sup> Education and Training in Optics and Photonics Conference, (ETOP 2011), Tunisia, 8-11 July 2011, [http://www.sto-tn.org/conference\\_program.php](http://www.sto-tn.org/conference_program.php)
32. Member, Scientific committee, 2nd International Conference In Laser Applications, Institute of Laser, Sudan University of Science & Technology, 2010-12-07
33. Member, International Steering Committee, World Renewable Energy Congress X and Exhibition, - WREC - Glasgow, Scotland, 19-25 July 2008

### **Courses, Lectures, Seminars, Conferences and Workshops:**

1. Solar Energy Technology, First International Smart Energy Workshop (ISEW-2016) In cooperation with Palestinian Smart Energy Program (PSEP), and Energy Safety and Control Lab (ESCL)-Canada, University of Palestine, Gaza, Palestine, 20 November 2016
2. A framework towards academia-industry partnership in Gaza strip, the STEP Project Final Conference; Strengthening University-Enterprise Linkages in Palestine, Islamic University of Gaza and An Najah University, 6 June 2016
3. Alexander von Humboldt Foundation in Palestine, Present and Outlook, Gaza, Gaza Strip, Palestine, 22th December 2015
4. Info-Day for HORIZON 2020, Islamic University of Gaza, Gaza, Gaza Strip, Palestine, 10<sup>th</sup> November 2015
5. 15<sup>th</sup> International Symposium on Microwave and Optical Technology 2015, Dresden, Germany, June 29 - July 1, 2015
6. A Seminar on Metamaterials-silicon waveguide structure for solar cell energy applications, Institute of Energy Research and Physical Technologies (IEPT) at the Clausthal Technical University (TUC), 19 June 2015
7. The TWAS's 25<sup>th</sup> General Meeting, Muscat, Oman, 26 to 29 October 2014
8. Training Workshop on “University- Industry Cooperation Schemes and Trends ”, Amman-Jordan, 13 – 14 November 2014
9. International Conference on Sustainable Development Solutions for the Mediterranean Region, University of Siena, Siena, Italy, 3-5 July 2013
10. Palestinian-Malaysian Forum for the Higher Education, Islamic University of Gaza, Gaza Strip, Palestine, 24 June 2013
11. Study Visit, STEP Project, University of Bologna-Alma Studiorum, Italy, 28-30 May 2013
12. 2<sup>nd</sup> International Conference on Electronic and Opto-electronics Science, (ICEOS 2013), Istanbul, March 2013
13. Kick-off meeting, STEP – Strengthening Universities – Enterprise linkages in Palestine (STEP), Amman Journal, 20-21 December 2012
14. Chairperson, The International Conference of Higher Education in the Arab World: Future Horizons, Islamic University of Gaza, Gaza, Palestine, 15-19 January 2012
15. TWAS-ARO 8th Annual Meeting, “The Role of Science, Engineering and Technology in Achieving Sustainable Human Development in the Arab Region” Bibliotheca Alexandrina, Egypt, 30-31 December 2012
16. International Conference on Electromagnetic in Advanced Applications, ICEAA, Cape Town, South Africa, 2- 7 September 2012
17. AvH Workshop on “Advanced Solutions in Terahertz Technology, Guest House of J.W.Goethe University, Haus Bergkranz, Austria, 13-16 July 2012

18. International Seminar and Workshop on Quantum Matter from the Nano-to the Macroscale, Max Planck Institute for the Physics of Complex Systems, Dresden, Germany, 29 June -7 July 2012
19. Annual meetings for Alexander von Humboldt Foundation, Round Table Discussion, Berlin, 18-21 June 2012
20. 4th International Interdisciplinary Chaos Symposium on "Chaos and Complex Systems, Antalya, Turkey, 29 April-2 May 2012
21. Lecture on Metamaterial waveguide sensors, Warsaw University, Warsaw, Poland, 9 May 2012.
22. Lecture on Higher Education & Research in Palestine, Present and Outlook, Warsaw University, Warsaw, Poland, 9 May 2012
23. Higher Education, Research and Sociophysics in Palestine, Technical University of Warsaw, 10 May 2012
24. The TETIS 2011 Conference, Towards Education and Technological approaches to Implement Sustainability, The Role of Universities on Better Life Indicators, Lisbon, Portugal, 24 November 2011
25. 4<sup>th</sup> General Assembly of the Euro-Mediterranean University, Lisbon, Portugal, 25 November 2011
26. The Academy of Sciences for the Developing World, (TWAS's) 22nd General Meeting, Trieste, Italy, 21 to 23 November 2011
27. EFQM(European Foundation for Quality Management)Excellence model for Higher Education, [www.efqm.org](http://www.efqm.org), Islamic University of Gaza, Gaza, Palestine, February 2010
28. Enculturation of Quality in Academia, Research and innovation toward Prosperity of Ummah", Kuala Lumpur, Malaysia, 19-21 October 2010
29. Strategic Planning, and Management, Islamic University of Gaza, Gaza, Palestine, July 2010
30. Change management & Building Organizational Culture Skills, Islamic University of Gaza, Gaza, Palestine, December 2009
31. ICO Topical Meeting 2007 on Optics and Laser Applications in Medicine and Environmental Monitoring for Sustainable Development, Cape Coast, Ghana, 19-24 November 2007
32. The PEACE Program, International Conference on Research Development in Palestinian Universities UNESCO, Paris, 4-5 November 2007
33. 18<sup>th</sup> TWAS General Meeting, Third world The Academy of Sciences for the Developing Countries, Trieste, Italy, 13-14 November 2007
34. International Conference on Functional Materials, Crimea, Ukraine, October 1-6, 2007
35. Alumni round table discussion, Alexander Von Humboldt, Bonn, Germany, 23 – 25 August 2007
36. Attosecond Physics International Workshop and Seminar, Max Planck Institute for the Physics of Complex Systems, Dresden, Germany, August 01 - 05, 2007
37. XI International Conference on Physics and Technology of Thin Films (ICPTTF-XI), Ivano-Frankivsk, Ukraine, 7 - 12 May 2007.
38. Lecture on Thermal, stress and strain effects on nonlinear waveguide sensors, Vasyl Stefanyk' Prekarpathian University, Ivano-Frankivsk, Ukraine, 11 May 2007
39. The SPIE European Symposium on Optics and Optoelectronics, Congress Centre, Prague, Czech Republic, 16-19 April 2007
40. Nonlinear Physics in Periodic Structures and Metamaterials, International seminar and workshop, Max Planck Institute for the Physics of Complex Systems, Dresden, Germany, March 19 - 30, 2007
41. The First optETH Winter School on Optical Sciences, ETH Zurich, Switzerland, 25 February – 2 March 2007
42. 1st International conference in Laser Science and Engineering and its Applications, Khartoum- Republic of Sudan, 22- 26/1/2007
43. International Days on Ibn\_Al\_Haythem, organized by the Tunisian Association of "Young's in Science", the Tunisian Optical Society, Tunisia, 26 - 28 December 2006
44. Nonlinear Dynamics of Acoustic Modes in Finite Lattices: Localization, Equipartition, Transport, Max Planck Institute for the Physics of Complex Systems, Dresden, Germany, December 06 - 08, 2006
45. Dynamics and Relaxation in Complex Quantum and Classical Systems and Nanostructures, Seminar and Workshop:, Max Planck Institute for the Physics of Complex Systems, Dresden, Germany, July 24 - October 06, 2006

46. Symposium on Opto- and Microelectronic Devices and Circuits, The Fourth Joint Symposium on Opto- and Circuits, SODC 2006, Duisburg, Germany, 2 - 8 September 2006
47. 7th International Conference on Optical Technologies, Optical Sensors and Measuring Techniques, Exhibition Centre Nuremberg Germany, Proceedings of OPTO Conference, 183-178, 30 May - 1 June 2006
48. Association of Arab Universities, Arab Council for Graduate studies and Scientific Research, Cairo University, Egypt, 27-29 June 2004
49. Workshop on novel states and phase transitions in highly correlated matter, International Centre for Theoretical Physics, ICTP, Trieste, Italy, 12 -23 July 2004
50. Workshop on Theoretical Plasma Physics, International Centre for Theoretical Physics, ICTP, Trieste, Italy, 5 -16 July 2004
51. The International Association of Universities Meeting, Sao Paulo, Brazil, 23-29 July 2004
52. The High Education in Latin America Seminar in Sao Paulo, 25-31 July 2004
53. 3rd International workshop on Laser Physics, Hamburg, Germany, 25-29 August 2003
54. The International Symposium on Microwave and Optical Technology, Ostrava, Czech Republic, August 11-15, 2003
55. The Third World Academy of Sciences, TWAS 8th General Conference & 13th General Meeting, TWNSO 7th General Assembly New Delhi, India, 19-23 the October, 2002
56. Asian Regional IAP Seminar on the Generation of Experimental Materials and Learning Modules for Science Education, New Delhi, 24-25<sup>th</sup> October, 2002
57. High-Level Conference on Science and Technology To Group 77, Dubai, Arab United of Emirates, 27-30<sup>th</sup> October, 2002
58. The 2nd International Conference on the Physics and Application of Spin-Related Phenomena in Semiconductors (PASPS 2002), Würzburg University, 23-27 July, 2002
59. Minisymposium on correlation in Mesoscopic systems, International Centre for Theoretical Physics, ICTP, Italy 2-4 August 2000.
60. The First International Conference on Mathematical Sciences, Al-Ain, United Arab Emirates, 21-24 November 1999
61. The Foundation Meeting of the Society of The Deans of The Arab Universities, Bahrain University, Bahrain, 29-30 Nov.1999
62. Embedment of Recent Telematics Technology in the teaching of University physics, Suez Canal University, Egypt, 1-5 November, 1998
63. Alexander von Humboldt, AvH Fellows meeting, Leipzig, Germany, 2-5 October, 1998
64. 5<sup>th</sup> International workshop on Integrated Non-linear Microwave and Millimeterwave Circuits, IMMC98, Duisburg, Germany, 1-2 October 1998.
65. Winter college on optics, International Centre for Theoretical Physics, ICTP, Trieste, Italy, 4-26 February 1998
66. Third Symposium on the Recent Developments in Computational Condensed Matter Physics, Irbid, Jordan, 16-18 November 1997
67. Workshop on Condensed Matter Physics, International Centre for Theoretical Physics, ICTP, Trieste, Italy, 20 July- 10 August, 1997
68. Workshop on Condensed Matter Physics, International Centre for Theoretical Physics, ICTP, Trieste, Italy, 2-23 August 1996
69. II International Workshops on Non-linear Optics and Applications, Miedzyhydroje, Poland, 7-10 September 1994
70. A seminar on non-linear magneto static surface waves, Rhur University, Germany, 15 August 1994
71. IUG First symposium on physics, Islamic University of Gaza, 28 May 1994, (Chairman)
72. Workshop on Nonlinear Interactions in Magnetic and Magneto optic Materials', University of California, Country Side Inn, Costa Mesa, U.S.A, 12-14 December 1993
73. First Symposium on the recent developments in computational condensed matter physics', Irbid, Jordan, 16-18 November 1992
74. Teaching Methods Course for New Lecturers, University of Manchester, 3-27 Sept.1991



75. Microelectronics Materials and Devices and Technology, University of Manchester Institute of Science and Technology, UMIST, U.K, 1990
76. The International School of Materials Science and Technology, Erice, Sicily, Italy, 1-15 July 1989

### **Grants:**

1. Overseas Research Student Scheme Award (ORS, UK, 1986-1989)
2. Arab Student International Aid (USA), 1985-1988
3. Arab-British Chamber Foundation, U.K, 1989
4. The British Council Visit Grant to UMIST, England, 1993
5. AMIDEAST Grant to visit University of California, Irvine, U.S.A, 1993
6. DAAD Grant Visit Study to Germany, Ruhr University, Bochum, 1994.
7. French Consulate Study Visit Grant to France, LEMO, Grenoble, 1995
8. Royal Society Grant visit to Salford University, 1997
9. International Atomic Energy Agency (IAEA), [www.iaea.org](http://www.iaea.org), scientific visit, Italy, 1998.
10. Associate membership award, International Centre of Theoretical Physics, 1997-2002
11. Alexander Von Humboldt Fellowship, [www.avh.de](http://www.avh.de), Germany, 1998-1999.
12. International Centre for Theoretical physics, [www.ictp.it](http://www.ictp.it), Italy, study visit, 2000.
13. DAAD Grant Visit Study to Germany, Duisburg University, [www.uni-due.de](http://www.uni-due.de), 2002.
14. Alexander Von Humboldt Fellowship, Duisburg-Essen University, Germany, 2003
15. Alexander Von Humboldt Fellowship, Duisburg-Essen University, Germany, 2004
16. Alexander Von Humboldt Fellowship, Duisburg-Essen University, Germany, 2006
17. Alexander Von Humboldt Fellowship, Duisburg-Essen University, Germany, 2007
18. Max Planck Institute for Physics of Complex Systems, Germany, 2009
19. Study visit to Technical University of Warsaw, Poland, May 2012
20. Alexander Von Humboldt Fellowship, Goethe University Frankfurt, Germany, June-July 2012
21. International Centre for Theoretical physics, [www.ictp.it](http://www.ictp.it), Italy, study visit, 2013
22. Alexander Von Humboldt Fellowship, Institute of Energy Research and Physical Technologies, Clausthal University of Technology, Germany, June-August 2015

### **Computer Skills:**

- Fluent use of personal computers and Networking
- Very good knowledge of FORTRAN 77 and 90
- Very good knowledge of Numerical Analysis

### **Research Interests:**

Electromagnetic waves, Numerical Techniques and computational physics, Optical fibre, Optical sensors, Quantum waveguides, Metamaterials, Magneto static surface waves in superconductors, Theoretical research in condensed matter physics, Linear and non-linear microwave excitations in multilayered structures consisting of dielectrics, ferrite and semiconductors, Magnetoplasmons waves, Optical wave-guides in periodic media, Non-linear optics, Molecular Electronics, Molecular LB films, Microwave Integrated Circuits, Finite Elements and finite Difference Methods in Condensed Matter Physics, physics education, and socio physics, and history of science.

### **Funded Research:**

1. HORIZON 2020, MIDDLE EAST RESEARCH AND INNOVATION DIALOGUE, 2014-2015
2. Lichtmanagement in Nanotechnologie-basierten Wellenleiter-Solarzellen, Light management in nanotechnology based waveguide solar cells, NANOWAVSOL, German Palestinian project, 2016-2018
3. TEMPUS IV (2012-2014): Project Number (530626-TEMPUS-1-2012-1-PS-TEMPUS-JPHES) - Project title: Strengthening University-Enterprise linkages in Palestine with a project leader, An-Najah National University, Palestine.
4. M.M.Shabat, Measurements of Air Pollution at Gaza strip, International Centre for Theoretical Physics, 1997

5. M.M.Shabat, USEE Programme (A pilot programme for upgrading science and engineering education in Arab Universities through computer multimedia technologies), UNESCO, Cairo, Egypt, 1998
6. M.M.Shabat, Optical wave guides sensors, Union of Arab Universities, 2005
7. M.M.Shabat, Modelling of optical waveguide sensor, Alexander von Humboldt, [www.avh.de](http://www.avh.de), Bonn, Germany, 2003
8. Al Maqdisi programme (2012-2014): Project title: Proposed waveguide sensors containing metamaterials with a project French partner, Université de Lille 1, France
9. Development of Optimum Methods for Raising the efficiency of PV solar modules, Islamic University of Gaza, Gaza, Palestine, 2013-2015
10. Development of Optimum Methods for Raising the efficiency of PV solar modules, Union of Arab Universities, 2014

### **Graduate Students Supervised:**

1. N.Barakat, M.Sc thesis, Numerical techniques for non-linear lossy wave guides, College of Education, Gaza, in co-operation with Ain Shams University, Egypt, 1999
2. Y.Madi, M.Sc thesis, Numerical techniques for moving wave guides, Mathematics Department, College of Education, Gaza, in co-operation with Ain Shams University, Egypt, 2000.
3. H.El-Sheikh, M.Sc thesis, Mathematics Department, Finite elements techniques for lossy wave guides, Islamic University of Gaza, 1999-2000
4. Hisham Fayad, PhD thesis, Quantum wave guides, College of Education, Gaza, in co-operation with Ain Shams University, Egypt. Y.Madi, PhD thesis, College of Girls, Gaza, in co-operation with Ain Shams University, Egypt, 2000
5. S. Taya, M.Sc. thesis, Scattering 2000 in Quantum wave guides, physics department, Islamic university, Gaza, 2000
6. N.M.Barakat, PhD thesis, Application of Finite Difference approach and time domain method to lossy non-linear wave-guides, College of Education, Gaza, in co-operation with Ain Shams University, Egypt, 1999-2000
7. B. Abu Shaneb, M.Sc. thesis, Finite Difference applied to non-linear wave-guides, Mathematics Department, College of Education, Gaza, in co-operation with Ain Shams University, Egypt, 2000-2003
8. Z. El- Sahar, M.Sc thesis, Non-linear Electromagnetic waves in Ferro electric structures, physics department, Islamic university, Gaza, Non-linear Electromagnetic waves in Ferro electric structures, 2001
9. A.Abo-Shabab, M.Sc. thesis, TM Non-linear Electromagnetic waves in semiconductors superlattices wave guiding systems, physics department, Islamic university, Gaza , 2001
10. M.Hamada, PhD thesis, Nonlinear electromagnetic waves in superconductors and semiconductors, Physics Department ,College of Education, Gaza, in co-operation with Ain Shams University, Egypt, 2000-2003
11. Khitam Elwassafi, M.Sc. thesis, Nonlinear electromagnetic waves in a ferrite waveguide structure”, physics department, Islamic university, Gaza, 2004
12. M.Abadla, PhD thesis, Physics Department, simulation of nonlinear optical sensors, College of Education, Gaza, in co-operation with Ain Shams University, Egypt, 2000-2003
13. H.Mousa, PhD thesis, Nonlinear electromagnetic waves on gyromagnetic media, Physics Department, simulation of nonlinear optical sensors, College of Education, Gaza, in co-operation with Ain Shams University, Egypt, 2003
14. Z.E-Sahar, PhD thesis, Electronic transport through mesoscopic systems, Physics Department, College of Education, Gaza, in co-operation with Ain Shams University, Egypt, 2000-2003
15. S.M.Baraka, M.Sc Thesis, Study of the onset of the Earth Magnetosphere under the influence of the Solar Wind, Physics Department, Islamic University, Gaza, Palestine, 2002
16. G.Abu Tair, M.Sc thesis, Stress effects on waveguides sensors, Physics Department, Islamic university, Gaza, 2004

17. S.Mansour, M.Sc thesis, Magnetostatic surface waves on left handed materials, Physics Department, Islamic university, Gaza, 2004
18. R.Saf., M.Sc thesis, Numerical and analytical techniques in inhomogeneous waveguides based on Mathieu Functions, Mathematics Department, Al-Aqsa university, Gaza, in co-operation with Ain Shams University, Egypt, 2000.
19. S.Taya, PhD thesis, "Modeling Nonlinear waveguide sensors", Physics Department, Faculty of Science, Ain Shams University, Egypt, 2007.
20. Khitam Elwassafi, PhD thesis, Model to study the interaction of electromagnetic waves produced by mobile phone base station with human body tissues Computations and measurements, Sudan University of Science and Technology, Sudan, 2007
21. Muein Ubeid, PhD thesis, " Reflection and transmission of Electromagnetic waves at Ferrite-Metamaterials Waveguide Structure", Sudan University of Science and Technology, Sudan, 2009
22. Abedallah Sada, M.Sc thesis, "Metamaterials optical fiber bounded by Semiconductor, Physics Department, Islamic university, Gaza, 2012
23. Dena Elamasi, M.Sc thesis, "Photonic crystal Sensors", Physics Department, Islamic university, Gaza, 2012
24. Khulied Abushaar, M.Sc thesis, "Electromagnetic Waves at Graphene and Metamaterials Structures", Physics Department, Islamic university, Gaza, 2012
25. Shaban Safi, M.Sc thesis, "Metamaterials solar waveguides", Physics Department, Islamic university, Gaza, 2012
26. Ismehan Mohsen, M.Sc thesis, "Solitary waves at Metamaterials", Physics Department, Islamic university, Gaza, 2012
27. Houria Hamouche , PhD thesis, Theoretical analysis and model of Metamaterials waveguide structure for solar cell energy, Ecole Normale Supérieure – Kouba, Algeria, 2014
28. Nadera El-Samak. "Simulation of Metamaterial waveguides for Solar Cells Energy by Finite Difference Time Domain Method (FDTD), M.Sc thesis", Physics Department, Islamic university, Gaza, 2014
29. Rana A. Khalifa, Nonlinear waveguide structure sensor containing Graphene, M.Sc thesis, Physics Department, Islamic University, Gaza, 2015
30. Mohammed Galazain, "Sensitivity of Optical Graphene-Waveguide Sensors", M.Sc thesis, Physics Department, Islamic University, Gaza, 2015
31. Mahmoud Abu Rahema, Surface plasmon in newly waveguide structure as a model of solar cell", M.Sc thesis, Physics Department, Islamic University, Gaza, 2015
32. Adhem Ashaal, M.Sc thesis, "Simulation of light trapping in waveguide containing Graphene for solar cells", Physics Department, Islamic University, Gaza, 2015
33. Samer abu lebda, "Left handed waveguides for solar cells energy, M.Sc thesis, Physics Department, Islamic University, Gaza, 2014
34. Areej Mohammed El-Bitar, "Number of neighbors and Lattice Size effects in semidirected Barabasi-Albert networks", M.Sc thesis, Physics Department, Islamic University, Gaza, 2015
35. Heba Allah Abo Amra, FDTD in five multilayered human head model exposed to RF radiation from dipole antenna", Physics Department, Islamic University, Gaza, 2015
36. Ahmed N K ALShembari, "Application of Linear Algebra methods in Solution of EMW in Multilayer-waveguides", Msc thesis, Mathematics Department, Islamic University of Gaza, Gaza Strip, Palestine

## Publications

1. M.M.Shabat, "Linear and non-linear electromagnetic surface waves at magnetic and nonmagnetic interfaces", Ph.D. Thesis, University of Salford, U.K., 1990
2. A.D.Boardman, M.M.Shabat and R.F.Wallis, "Non-linear magneto dynamics waves on magnetic materials", Phys.Rev. B 41(1), 717-730, 1990
3. R.F.Wallis, A.D.Boardman, and M.M.Shabat, "Non-linear electromagnetic waves on gyro magnetic materials", in Non-linear Waves in Solid State Physics, eds. A.D.Boardman, M.Bertolotti, and T.Twadrowskoi, NATO ASI Series B; Physics, vol 247, 51-93, New York, 1990

4. M.M.Shabat, "TM non-linear electromagnetic waves in a metal film bounded by inhomogeneous and non-linear dielectric media", *Applied Optics Digest*, eds. J.C.Dainty, 177-178, 1990
5. A.D.Boardman M.M.Shabat, and R.F.Wallis, "TE waves at an interface between linear gyro magnetic and nonlinear dielectric media", *J.Phys. D: App.Phys.* 24, 1702-1707, 1991
6. R.W.Munn, S.E.Mothersdale, M.M.Shabat , "Theory of nonlinear response in molecular layers", in *Organic Materials for Nonlinear Optics II*, eds. R.A.Hann, and D.Bloor, 34-40, The Royal Society of Chemistry, 1991
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8. M.Bishop, J.H.R.Clarke, L.E.Davis, T.A.King, F.R.Mayers, A.Mohebati, R.W.Munn, M.M.Shabat , .West, and J.O.Walliams, "Structure and nonlinear properties of Langmuir-Blodgett films from p-nitroaniline derivatives", *Thin Solid Films*, 210/211, 185-187, 1992
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11. M.M.Shabat, "TM Nonlinear electromagnetic waves guided by a gyro dielectric medium", *Applied Optics and Optoelectronics*, Leeds, U.K., 14-17 Sept. 1992
12. M.M.Shabat, "Finite Elements Methods in solving TM nonlinear electromagnetic surface waves", *Proc. of the First Symposium on the recent developments in computational condensed matter physics*, Irbid, Jordan, 1992, p.5
13. R.W.Munn, and M.M.Shabat , "Calculations of the nonlinear optic response in Langmuir-Blodgett films in *Organic Materials for Nonlinear Optics III*, eds. G.J.Ashwell, and D.Bloor, No. 137, 25-30, The Royal Society of Chemistry, Cambridge, U.K, 1993
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18. M.M.Shabat, 'Non-linear Electromagnetic surface waves guided by a grounded gyro magnetic films', *Workshop on Non-linear Interactions in Magnetic and Magneto optic Materials*, University of California, Country Side Inn, Costa Mesa, U.S.A, 12-14 December 1993
19. M.M.Shabat' A mathematical analysis using Spectral Domain Approach for Microwave Colanar Waveguide' *Proc. of the First Annual Conference of the Palestinian Society of Mathematical Sciences*, Birziet University, June 16-18, 1993, P.29
20. M.M.Shabat, 'Non-linear electromagnetic surface waves in a metallised ferrite slab', *Proc.of the IUG Symposium on Physics*, Islamic University of Gaza, May 24, p.1, 1994
21. M.M.Shabat, 'TE non-linear self-defocusing electromagnetic surface waves in a metallised ferrite slab', *International Journal of Infrared and Millimetre Waves*, vol.15(7), 1229-1246, 1994
22. M.M.Shabat, 'New non-linear magnetostatic surface waves guided by a single ferrite medium', *International Journal of Infrared and Millimetre Waves*, 15(10), 1651-1662, 1994
23. M.M.Shabat, 'New non-linear magnetostatic surface waves in a metallised ferromagnetic film', *Optical Applicata*, vol.XXIV, no.4, 293-295, 1994
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25. M.M.Shabat, 'Exact solution for non-linear electromagnetic surface waves guided by a magnetic medium', *SPIE*, vol.2211, 730-734, 1994

26. M.M.Shabat, 'Strongly non-linear magnetostatic surface waves in a grounded ferrite film', *Physica Status Solidi a*  
<http://www3.wileyinterscience.com/journal/112433645/abstract?CRETRY=1&SRETRY=0>, 149(2), 691-696, 1995
27. M.M.Shabat, "Strongly non-linear magnetostatic surface waves in a ferrite film", Third International Aalborg Summer School on Optics, Aalborg, Denmark, 7-12 August 1995
28. M.M.Shabat, 'Exact solution of TE polarised surface waves guided by a non kerr like medium', Proc. of the IX International Symposium on Ultrafast Processes in Spectroscopy, Advanced Program, Trieste, Italy, 30 October-3 November, 1995, 1995
29. M.M.Shabat, "Nonlinear magnetostatic surface waves in a gyromagnetic film", *Philosophical Magazine B*, <http://www.tandf.co.uk/journals/archive/t-archive/phbvol73.asp>, vol.73, 699-,1996
30. M.M.Shabat, "Nonlinear electromagnetic surface waves guided by a single Hexagonal ferrite", 7<sup>th</sup> International Conference on Ferrite, Bordeaux '96, 1996
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32. M.M.Shabat, and J.Pelzl, Nonlinear Electromagnetic surface waves in magnetic structure", *Infrared and Technology*, , vol.37, 265-270, 1996,  
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33. M.M.Shabat, A.D.Boardman, R.Reinisch, and E.Pic, 'Exact solution for nonlinear electromagnetic surface waves guided by a non kerr like power law medium', *Microwave & Optical Tech. Letters*, <http://www3.interscience.wiley.com/journal/71012/abstract?CRETRY=1&SRETRY=0>, vol.12, no.3, June, 1996
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35. M.M.Sahabt, "Magnetostatic surface waves on superconductors", The Second international Conference on Science and Development, Al-Azher University, Cairo, March 1997
36. M.M.Shabat, and F.Saleh, "Teaching physics at basic schools at Gaza Strip", The second Palestinian conference at Teaching Physics, Birziet University, 30 October 1997
37. M.M.Shabat, "Applications of Davidenko's Technique for Magnetostatic Surface Waves on Superconductors", The Third Symposium on Computational Condensed Matter Physics, Yarmok University, Jordan, 3-5 November 1997
38. M.M.Shabat, M.A.Abdel-Naby, Y.S.Madi, "Davidenko's method for finding complex roots of the dispersion equation of waveguides", The Second Palestinian International Conference on Mathematics', Birziet University, West Bank, Palestine, 18-23 August 1998
39. M.M.Shabat, M.A.Abdel-Naby, N.M.Barakat, "Accurate perturbation analysis of power-dependent attenuation of nonlinear waves guided by thin films", The Second Palestinian International Conference on Mathematics', Birziet University, West Bank, 18-23 August 1998
40. M.M.Shabat, and D.Jager, " Effects of absorption on the propagation constants of nonlinear guided waves in an asymmetrical optical waveguides", IV International Workshop on nonlinear Optics Applications', NOA 98, Miedzzydroje, Poland, 31 August -2 September, 1998
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57. M.M.Shabat and A.Naim, “Renewable Energy in the Palestinian strategic energy potential plan”, International Symposium, Bioconversion of Renewable Raw materials, Hannover, Braunschweig, Germany, 25-29 Sep.2000.
58. M.M.Shabat and Z.Al-Sahar, “Non-linear magneto static Surface Wave at a single Ferroelectric-gyromagnetic structures”, CMP, 5<sup>th</sup> Symposium on condensed matter physics, CTAPS, Yarmok university, Jordan, Nov.2000.
59. Y.S.Madi and M.M.Shabat, “Numerical algorithms to Find the complex root of asymmetric moving wave guides”, The third International Palestinian Conference on Mathematics and mathematical education, Bethlehem university, Palestine, 9-12 August 2000.
60. N.M.Barakat, and M.M.Shabat, “Numerical and analytical solution for lossy Non-linear wave guides” The third International Palestinian Conference on Mathematics and mathematical education, Bethlehem university, Palestine, 9-12 August 2000
61. J.Zanin and M.M.Shabat, ”Developments in physics Curriculum at secondary schools in Palestine”, Third Palestinian Conference For Physics Teaching, Najah university, 19-20 Nov. 2000
62. Y.S.Madi and M.M.Shabat “Moving wave guides, The Second Palestinian Physics Symposium, Al-Qudus University, Jerusalem, Palestine, 11-12 April 2000.
63. N.M.Barakat, and M.M.Shabat, “Lossy Non-linear Wave guides, The Second Palestinian Physics Symposium, Al-Qudus University, Jerusalem, Palestine, 11-12 April 2000.
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