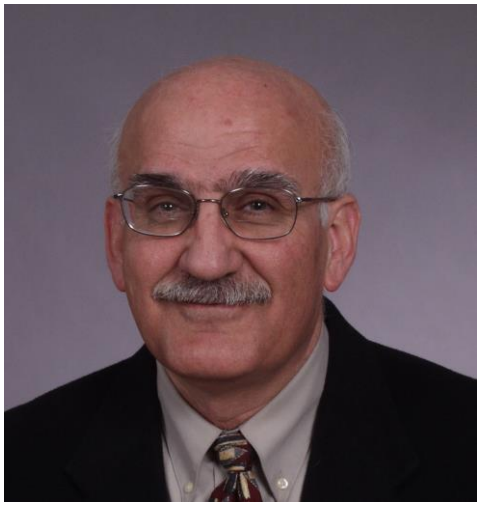

Professor Munir NAYFEH

A- PERSONAL DETAILS OF NOMINEE

Surname or Family Name (s): Nayfeh

Forename (s): Munir Title :Prof.

Country of Origin: Palestine / Jordan

Country of Residence: USA

Nationality: USA

Place or Birth: Jordan / Palestine Date of Birth: December 13, 1945

Marital Status: Married

Present Position: Professor of Physics

President, NanoSi Advanced Technologies, Inc

Area of Specialization: Atomic, molecular, laser spectroscopy, and nanotechnology

Languages: English, Arabic, French

Work Address:

Department of Physics, University of Illinois at Urbana-Champaign,

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Urbana, Illinois 61801 USA
Telephone: 217 344 2746 Fax: 217 333 9819

Countries visited (officially, study-tours, missions, conferences, privately, etc.):
Morrocco, Algeria, Tunisia, Libya, Egypt, Palestine, Jordan, Lebanon, Syria, Iraq, Kuwait, UAE, Bahrain, Saudi Arabia, Qatar, India, Turkey, Italy, Greece, France, Germany, Holland, Russia, England, Scottland, Ireland, Austria, Latvia, Spain, Brazil, Japan, Korea, Malaysia, Pakistan, China, Vietnam, and all over the USA including Hawaii

B- ACADEMIC BACKGROUND

Nominees should give names of scientists with whom they have worked.

	Degree	University/Institute	Field	Year
a.	PhD	Stanford University	Physics	1974
		(Theodor Haensch &Arthur Schawlow)		
b.	MSc	AUB	Physics	1970
		(Khalil Bitar)		
c.	BSc	AUB	Physics	1968
		(Antoin Zahlan & Harry Mavromatis)		

BB- OTHER ACADEMIC DETAILS

High School Certificate: Hashimyah Secondary School (Al Birah-Ramallah) 1964
Science Branch
(Ahmad Yousef)

C- PROFESSIONAL EXPERIENCE (positions held and nature of work)

a. Professor, Physics Department, University of Illinois at Urbana-Champaign
(Teaching and Research, Thesis Advising)

b. Instructor, Physics Department, Yale University
(Teaching and Research)

c. Physicst, Oak Ridge National Laboratory
(Research)

d.Postdoctoral, University of Kentucky / Oak Ridge National Laboratoy
(Research)

e.Consultant, Argonne National Laboratory
(Research)

f. Adjunct Professor, King Fahd University for Petroleum and Minirels (KFUPM), Dhahran, Saudi Arabia
(Research and Planning)

g. Scientific Advisor, King Saud University, Riyadh, Saudi Arabia
(Advisory)

h. Vice chairman, the International Science Council, King Abdukllah Institute for Nanotechnology (KAIN), KSU, Riyadh, Saudi Arabia 2008
(Advisory)

i. Chairman of Advisory Board at the Center for Excellence in Nanotechnology (CENT), KFUPM, Dhahran, Saudi Arabia 2008-
(Advisory)

j. Laison, Jubail Industrial College and Royal Commission for Jubail and Yanbu, S. Arabia; Chairman of committee for evaluation of Jubail Colleges
(Advisory)

k. Advisor Center of Scientific excellence in nanotechnology, An Najah National University, Nablus, West bank

l. Editorial Board ALEXCO Publication for the Youth

m. Egypt-US Cooperative Program between U of Illinois and National Research Center in Renewable Energy (Director and PI)

Course Instruction

Electromagnetis, Optics, Electronics, Quantum Mechanics, Classical Mechanics, Thermodynamics and Statistical, General Physics, Advanced Topics in Atomic, Molecular and Optical Physics

Commercialization and Business

Founder and President, NanoSi Advanced Technologies Inc., Champaign, Illinois, USA

Founder and president, Nano Silicon Solar, Inc., Champaign, Illinois

Industy Relations: contracts and projects

PolyBrite International (LED); Panasonic (thin film), Samsung (LED and lighting), Sharp (solar cells), Wintek (displays), Octillion (solar windows), US Army (CRADA sensors), State of Illinois – Japan Trade Show

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CC- MAJOR CAREER OBJECTIVES

A.**Teaching and Training** in academia: undergraduate as well as graduate students (research that leads to PhD degrees)

B.**Advanced Research**: Conduct reasearch and development in the field of nanotechnology and applications in laser and optics, electronics, energy and lighting, and biomedical

C.**Commercialization and Business**

Commercialization of nano technologies by incorpotration of start-ups to pomote silicon nano technologies that are invented in his laboratory at the University of Illinois or at the two companies he founded.

D.Popularization of Nano Science and Technology

Authoring books to teach nanotechnology to students; Writing short fiction stories on nanotechnology for children and the young.

D- MEMBERSHIP OF INSTITUTIONS & PROFESSIONAL BODIES

a. Americal Physical Society (APS)

b. American Chemical Society (ACS)

E- HONOURS, PRIZES, MEDALS & AWARDS

Give details of awarding party, occasion, place and date of award.

a. Industrial Research 100, Industrial Research Magazine, 1977

b. Energy 100, Department of Energy, 1977

c. AT&T, 1986

d. Beckman, 1986

d. Honorary Listings
American Men and Women of Science ; Who's Who in Science & Technology; Who's Who in Technology Today; Who's Who in Engineering; Leading consultants in Technology; Dictionary of International Biography; Men of Achievement; Member of Islamic Academy of Sciences

F- PATENTS

a. **Issued Patents**

1. US Patent 6,597,496, "Silicon Nanoparticle Stimulated Emission Devices", issued on 7/22/03
2. European Regional Patent 1,264,202 issued on 5/18/05. Nationally Issued as 00991877.2 on 8/18/05 in Germany (DE), United Kingdom (GB), France (FR) and Ireland (IE).
3. US Patent 6,585,947, "Silicon Nanoparticle and Method for Producing the Same" issued on 7/1/03.
4. US Patent 6,846,474, "Silicon Nanoparticle and Method for Producing the Same" issued on 1/25/05, composition of matter claims for the 1 nm (blue) particle.
5. US Patent 6,984,842, "Silicon Nanoparticle Field Effect Transistor and Transistor Memory Device", issued on 1/10/06.
6. US Patent 6,456,423, "Silicon Nanoparticle Microcrystal Nonlinear Optical Devices", issued on 9/24/02.
7. US Patent 6,410,934, "Silicon Nanoparticle Electronic Switches", issued on 6/25/02.
8. US Patent 6,743,406, "Family of Discretely Sized Silicon Nanoparticles and Method for Producing the Same" issued on 6/1/04.
9. US Patent 7,001,578, "Family of Discretely Sized Silicon Nanoparticles and Method for Producing the Same" issued on 2/21/06.
10. US Patent 6,660,152, "Elemental Silicon Nanoparticle Plating and Method for the Same", issued on 12/9/03.
11. US Patent 6,992,298, "Coated Spherical Silicon Nanoparticle Thin Film UV Detector with UV Response and Method of Making", issued on 1/31/06.
12. US Patent 7,989,833, "Silicon Nanoparticle Light Emitting Diode Device" issued 8/2/2011
13. US patent ' Luminescent silicon nanoparticle-polymer composites, composite wavelength converter and white LED , Allowed

Pending Patents

1. US Continuation In Part Application 10/849,536, "Germanium and Germanium Alloy Nanoparticle and Method for Producing the Same", filed on 5/19/04.
2. US Continuation In Part Application 10/864,072, "Silicon Nanoparticle Nanotubes and Method for Making the Same", filed on 6/9/04.
3. US Patent Application 11/088,269, "Silicon Nanoparticle Formation by Electrodeposition from Silicate", filed on 3/23/05.
4. US Provisional Patent Application 60/800,168, "MOS Capacitor with Oxide Embedded Silicon Nanoparticle Thin Film", filed on 5/12/06.
5. US Patent Application 60/702,674, "Chloroplatinic Acid Assisted Silicon Nanoparticle Formation Method", filed on 7/26/06.
6. US Patent Application 60/702,673, "Silicon and Platinum Nanoparticle Formation from Silicon Powder and Chloroplatinic Acid", filed on 7/26/06
7. US Patent Application 60/736,139, "Silicon Nanoparticle Photovoltaic Solar Cell Device", filed on 11/8/06
8. US Provisional Patent Application 60/851,539, "Silicon Nanoparticle Glucose Sensor and Method", filed on 10/13/06.
9. US provisional on synthesis of silicon nanowires
10. " Luminescent Si nanoparticle-polymer composites, composite wavelength converter and white LED with King Saud University
11. US Provisional " Nanosilicon-based room temperature paints and adhesive coatings
12. US provisional " Organosilicon compounds and oils with homogeneous silicon nanoparticle dispersion" with King Saud University and University of Jordan
13. US patent "Silicon Nanoparticle White LED Devices". With PolyBrite International
14. US Patent: Use of Silicon Particles as Catalyst, Electrochemical Device Comprising the Particles and Method Thereof. Inventors: Siu-Tung Yau Munir H. Nayfeh Gang Wang , Agents: FAY SHARPE LLP Origin: CLEVELAND, OH US , IPC8 Class: AH01M806FI , USPC Class: 429 19
15. US provisional Patent, ORGANOSILICON NANOSILICON COMPOSITES AND FABRICATION METHODS, Inventors: A.S.Al Dwayyan, M. S. Alsalhi, A. Al Dukhail, Mansour Al Hoshan, M. Naziruddin Khan, Ghassan Al Chaar, Munir Nayfeh
16. Silicon nanoparticle sol-gel with King Saud University
17. Silicon nanoparticle-polymer composites with King Fahd University

Trade Marks

Dr. Nano

(The trade mark is owned by D, Nayfeh. Dr. Nano presents literary work, art work, fiction, short stories, etc on themes relevant to nanotechnology.

G- CONFERENCES ATTENDED[2] (speaker, author and/or participant)

(a) More than 250 professional talks in the field of specialization at institutions, conferences and workshops, with more than 30 talks on educational issues.

(c) Co-Organized several national and international conferences and workshops. Those include:

Gordon Conference on Atomic Physics, (1978);
Atomic Spectra and Collisions in External Fields, Gaithersburg, MD (1984);
International Laser Science Conference, Dallas, Texas (1985);
Satellite Meeting on Atomic Spectra and Collisions in External Fields at the XV International Conference on the Physics of Electronic and Atomic Collisions (ICPEAC) (1987);
NATO Conference on Atoms in Intense Fields, Kos, Greece (1989);
International Conference on "Lasers in S and T", Amman, Jordan (1989);
Congress of Arab Scientists & Technologists Abroad, Amman (1992);
International Conference on "Lasers in Science and Technology", Amman, Jordan (1994); Congress of Arab Scientists & Technologists Abroad, Amman (1994);
Workshop on Environmental Awareness United Arab Emirates (1996);
STM-Based Lithography and Nanofabrication, Triesta, Italy (1997);
Conference on Information Technology, Tunis, Tunisia (1996);
Conference on Academia and Industry at Najah University, PNA (1998);
ASST School on nanotechnology, Damascus, 2003;
NSF sponsored conference on nanotechnology, Amman, Jordan (2008);
NSF sponsored conference on nanotechnology, Nablus and Tulkarm, Palestine (2012)
NSF sponsored conference on nanotechnology, Cairo, Egypt (2013)

H- SPECIFIC FIELDS OF SCIENTIFIC INTEREST

Fields of experimental and theoretical interests

High resolution laser spectroscopy, atomic excitation, resonance multiphoton ionization, collisions and laser spectroscopy; atoms and molecules in intense electromagnetic fields, highly excited atoms, classical and quantum chaos, deposition on surfaces, scanning tunneling microscopy, nanolithography, nanoelectronics and technology, silicon nanoparticles, Si biosensors

Sectors of Applications: Renewable energy (solar cells, fuel cells, energy storage); Lighting (LED); electronics (detectors, memory), biomedical (imaging, assays, glucose, skin care); Industrial (paint, adhesive); manufacturing (particles, wires)

Nanotechnology: Synthesis and detection of single Si nanoparticles Munir Nayfeh's present work concentrates at understanding the nature of ultrasmall Si nanocrystallites. We developed a process for converting bulk silicon crystals into ultrasmall, nano-sized particles. The nanoparticles come in magic discrete sizes, the smallest of which is one billionth of a meter in diameter and contain about 30 Si atoms. They constitute the transition between the solid and atomistic states. They can be formed into colloids, crystals, films, and collimated beams for unique applications in the electronics, optoelectronics and biomedical industries. These nanoparticles have many useful properties that are unlike those of bulk silicon, including being a source of stimulated emission. The particles are ultrabright under single or two-photon excitation, such that the photoluminescence of single particles is readily detectable. Moreover, the electronic characteristics of single particles are being recorded by scanning tunneling spectroscopy (STM). Potential uses include nano-solar cells; solid state lighting; catalysts for biofuels; nanomemory and single-electron electronics; semiconductor lasers; and sensors and markers for biological materials

He is also focusing on the understanding of the formation, structure and response of ultrasmall silicon grains, relevant to understanding the nature of dust grains in interstellar and coronal environments. He examined the prospect of finding silicon grains in the corona and in the red rectangle as well as the formation of the particles from silicate material, found in meteorites.

First light on silicon lasers, **Physics World** V14, No 1 (January 2001), page 7
Let there be light, **Nature** 409 (22 February 2001), page 974
Silicon lights up imaging, **Nature biotechnology** V 20 (April 2002), page 351
Nanotech pioneers: where are they taking us? S. Edwards, Editor, Wiley-VCH, page 87 (2005)

Writing with atoms and molecules: Picking and imaging small clusters and single molecules The nanoparticle research has built on previous work in which he used two-photon laser processes combined with scanning tunneling spectroscopy to pick and image small clusters of metal atoms and single organometal molecules on surfaces at room temperature.

The Smallest Graffiti in the World, **New Scientist**, Cover and Analysis, March 7, 1992.

Detection of single atoms Previously, with colleagues at Oak Ridge National Laboratory, Nayfeh used two-photon ionization processes to demonstrate the ultimate in analytical detection of atomic concentrations including single atoms

Electron spectroscopy detects single atoms, **Physics Today**, Search and Discovery, September 1978); **Encyclopedia Britannica** Yearbook of Science (1978),
World Book Science Annual (1978)

High resolution Laser spectroscopy: Precision measurements of the Rydberg Constant in atomic hydrogen: PH.D thesis under the supervision of Professors Theodor Hansch and Arthur Schawlow. This work (reported in the Physical Review Letters, 1975) was listed as one of the highlights of Physics in 1974 and in the book celebrating the 100 year anniversary of the Physical Review.

The Physical review: The first 100 years: A selection of seminal papers and commentaries, H. Henry Stroke, editor, Springer and AIP press (1995)

I- PUBLICATIONS[3]

BOOKS (authored, translated, edited and/or co-edited):

(a) M. H. Nayfeh and M. K. Brussel, Electricity and Magnetism, John Wiley and Sons, New York (1985).

(b) M. H. Nayfeh and C. Clark, eds. Atomic Excitation and Recombination in External Fields, Harwood Academic Publishers, New York (1985).
(c) K. Taylor, M. Nayfeh, and C. Clark, eds. Atomic Spectra and Collisions in External Fields, Plenum (1988).
(d) C. Nicholaides, M. H. Nayfeh, and C. W. Clark, eds. Atoms in Strong Fields, Plenum (1989).

(e) Munir Nayfeh, Teaching nanotechnology to students, Library of Congress, Copyright (2008)

PAPERS/ARTICLES

Popular Articles

1. "Laser Detection of Single Atoms and Applications," M. H. Nayfeh, The American Scientist 67, 204 (1979).

2. "Atom," M. H. Nayfeh, in the McGraw-Hill 1979 Yearbook of Science and Technology, pp. 103-106.

3. "Laser Detection of Single Atoms," M. H. Nayfeh, in the Bulletin of UNESCO for the Middle East, Volume X, NO. 1-2, Jan.-June (1982).

4. "Total Eclipse of the Sun" International Innovation, p 88 (May 2012)

Chapters in Books

5. "Use of a 3-MV Proton Accelerator for Study of Noble Gases, Including Laser Ionization of Excited State," G. S. Hurst, J. P. Judish, M. H. Nayfeh, J. E. Parks, M. G. Payne, and E. B. Wagner, Proc. Third Conference on Application of Small Accelerators, (CONF-741040-PI), edited by J. L. Duggan and I. L. Morgan (National Technical Information Service, Springfield, Va., 1975), Vol. I. pp. 97-119.

6. "Selective Single Atom Detection in a 10^{19} Atom Background," G. S. Hurst, M. H. Nayfeh, J. P. Young, M. G. Payne, and L. W. Grossman. In Laser Spectroscopy, J. L. Hall and J. L. Carlsten, eds. (Springer Series in Optical Sciences, Vol. 7) Springer-Verlag, NY, Heidelberg, 1977.

7. "Adiabatic Following in Two-Photon Transition," M. H. Nayfeh and A. H. Nayfeh, to be published in Proceedings of the Fourth Rochester Conference on Coherence and Quantum Optics, Rochester, NY, June 8-10, 1977.

8. "Weak Field Limit of Laser Enhance Collisional Energy Transfer," M. G. Payne, C. W. Choi, and M. H. Nayfeh, Bull. Am. Phys. Soc. 21, 156 (1976); in Proceedings of the International Conference on Multiphoton Processes, Rochester, New York, 1977 (Wiley, New York 1977).

9. "Resonance Ionization Spectroscopy of Atoms and Molecules," M. H. Nayfeh, in SPIE Journal Optical Engineering, 19, 057 (1980).

10. "Collision Induced Multiphoton Processes," M. H. Nayfeh and W. Glab in the Proceedings of the 3rd International Conference on Lasers "Lasers 80," New Orleans, Dec. 1980, 435-443.

11. Two phhoton laser induced radiative collisions, Munir H. Nayfeh and GB Hillard, in XII International Conference on the Physics of Electronic and

Atomic Collisions, ed. Sheldon Datz, Gatlinburg, Tennessee, July 15-21, 1981, Volume 1

12. "Phase Control of Atomic Scattering States in Two-Photon Radiative Collisions," M. H. Nayfeh, G. B. Hillard, and D. B. Geohegan. In "Photon-assisted Collisions and related topics," N. Rahman and C. Guidotti eds., Harwood Academic Publishers (London & New York), 1982.

13. "Phase Resonance in Two-Photon Radiative Collision," M. H. Nayfeh, G. B. Hillard, and D. B. Geohegan. In the Proceedings of the Fifth International Conference on Lasers and their Applications (Lasers' 82), New Orleans, Dec. 1982, p. 398.

14. "Theoretical and Experimental Study of CW HF Chemical Laser Performance," L. S. Sentman, M. H. Nayfeh, W. O. Moleback, P. Rengoni, K. Herrick, K. King, P. Schmidt and S. Townsend. Proceedings of the Fourth International Symposium on Gas Flow and Chemical Lasers, Stresa, Italy, Sept. 13-17, 1982, Plenum Publishing Corp. New York.

15. "Radiative Collision Induced Electron Continuum-Continuum Scattering," M. H. Nayfeh. In Collisions and Half Collisions With Lasers, N. Rahman and C. Guidotti eds., Harwood Academic Publishers (London & New York), 1983.

16. "Highly Excited Hydrogen in External Electric Fields," M. H. Nayfeh, K. Ng and D. Yao, in Atomic Excitation and Recombination in External Fields, M. H. Nayfeh and C. Clark, eds., Gordon and Breach Science Publishers (London & New York) 1985.

17. "Mode-Media Interactions in a CW Chemical Laser," L. H. Sentman, M. H. Nayfeh, S. Townsend, S. King, G. Tsioulos, P. Renzoni and J. Bichanich, in the Proceedings of the 5th International Symposium on Gas Flow and Chemical Lasers, Oxford, England, August 20-24, 1984.

18. "Highly Excited Hydrogen in Strong External Electric Fields," M. H. Nayfeh, K. Ng and D. Yao, in Laser Spectroscopy, VII eds. T. Hänsch and R. Shen, Springer-Verlag (1985).

19. "Highly Excited H in External Electric Fields", M.H. Nayfeh, in Advances in Laser Science, the Proceedings of the International conference on Laser Science, Dallas, 1985 (AJP 146).

20. "Stochastity in Hydrogen in DC and AC Fields," M.H. Nayfeh and D. Humm, in the Proceedings of the Workship on Photons and Continuum States of Atoms and Molecules, N. Rahman, G. Guidotti, and M. Allegrine, eds. Springer-Verlag, 28 (1987).

21. "Hydrogen in Strong de Electric Fields - Atomic Engineering," M. H. Nayfeh, in Resonance Ionization Spectroscopy, G. S. Hurst and C. G. Morgan, eds. Adam Hilger Ltd., 21 (AIP Publication,1987).

22. "Atomic Engineering of Highly Excited Atoms," in Arthur L. Schawlow--Lasers, Spectroscopy, and Ideas, M. Levenson and W. Yen, eds., Springer-Verlag (1987).

23. "Molecular Hydrogen in Intense Laser Fields," M. H. Nayfeh, in the Proceedings of the NATO Workshop Atomic and Molecular Processes with Short Intense Laser Pulses, A. Bandrank, ed., Plenum (1987).

24. "Molecular Hydrogen in Intense Laser Fields," M. H. Nayfeh, in Proceedings of the International Conference on Atomic Spectra and Collisions in External Fields, K. Taylor, M. Nayfeh and C. Clark eds., Royal Holloway College, Plenum (1987).

25. Chaos in One-Dimensional Hydrogen, D. Humm and M. H. Nayfeh, in Atomic Spectra and Collisions in External Fields, K. Taylor, M. H. Nayfeh, and C. W. Clark, eds., Plenum (1988).

26. Multiphoton Multielectron Excitation and Ionization of H_2, M. H. Nayfeh, J. Mazumder, D. Humm, T. Sherlock, and K. Ng, in Atomic and Molecular Processes with Short Intense Laser Pulses, A. Bandrauk ed., Plenum (1988).

27. Highly Excited Hydrogen in External Fields, M. H. Nayfeh, in The Hydrogen Atom, F. Bassani and T. W. Hänsch eds., Springer-Verlag (1988).

28. Highly Excited Hydrogen in External Fields, M. H. Nayfeh, in Atomic Excitation and Collision in External Fields, C. Nicholaides, M. Nayfeh, and C. W. Clark, eds., Plenum (1988).

29. H_2 in Strong Laser Radiation, M. H. Nayfeh, D. Humm, and J. Mazumder, in Atomic Excitation and Collisions in External Fields, C. Nicholaides, M. H. Nayfeh, and C. W. Clark, eds., Plenum (1988).

30. Chaos in One-Dimensional Hydrogen, D. Humm and M. H. Nayfeh, in Atomic Excitation and Collisions in External Fields, C. Nicholaides, M. H. Nayfeh, and C. W. Clark, eds., Plenum (1988).

31. Highly Excited Hydrogen in Strong External Fields, M. H. Nayfeh, in the Proceedings of the 7th National Conference of India on Atomic and Molecular Physics, 1989.

32. Fabrication of Nanometer Scale Structures, M. Nayfeh, in Technology of Proximal Probe Lithography , C. Marrian, ed., SPIE Institutes, IS 10, 200 (1993)

33. Atoms in Intense Laser Fields," M. H. Nayfeh, in Molecules in Laser fields, edited by A. Bandrauk, Dekker Press, (1993).

34. H2 in Intense Laser Fields," M. H. Nayfeh, in Molecules in Laser fields, edited by A. Bandrauk, Dekker Press, (1993).

35. Scanning tunneling microscopy-based fabrication of nanometer scale structures, Munir Nayfeh, in Atomic Force Microscopy/Scanning Tunneling

Microscopy 2, page 23, Samuel H. Cohen, Marcia L. Lightbody , eds. (Pelnum Publishing Corporation, New York, 1997)

36. Stimulated blue emission from ultrasmall Si nano particles (a new phase of silicon), M. H. Nayfeh, in Atoms, Molecules, and quantum Dots in Laser fields, N. Bloembergen, N. Rahman, and A. Rizzo, eds. Atti Di Conferennze **71**, 83 (2001)

37. Si29 naoparticles: A new form of silicon, Munir H. Nayfeh in Laser Physics at the limits, H. Figger, D. Meschede, and C. Zimmermann, eds. Springer (2001)

38. Silicon nanoparticles: Next generation of ultrasensitive fluorescent markers, in Synthesis, Functionalization, and Surface Treatment of Nanoparticles, M. H. Nayfeh, E. Rogozhina, and L. Mitas M.-Isabelle Baratron, ed., American Scientific Publishers, (2002)

39. Lasing effects in ultrasmall silicon nanoparticles, Munir H. Nayfeh, *in* Twords the first silicon laser, L. Pavesi, S. Gaponenke, and L. D. Negro, eds. Kluwer Academic Publishers, p 165 (2003)

40. Silicon nanoparticles: New photonic and electronic material at the transition between solid and molecule, in Nanosilicon, M. H. Nayfeh and L. Mitas, V. Kumar, ed. page 1 (Elsevir, 2007)

41. Using Polarimetric Imaging and Spectroscopy of the Corona from 400 to 1800 nm for Exploring the near Sun Plasma Habbal, S. Rifai; Kuhn, J.; Mickey, D.; Jaeggli, S.; Morgan, H.; Roussev, I.; Johnson, J.; Arndt, M. B.; Daw, A.; Nayfeh, M. H. Proceedings of the International Symposium on Solar Physics and Solar Eclipses (SPSE 2006) held at Waw an Namos, Libya, 27-29 March 2006. Editors: RENZO RAMELLI, OSAMA SHALABIEA, IBRAHIM SALEH, JAN O. STENFLO, p.27-35

Journal Publications

42. "Kinetics of He(2^1S) Using Resonance Ionization Spectroscopy," M. G. Payne, G. S. Hurst, M. H. Nayfeh, J. P. Judish, C. H. Chen, E. B. Wagner, and J. P. Young, Phys. Rev. Lett. 35, 1154 (1975).

43. "Population Difference of a Two-Level Atomic System Due to a Strong Pulsed Field," Munir H. Nayfeh and Ali H. Nayfeh, J. Appl. Phys. 46, 4862 (1975).

44. "Optical Resonance of a Two-Level Atomic System," Munir H. Nayfeh and Ali H. Nayfeh, J. Appl. Phys. 47, 2528 (1976).

45. "Energy Transfer Between Slowly Moving Atoms - The Case of No Crossing Point," M. G. Payne and M. H. Nayfeh, Phys. Rev. A 13, 595 (1976).

46. "Effect and Relaxation on Adiabatic Following," M. H. Nayfeh, Phys. Rev. A 14, 1304 (1976).

47. "Precision Measurement of the Rydberg Constant by Laser Saturation Spectroscopy of the Balmer Line in Hydrogen and Dueterium," T. W. Hänsch, M. H. Nayfeh, S. A. Lee, S. M. Curry, and I. S. Shahin, Phys. Rev. Lett. 32, 1336 (1976).

48. "Saturated Two Photon Resonance Ionization of He(2^1S)," G. S. Hurst, M. G. Payne, M. H. Nayfeh, J. P. Judish, and E. B. Wagner, Phys. Rev. Lett. 35, 82 (1976).

49. "Kinetic Study of Energy Tranfer from He(n = 2,3) to Ne, Ar, Kr, and Xe," M. H. Nayfeh, C. H. Chen, and M. G. Payne, Phys. Rev. A 14, 1739 (1976).

50. "Demonstration of One-Atom Detection," G. S. Hurst, M. H. Nayfeh, and J. P. Young, Appl. Phys. Lett. 30, 229 (1977).

51. "One-Atom Detection Using Resonance Ionization Spectroscopy," G. S. Hurst, M. H. Nayfeh, and J. P. Young, Phys. Rev. A15, 2283 (1977).

52. "Collisional Line Broadening Using Laser Excitation and Ionization," M. H. Nayfeh, G. S. Hurst, M. G. Payne, and J. P. Young, Phys. Rev. Lett. 39, 604 (1977).

53. "Effect of Relaxation on Self-Induced Transparency," M. H. Nayfeh, Phys. Rev. A 16, 927 (1977).

54. "Two-Photon Ionization of Two Colliding Atoms," M. H. Nayfeh, Phys. Rev. A 16, 927 (1977).

55. "Observation of New Satellites in Cs-Ar System Using Resonance Ionization Spectroscopy," M. H. Nayfeh, G. S. Hurst, M. G. Payne, and J. P. Young, Phys. Rev. Lett. 41, 302 (1978).

56. "Adiabatic Following in Two-Photon Absorption," M. H. Nayfeh and A. H. Nayfeh, Phys. Rev. A 18, 1124 (1978).

57. "Radiative Collision-Induced Photoionization," M. H. Nayfeh and M. G. Payne, Phys. Rev. A 17, 1695 (1978).

58. "Self Induced Transparency in Two Photon Transition," M. H. Nayfeh, Phys. Rev. A 18, 2550 (1978).

59. "Studies of the HgTP Exciplex System," S. Chilukuri and M. H. Nayfeh, J. Appl. Phys. 49, 5378 (1978).

60. "Double Resonance with Pulsed Fields," M. H. Nayfeh and A. H. Nayfeh, Phys. Rev. A 19, 1666 (1979).

61. "Collisional Induced Three Photon Ionization," M. H. Nayfeh, Phys. Rev. A 20, 1927 (1979).

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ABSTRACTS (published):

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RESEARCH REPORTS (with retrievable Reference Numbers):

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CONFERENCE PRESENTATIONS (not necessarily published):

There are more than 250 professional talks in the field of specialization at institutions, conferences and workshops.

There are more than 30 talks on educational issues.

CITATIONS (of published work):

(a) Total number of citations:

At least:
1500 citations on nanotechnology
200 citations on hydrogen
1700 citations for papers in his books

(b) Maximum citations of a published paper:

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Miami Herald
The Oak Ridger (Oak Ridge, TN)
Washington Post
The News Gazette (Champaign, IL) (9 times)
Chicago Sun-Times
New York Times

TV coverage of Nayfeh's silicon nanopaticles
Welch/BBC TV program
Brazil TV interview

Funding Agencies: National Science Foundation; US Air Force; US Navy; State of Illinois, Grainger foundation; Octillion Corporation; US Army; Sharp; Wintek; Panasonic; King Abdulaziz City for Science and Technology (KACST); King Fahd University for Petroleum and Minerals; ARAMCO (pending), KEN DO (Vietnam), PolyBrite (Chicago)

Reviewer
Physical Review and Physical Review Letters; Applied Physics Letters; Journal of Applied Physics; PTL; Nanotransaction; Optics Communication; MRS

Evaluator and Examiner
National University Singapore , Al-Ain University, Sharjeh Univeristy, King Abdullah Book Award, King Faisal Award, King Saud University

International Experience

(1) Campus Tasks:

- University Delegations: I have been on multiple University delegations and technical teams on national as well as overseas missions headed by University officials including James Stukel (then President); David Chicone (then Vice President for Economic Development), Charles Zukoski (then Vice Chancellor for Research); Associate Provosts for International Affairs- Earl Kellogg and, Charles Stewart; and others at UI international units including

Isabel Wong, Mark Kaczor (Office of Technology Management), Jesse Delia, and Asghar Mirarefi.

- Committees: The University Senate; Chairman of the University 5-year evaluation of Isabel Wong of the International programs; Junior College Course Equivalency; Safety and Radiation.

- University Liaison Officer: Princess Summaya University in Jordan; the Royal Commission and the Jubail System of Colleges in Saudi Arabia. In September, I will be leading a 10-member faculty panel to Saudi Arabia to evaluate the Jubail System of Colleges.

(2) International Departmental and Business Experience

- **Promotion of US Industry**: I have served on industry teams headed by The Honorable Denis Hastert (The Former speaker of the US House) to Brazil, Saudi Arabia, Vietnam, Jordan, Dubai, South Korea, and Washington DC, State of Illinois Department of Economic Development and Opportunity

- **Entrepreneurial Activities**: Founded two start-ups based on nanotechnology developed in my laboratory at the University of Illinois, which have since then led to the formation of funded partnerships with US and foreign industries and agencies including Polybrite International (Naperville), Dow - Hemlock Semiconductor (Michigan), Wintek (Taiwan), Sharp Labs of America, Sungen-Octillion (Canada), Panasonic Labs (Boston), CRADA Partnership with US Army (CERL), King Abdul-Aziz City for S&T (Saudi Arabia), and King Fahd University for Petroleum and Minerals (Saudi Arabia). In addition, I have submitted joint proposals with Samsung (South Korea). The partnerships resulted in joint patents with Dow - Hemlock Semiconductor (pending), PolyBrite (just issued), King Abdul-Aziz City for S&T (Saudi Arabia) (just issued); King Fahd University for Petroleum and Minerals (issued, pending), and US Army (pending), King Saud University (allowed).

- **NSF/USAID-funded International Projects**: PI on Wales - UIUC – Hawaii - Bridgewater solar eclipse research and observation expeditions; US-Egypt research project on nanotechnology for renewable energy; US-Jordan research project on imaging living cells using nano-based stains; US-West Bank Nano Workshop; US-Jordan Nano Workshop; US-India symposium; and gave keynote talks at numerous international forums including the 2010 International Nanomedicine Symposium and Workshop in Karachi, funded jointly by the USAID and Higher Education Commission of Pakistan.

- **International Collaborations:** École Normale Supérieure (Paris) through UIUC-CNRS project; Ministry of Health research Labs (Rome); National Research Center (Rome). I recently made invited visits to discuss partnerships to: The Chinese Academy of Sciences and the National Nano Center; Saigon High Tech Park; Masdar Institute of Science and Technology (Abu Dhabi); Shah Alam University (Malaysia); National Research Center (Cairo); Fateh University (Turkey); University of Karachi (Pakistan); Max-Plank Institute (Germany)

- **Panels and consultancy**: served on Fulbright, KAUST, IIE, and Arab League, UNESCO, UNDP, UNIP, and ICTP panels.

- **Advisory Boards**: Chairman of International Advisory Board of Center of Excellence in Nanotechnology at King Fahd University (Saudi Arabia); Vice chairman of the International Scientific Council of King Abdullah Institute for Nanotechnology (Saudi Arabia); Past Board member and founder of the Arab Science and Technology Foundation (UAE); Past president of the Network of Arab Scientists and Technologists Abroad.

- **Multiple Partnerships:** Established partnerships among faculty from the US (UIUC, University of Chicago, Cleveland state); Turkey, Pakistan, Abu Dhabi, Jordan, and Egypt.

Activities in the Arab and Muslim World:

Organizations

- Co-founded the Network of Arab Scientists and Technologists Abroad (**ASTA**) headquartered in Urbana, Illinois, USA, and at the HCST (Jordan)
- Co-founded the Arab Science and Technology Foundation (ASTF) in Sharjah, UAE

Educational Activities

- Co-organized congresses of ASTA in Jordan, Palestine, Lebanon, and the United Arab Emirates.
- Published on the role of ASTA in the development in the Arab World (Al Taawon (Riyadh), Arab Journal of Science (ALESCO, Tunis), Almuhandes (Jordan), Al-Tadrib Al Taqani (Riyadh), Al Fuheis (Chicago)
- Represented ASTA in the deliberations and addressed the Meeting of Arab Ministers for Research and Higher Education held in Algeria (1995) and in Riyadh (1998) on the role of ASTA.
- Represented ASTA at the Expatriate Meeting of the Arab League
- Co-organized and participated two symposia at the Arab Anti-Discrimination Committee (ADC) in Washington DC on the role of ASTA in the development of the Arab World.
- Held Arab-American community meetings (Chicago, Indiana, Orlando, Champaign, Washington DC)
- Interviews on Arab television (Jordan, Syria, Tunis, Sharjah, Algeria, Dubai, Abu Dhabi, Saudi Arabia, Palestine, Egypt Dream Channel)
- Interviews on BBC and Voice of America
- Contributed the feature: Our Scientists Abroad (featured a scientist & a technologist) in the Arab Magazine of Science (ALESCO)
- Interviews in: Nature (London), Al Wasat (London), Al Arabi (Kuwait), Al Yamama (Saudi Arabia), Al Hayat (London), Al Majal (Washington DC), Al Ahram (Egypt), Al Khalige, Al Watan, Alitihad, Tunisian, Algerian, Jordanian, Palestinean, etc.

Technical activities

- Co-organized international conferences on lasers, nanotechnology, information technology, environment, and water resources, pharmaceuticals (Jordan, Syria, Tunisia, UAE, Oman, Palestine, Egypt, UK, Greece, Italy, India, Canada and USA).

- Contributed several articles to the Arab Science Magazine for the Youth (ALESCO)
- Contributed articles to the Arab Science Magazine on lasers, internet and information technology, biotechnology, GATT, robotics, and nanotechnology, and served on its Board of Advisors (ALESCO).

Contributions to modern science and technology

- Electronic directory of ASTA (in collaboration with the Association of Arab Universities, AARU)
- Documentation of the Arab contributions to modern S&T; Arab Women in S&T

Transfer of Know-How and Technology (articles written in English and professionally translated into Arabic)

- Network of Arab Scientists and Technologists Abroad, Arab Journal of Science, Issue 23, page 5, June 1994
- Lasers and Applications, Arab Journal of Science, Issue 23, page 17, June 1994
- New Technologies, and Information transfer, Arab Journal of Science, Issue 26, page 8, December 1995
- GATT, Arab Journal of Science, Issue 25, page 5, June 1995
- Utilzation of Arab Expatriates in the development of the Arab World, Arab Journal of Science, Issue 2, December 1996
- Robotics, Arab Journal of Science, Issue 30, page 73, December 1997
- The Role of Jordanian Expatriates in National Development, Almuhandes Alordoni, Issue 65, page 24, October/November 1998
- Marine biotechnology and the 21 century, Arab Journal of Science, Issue 34, page 30, December 1999
- Return to homeland via the Internet, Al-Tadreeb Wa Altaqania, Issue 9, page 46, Ramadan 1420
- Tansfer of Know-How and Technology to the Arab World, Altaawun 44, (Cooperration Council for the Arab States of the Gulf), page 134, December 1996
- Opto electronics, Arab Journal of Science, December 2003
- Nano electronics, Arab Journal of Science, Issue 6, page 32, December 2005
- Molecular and optical electronics, Arab Journal of Science, Issue 6, page 46, December 2005
- Arab Contribution to Astronomy and Infrormation Technology - Arab Journal of Science, Issue 7, page 101, June 2006
- Harvest of the Century in Technology, Shoman Foundation, 2009
- Nanotechnology Startegy for the Arab World, Arab League, 2010

Articles for the Arab Youth (translated into Arabic)

- Internet and the Youth, Arab Magazine for the Youth I, Issue 1, Page 10, June 1997
- Internet and the Youth II, Arab Magazine for the Youth, Issue 2, Page 13 , December 1997
- Internet and the Youth, Arab Magazine for the Youth III, Issue 3, Page 38 , June 1998
- Nanotechnology, Arab Magazine for the Youth, Issue 3, Page 23 , June 1998

- Drawing with Auto CAD, Arab Magazine for the Youth, Issue 5, Page 12 , June 1999
- Drawing with Photoshop, Arab Magazine for the Youth, Issue 5, Page 26 , June 1999
- Graphene, pencils, chicken wires and you, Arab Magazine for the Youth, June 2011 (in press)
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Reports on the Muslim and Arab World

"Nanotechnology Strategy for the Arab World": A study for the ARAB League

"The Muslim diaspora - from brain drain to brain gain? - SciDev.Net" http://www.scidev.net/en/middle-east-and-north-africa/opinions/the-muslim-diaspora-from-brain-drain-to-brain-ga.html

"The State of Nanotechnology in the Muslim World" (in preparation for the Islamic Academy of Sciences)

PAT. NO.		Title
1	8,367,769	Silicon-based nanosilicon composites and fabrication methods
2	8,143,079	Silicon nanoparticle white light emitting device
3	8,076,410	Luminescent silicon nanoparticle-polymer composites, composite wavelength converter and white LED
4	8,029,944	Use of silicon particles as catalyst, electrochemical device comprising the particles and method thereof
5	7,989,833	Silicon nanoparticle white light emitting diode device
6	7,429,369	Silicon nanoparticle nanotubes and method for making the same
7	7,001,578	Family of discretely sized silicon nanoparticles and method for producing the same
8	6,992,298	Coated spherical silicon nanoparticle thin film UV detector with UV response and method of making
9	6,984,842	Silicon nanoparticle field effect transistor and transistor memory device
10	6,846,474	Silicon nanoparticle and method for producing the same
11	6,743,406	Family of discretely sized silicon nanoparticles and method for producing the same
12	6,660,152	Elemental silicon nanoparticle plating and method for the same
13	6,597,496	Silicon nanoparticle stimulated emission devices
14	6,585,947	Method for producing silicon nanoparticles
15	6,456,423	Silicon nanoparticle microcrystal nonlinear optical devices
16	6,410,934	Silicon nanoparticle electronic switches