Dr. Nabil Maalej

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WORK EXPERIENCE

Associate Professor, Medical Physics, King Fahd University of Petroleum and Minerals, 2001-present
- Leading role in starting the new Medical Physics Master's Program
- Design and development of new Medical Physics Courses and labs in Diagnostic Imaging and Radiation Therapy
- Primary Investigator in research projects in the fields of Nanoparticles for cancer cell imaging, Mammography Imaging Optimization, Monte Carlo Simulation of imaging and radiation therapy devices and particle interaction with matter, electromagnetic exposure of the human body, etc.
- Coinvestigator in biomedical signal and image processing
- Consulting role in LabView programming and computer interfacing

Visiting Professor, National University of Singapore, (summer of 2007)
- Research collaboration with bio-nanotechnology group.
- Develop new polymer nano-particles for cancer cell imaging.

Consultant, Design and Development, Arthur D. Little Inc., 1998-2001.
- Responsible for the design and development of new electronics and medical devices.
- Participated in the design and development of new surgical navigation device using the magnetic flux technology.
- Designed the software and the computer interface for a new electro-optical test device.
- Did the costing, testing and contributed to the design of a new miniature electronics promotional device.
- Responsible for CAD for electronic circuits including schematics, simulation and PCB layout.

Research Associate, Cardiovascular Research Lab, Univ. of Wisconsin-Madison, 1994-1998.
- Responsible for grant writing, lab management, recruitment, and training of new personnel.
- Responsible for instrumentation, computer interfacing, data acquisition processing and analysis
- Designed new in vivo animal studies, human clinical studies, and performed animal surgery.
- Studied the effect antithrombotic coating of stents, grafts, and catheters.

Teaching Assistant, Medical Physics Department, Univ. of Wisconsin-Madison, 1995-1998.
- Responsible for some lectures in diagnostic imaging for graduate medical physics students.

Research Assistant, Cardiovascular Research Lab, Univ. of Wisconsin-Madison, 1990-1994.
- Responsible for new experimental design, instrumentation, computer interfacing, data acquisition processing and analysis.
- Conceived new methods that integrated electromagnetic and ultrasound flow measurement techniques, X ray imaging, Gamma ray detection, and flow modeling methods to study the effect of blood hemodynamics on platelet kinetics and thrombosis inside stenosed arteries.
- Designed Doppler ultrasound probes to measure blood flow inside arterial stenosis.

Research Assistant, Biomedical Engineering Labs, University of Wisconsin-Madison, 1987-1989.
- Developed a computerized calibration station for pressure sensors.
- Designed, constructed, and tested optical, resistive, and capacitate pressure sensors.
- Conceived, constructed, and tested pressure sensing shoe insoles and their electronics.
- Team-built and tested a portable microprocessor device that measures the pressure distribution in the shoe insoles, during gait.

Project assistant, Pulmonary Lab, Strong Hospital, University of Rochester, summer of 1985.
- Designed electronics and software to interface a four-channel recorder to an IBM PC.
- Developed signal processing program to detect and model the apnea respiratory response.

EDUCATION

Ph.D., Medical Physics, University of Wisconsin-Madison, 1994.
- Thesis: Effect of Blood Shear Forces on Platelet Mediated thrombosis inside arterial stenosis.

MS, Medical Physics, University of Wisconsin-Madison, 1990.
- Courses and Labs: diagnostic imaging, physics of diagnostic radiology, radiotherapy, nuclear medicine, ultrasound, body physics, health physics, dosimetry, and instrument design.
- Quality Assurance and Calibration: Diagnostic X-ray, CT Scanners, Magnetic Resonance Imaging, Digital Subtraction Angiography, radiotherapy, and Ultrasound equipment.

MS, Electrical and Computer engineering, Focus on Biomedical Instrumentation, Univ. of Wisconsin-Madison, 1987.
- Projects: a 12-lead electrocardiogram amplifier, a voice activated audio-tactile channel.
- Thesis: "A new electro-optical force sensor". Published in the IEEE Trans of Biomedical Engineering, 1988.

BS, Electrical and Computer Engineering, University of Rochester, Rochester, NY, 1985.
- Courses and Labs: digital and analog electronics, semi-conductor electronics, electromagnetism, control systems, and communication
- Focus on digital hardware and software design.
- Projects: an interpreter for PSL language, a software host machine, a micro-programmable microprocessor, a multi-channel analog interface for an IBM PC.

Baccalaureate, Math and Technology, Lycee technique de Nabeul, Tunisia, 1981.
- Focus on math, physics, chemistry, mechanical design and drawing, machine shop.
- Awarded a scholarship for engineering studies in the United States.

HONORS AND AFFILIATIONS
- Patent Award, US patent# US7852987, KFUPM, 2011.
- Patent Award, US patent# US8259905, KFUPM, 2013.
- Best teacher and Advisor in The college of Science Award, KFUPM, 2005.
- 1994 SATURN award for achievement and teamwork at the Univ. of Wisconsin.
- Graduated with honors in the BS and MS in electrical and computer engineering.
- Member of the Institute of Electrical and Electronics Engineering (IEEE) society.
- Member in the American Association of Physicist in Medicine (AAPM).
- Listed in the USA national dean's list of 1983.

PATENTS
1. **US Patent Number**: **7,852,987**
   Date: December 14, 2010
   Title: X-ray tube having a rotating and linearly translating anode
   Assignee: Univ. Dhahran King Fahd Petroleum&Minerals
   Inventor(s): Al-Sadah J H; Mansour E A, **Maalej N**
2. **US Patent Number**: **US 8,259,905**
   Date: September 2012
   Title: X-ray tube having a rotating and linearly translating anode
   Assignee: Univ. Dhahran King Fahd Petroleum&Minerals
   Inventor(s): Al-Sadah J H; **Maalej N**; Mansour E A

COMPUTER EXPERIENCE
- **Operating Systems:** DOS, WINDOWS, UNIX, and MAC.
- **Instructional Technology:** WebCT, Blackboard, Explain Everything
- **Programming Languages:** MATLAB, LabView, C, Pascal, Assembly, and machine code.
- **CAD:** Protel (electronics schematics, simulation and PCB layout), Empire (finite difference time domain electromagnetic simulation), Fluent (finite difference fluid flow simulation).
- **Software:** ImageJ, MS office (Word, Excel, PowerPoint, Front Page, etc...), Adobe Illustrator, Adobe Photoshop, etc.

EXTRACURRICULAR ACTIVITIES
- Active in student and professional organizations.
- Boy-scout leader and director of youth camps.
- Played Rugby for the Tunisian national team.
- Enjoy camping, hiking, swimming, soccer and volleyball.

THESIS PUBLICATION
Maalej N. *Effect of blood shear forces on platelet mediated thrombosis inside arterial stenosis*, ProQuest, UMI Dissertations Publishing, 1994. ISBN: T18, Medical Physics Publishing, Madisom, Wisconsin.

BOOKS
Sharif Al-Sharif, Mohammed Deriche, **Nabil Maalej**. Medical Images Segmentation Using WGAC Technique: A Fast Geodesic Active Contour Model Using Prior Analysis and Wavelets, ISBN-10: 3639265475. Publisher; VDM Verlag, 2010.

JOURNAL PUBLICATIONS

1. **Maalej N**, Webster JG. A miniature Electro-optical force transducer. IEEE Trans Biomed Eng., BME-35: 93-98, 1988.
2. Zhu H, **Maalej N**, Webster JG, Tompkins WJ, Bach-y-Rita P, Wertsch JJ. An umbilical data acquisition system for measuring pressure between the foot and the shoe. IEEE Trans Biomed Eng. 37:908-911, 1990.
3. **Maalej N**, Folts JD. Velocity profile inside a dog coronary stenosis. FASEB, 5: A3873, 1991.
4. **Maalej N**, Folts JD. Shear stress and thrombosis inside a dog coronary artery stenosis. FASEB6, 4:A271, 1992.
5. **Maalej N**, Folts JD. In-111 labeled platelets accumulate in vivo in stenosed dog arteries at an inverse rate as flow declines in the Folts cyclical flow reduction model. Circ, 88 (4):A2467, 1993.
6. **Maalej N**, Folts JD. Shear stress reverses the antithrombotic effect of aspirin in stenosed arteries. FASEB J 7(3):A208, 1993.
7. **Maalej N**, Albrecht R, Folts JD. The Potent inhibitory effect of a novel nitrosated albumin coating on platelet spreading, attachment and thrombosis on a collagen coated surface. Circ 89(4): A 1283, 1994.
8. **Maalej N**, Folts JD. Aspirin treatment does not protect against acute platelet mediated thrombosis in a stenosed coronary artery under high shear forces. Circulation 90(4), Part 2: I-239, 1994.
9. Folts JD, **Maalej N**, Keany JF, Loscalzo J. Coating Palmaz-Schatz stents with a unique NO donor renders them much less thrombogenic when placed in pig carotid arteries. Circulation 92(8):I-670, 1995.
10. **Maalej N**, Folts JD. The effect of trans-stenotic pressure gradient on acute platelet mediated thrombus formation. J Investigative Medicine 43:476A, 1995.
11. **Maalej N**, Folts JD. Increased shear stress overcomes the antithrombotic effect of aspirin in a dog coronary artery stenosis. Circulation, 93:1201-1205, 1996.
12. **Maalej N**, Folts J.D. Why aspirin cannot prevent arterial thrombosis - Reply. Circulation, 94(11), pp. 3003, 1996.
13. **Maalej N**, Folts JD. Effect of shear stress on acute thrombus formation in stenosed dog carotid arteries. The FASEB Journal 10(3): A563, #3245, 1996.
14. Folts JD, **Maalej N**, Keany JF, Loscalzo J. Palmaz-Schatz stents coated with a NO donor reduces reocclusion when placed in pig carotid arteries for 28 days. JACC 27(2) (Suppl. A):A68, 1996.
15. Osman HE, **Maalej N**, Folts JD. Gastric administration of a commercial flavonoid inhibits in vivo and ex vivo platelet aggregation in dogs with stenosed coronary arteries. The FASEB Journal 11(3):1820, 1997.
16. **Maalej N**, Holden JE, Folts JD. Stenosis hemodynamics and its effect on platelet accumulation inside stenosed dog carotid arteries. The FASEB Journal 11(3):1819, 1997.
17. Folts, J.D., Begolli, B., Shanmuganayagam, D., Osman, H., **Maalej N**. Inhibition of platelet activity with red wine and grape products. BioFactors, 6(4), pp. 411-414, 1997.
18. Folts JD, **Maalej N**, Osman H. Grape juice but not orange or grapefruit juice significantly inhibits in vivo platelet activity and thrombosis in stenosed canine coronary arteries. JACC 29(2):7345, 1997.
19. **Maalej N**., Demrow H.S., Slane P.R., Folts J.D. Antithrombotic effect of flavonoids in red wine. Wine. Amer Chemical So, pp. 247-260, 1997.
20. **Maalej N**., Demrow H.S., Slane P.R., Folts, J.D. Antithrombotic Effect of Flavonoids in Red Wine. ACS Symposium Series, 661, pp. 247-260, 1997.
21. **Maalej N**., Holden J.E. **,** Folts J.D. Effect of Shear Stress on Acute Platelet Thrombus Formation in Canine Stenosed Carotid Arteries: An In Vivo Quantitative Study. Journal of Thrombosis and Thrombolysis, 5(3), pp. 231-238, 1998.
22. Osman HE, **Maalej N**, Shanmuganayagam D. Grape juice but not orange or grapefruit juice inhibits platelet activity in dogs and monkeys. J Nutr. 128(12):2307-12, 1998.
23. Keevil J.G., Osman H., **Maalej N**., Folts, J.D. Grape juice inhibits human ex vivo platelet aggregation while orange and grapefruit juices do not. J Amer. Col. Cardiology, 31(2), pp. 172A, 1998.
24. Wedding KL, Grist TM, Folts JD, **Maalej N**. Coronary flow and flow reserve in canines using MR phase difference and complex difference processing. Magn. Reson. Med. 1998, 40(5):656-65, 1998.
25. Wedding K.L., Grist T.M., Folts J.D., **Maalej N**., Vigen K.K., Peters D.C., Osman H., Mistretta C.A. Coronary artery flow measurement with magnetic resonance imaging: a validation with ultrasound. Journal of the American College of Cardiology, 31(2), pp. 381, 1998.
26. **Maalej N**, Holden JE, Folts JD. In vivo dynamic monitoring of radiolabeled platelet accumulation in stenosed dog arteries during acute thrombus formation. Journal of Thrombosis and Thrombolysis, 5(3):231-239, 1998.
27. **Maalej N**, Albrecht R, Loscalzo J, Folts JD. The Potent inhibitory effect of a novel nitrosated albumin coating on platelet spreading, attachment and thrombosis on a collagen coated surface. J Am Coll. Cardio 33(5):408-14, 1999.
28. **Maalej N**, Osman H, Shanmuganayagam D., Shebuski R.D., Folts J.D. Antithrombotic Properties of the Thromboxane A2/Endoperoxide Receptor Antagonist, S18886, on Prevention of Platelet-Dependent Cyclic Flow Reductions. J Cardiovasc Pharmacol. Volume 45(5): 389-395, 2005.
29. Maalej N. Simple Procedures for Image Quality Assurance and Dose Reduction in Mammography. International. J. Scientific Research (16):63-67, 2006.

30. **Maalej N**, Ghandoor H. El, Al-Tammimi D, Nasser I. Laser Interference Measurement of Glucose in Liquids. International Journal of Pure and Applied Physics, Volume 2(1):68-74, 2006.

31. Al Kafi M., **Maalej N**., Naqvi A. A. Optimization of Mammography Linear Grid Geometry. Medical Physics Journal, 33(6): 1989-1990, 2006.

32. Al-Ghamdi H., **Maalej N**. Surface Dose Measurement in 6 MeV X-ray Beam Using Radiographic Film and TLD. Medical Physics Journal, 33(6): 2138, 2006.

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34. Elshahat BA, Naqvi A., **Maalej N**. Design calculations of an accelerator based BSA for BNCT of brain cancer. Journal of Radio analytical and Nuclear Chemistry 274(3):539-544, 2007.

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36. Al-Ghamdi H., Fazal-ur-Rehman, Al-Jarallah M.I., **Maalej N**. Photoneutron intensity variation with field size around radiotherapy linear accelerator 18-MeV X-ray beam. Radiation Measurements 43 (2008) S495–S499, 2008.

37. Ben-Mansour R; Badr HM; Shaik AQ, **Maalej N**. Modeling Of Pulsatile Blood Flow In An Axisymmetric Tube With A Moving Indentation . Arabian Journal Science Engineering   Volume: 33 Issue: 2B Pages: 529-550, 2008.

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41. Tabet N, Faiz, M, **Maalej N**. Theme Issue On Science and Engineering at the Nanoscale Preface. Arabian Journal for Science And Engineering. Volume: 35 Issue: 1C Pages: III-IV Published: 2010.

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43. Belhadj C.A., **Maalej N**.M. Current Density Estimation and Visualization for Exposed Live Transmission Line Workers. Progress In Electromagnetics Research, Aug. 2013, pages: 961-968, 2013.

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48. El-Batta A, Al-Muallem HA., Shaikh, M. N., **Maalej N**. Polymer Nanoparticles Containing 2,4,6-triiodophenol: A Potential Contrast Medium for Medical Imaging. Acta Chimica Slovenica 61(2):414- 419, 2014.

49. **Maalej N**, Qurashi A, Assadi A A, Maalej R, Shaikh MN, Ilyas M and Gondal M. Synthesis of Gd_2O_3:Eu nanoplatelets for MRI and fluorescence imaging. Nanoscale Research Letters 10:215, 2015.

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51. Osman A; Maalej N; Jayesh K, Abdel-Rahman W. MLCs Performance and Patient-Specific IMRT QA Using Log File Analysis. Medical Physics, Volume 43, Issue 6, 2016.

52. Osman A, **Maalej N**, Khateeb Ul-Rahmana, Abdel Rahman W, Heterogeneity and scatter effects on Ir-192 brachytherapy dose distribution, Physica Medica 32(10), 1210–1215, 2016.

CONFERENCE PROCEEDINGS

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2. Maalej, N., Webster, J.G., Tompkins, W.J. Electrooptical Transducer For Force Measurement Under Insensate Feet, Proc. 9th Annual Conf. IEEE Eng. Med. Biol. Soc., pp.1823-1824, 1987.
3. **Maalej N**, Bhat S, Zhu H, Webster JG, Tompkins WJ. A conductive polymer pressure sensor. Proc IEEE Ann. Conf Eng Med Biol Soc:770-771, 1988.
4. Zhu H, **Maalej N**, Webster JG, Tompkins WJ, Wertsch JJ. A microprocessor-based data acquisition system for measuring pressures between the foot and the shoe. IEEE Ann Conf Eng Med Biol Soc:1599-600, 1988.
5. **Maalej N**, Webster JG, Tompkins WJ, Bach-y-Rita P. A conductive polymer sensor array. Proc IEEE Ann Conf Eng Med Boil Soc: 1116-7, 1989.
6. **Maalej N**, Folts JD. Velocity profile and shear stress inside a dog coronary stenosis. Proc XIV Inter Am Cong Card: A56, 1992.
7. **Maalej N**, Folts JD. Aspirin treatment does not protect against acute platelet thrombosis in high shear coronary artery stenosis: quantitative assessment. Thromb Haem: A156, 1993.
8. **Maalej N**, Folts JD. High shear forces in critically stenosed dog coronary arteries cause thrombus formation in spite of aspirin treatment. Am Fed Clin Res 42:A361, 1994.
9. Folts J.D., Slane, P., **Maalej N.** French Red Wine But Not White Wine Inhibits Human Platelet-Aggregation and Prolongs Bleeding-Time. Abstracts of Papers of the American Chemical Society, 210, pp. 63-AGFD, 1995.
10. Folts J, **Maalej N**, Keany J Jr, Loscalzo J. Coating Palmaz-Schatz stents with an NO donor reduces intimal hyperplasia in stented pig carotid arteries. Presented at the 14th International Congress on Thrombosis, Montpellier, France, October 14-19, 1996.
11. Folts J D, **Maalej N**, Osman H, Reed J. Grape juice but not orange juice inhibits in vivo platelet activity and thrombosis in stenosed canine coronary arteries. Presented at the 14th International Congress on Thrombosis, Montpellier, France, October 14-19, 1996.
12. Keevil J, **Maalej N**, Osman H. Daily feeding of grape juice but not orange or grapefruit juice inhibits ex vivo platelet activity in human volunteers. Presented at the 4th International Symposium on Multiple Risk Factors in Coronary Disease, Washington, DC, April 23-25, 1997.
13. Kruse-Elliott KT, Folts JD, **Maalej N**, Grossman JE. Effect of Nitrosated-albumin (NO-BSA) on the cardiopulmonary response to endotoxemia. Presented at the American Lung Association/American Thoracic Society Conference, May 17-21, 1997.
14. Hanson M, **Maalej N**, Folts JD. Intragastric tea but not coffee inhibits thrombus formation in stenosed coronary arteries of dogs. Presented at the 6th Midwest Platelet Conference, October 4-5, 1996.
15. Wedding KL, Grist TM, Folts JD, **Maalej N**, Vigen KK, Peters DC, Goodwyn ED, Osman H, Mistretta CA. In vivo validation of MR flow measurements and motion correction algorithms in the coronary arteries. Presented at the International Society for Magnetic Resonance in Medicine, Vancouver, Canada, Vol. 2, pp. 866, April 12-18, 1997.
16. **Maalej N**. Quality Control Procedures for Improving Diagnostic Imaging and Reducing Radiation Exposure to Patients. Second Saudi Science Conference, March 2004, Jeddah, Saudi Arabia.
17. **Maalej N**, H. El Ghandoor H., Al-Tammimi D, Nasser I. Laser Interference Measurement of Glucose in Liquids. Second Saudi Science Conference, March 2004, Jeddah, Saudi Arabia.
18. El Ghandoor H, **Maalej N**, Dallal Al-Tammimi D, I. Nasser I. Laser Interference Glucometry. Second Middle East Nondestructive Testing Conference, December, 2003, Jubail Industrial City, Saudi Arabia.
19. Ruhul Amin, **Maalej N**. Extracting Tumor Contrast, Differential Signal to Noise Ratio and the Receiver Operator Characteristic Curve Using MATLAB. First UAE Int. Conf. on Biological and Medical Physics March 27-30, 2005.
20. Al-Kafi A, **Maalej N**., Naqvi A A. The use of MCNP code for Radiation Transport and Dosimetry Calculations in Training Medical Physics Students. First UAE Int. Conf. on Biological and Medical Physics March 27-30, 2005.
21. Al-Kafi A, **Maalej N**, Naqvi A A. Medical physics students' training using MCNP code, Proceedings of Monte Carlo 2005 Topical Meeting, Oak Ridge National Laboratory, Tennessee , USA (2005) pp. 869-880.
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23. Nobah A, N **Maalej N**, Naqvi AA, Al Kafi A. The Effect of Air-Gap on Scatter to Primary Ratio in Mammography Using Monte Carlo Simulation. The second meeting of the Saudi Physical Society. Nov. 2005.
24. Elshahat B, Naqvi A, **Maalej N**. Intensity Optimization of Thermal Neutrons Beams for an Accelerator-Based BNCT Setup. The second meeting of the Saudi Physical Society. Nov. 2005.
25. Elshahat B. A., Naqvi A. A., **Maalej N**. Intensity Optimization of Thermal Neutrons Beams for an Accelerator-Based BNCT Setup. The second meeting of the Saudi Physical Society. Nov. 2005.
26. Abdalla K, Naqvi A. A, **Maalej N**. Search of a Radioisotope Neutron Source for its Application in BNCT Therapy. The second meeting of the Saudi Physical Society. Nov. 2005.

27. Elshahat A. , Naqvi A. A., **Maalej N**., Abdalla K. Neutron Dose Calculation for an Accelerator-Based BNCT Setup. Radiochemical Conference, 2006 Czech Republic.

28. **Maalej N**, Al Kafi M A, Nobah A., Naqvi A A. Air Gap Effect on Mammography Image Quality. World Congress on Medical Physics and Biomedical Engineering 2006. Springer Berlin Heidelberg, pp. 1353-1356, 2006.

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30. **Maalej N**., Abdel-Galil T. K., Abdul-Majeed M. A, Habiballah I. O. Organ Dosimetry for a Worker Standing Under a 132 kV Power Line. Word Congress of Medical Physics and Biomedical Eng., Sept 2006, Seoul, Korea.

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34. **Maalej N**. X-ray Scatter and Image Quality in Magnification Mammography. The Third Meeting for the Saudi Physical Society, Riyadh, Dec.2006.

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40. Asuni Ganiyu A., **Maalej N**, Moftah B. IMRT Patient Dose Verification Using Radiochromic Film, 2–D Array, and Electronic Portal Imaging Device (EPID). 2nd International Saudi Symposium on Medical Physics, May 2007.

41. Al-Ashrah S, **Maalej N**, Rahmatalla E D, Al-Gamdi H, Moftah B. Radiochromic Film Measurement and Monte Carlo Calculation of Surface Dose from 6 MV Beam.. 2nd Int. Saudi Symposium on Medical Physics May 2007.

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47. Shehadeh M Z, **Maalej N**. Dosimetry comparison between experimental, Monte Carlo and PLANUNC treatment planning system. 3nd International Saudi Conference on Medical Physics Feb 2008.

48. Alsubki M, **Maalej N**. Simulation of photon beam interaction with the ZUBAL head phantom. 3nd International Saudi Conference on Medical Physics, Feb. 2008.

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52. **Maalej N**, Mwidu U M, Naqvi A, Deriche M. Using the Visual Human to Study the Interaction of Linear Accelerator Photon Beam with Body Tissues. The Forth Saudi Science Conference, Madinah, March 2010.

53. Adulkhaleq F, **Maalej N**. Design and Testing of a Flattening Filter for a Radiography Machine. IEEE Nuclear Science Symposium and Medical Imaging conference, Knoxville, USA, Nov 2010.

54. Al Sharif S.M.S.; Deriche M.; **Maalej N**. A fast geodesic active contour model for medical images segmentation using prior analysis. 2nd International Conference on Image Processing Theory, Tools and Applications (IPTA), pp. 300-305, 2010.

55. Sultan R, **Maalej N**. Accuracy of Dose Distributions in Virtual Physiological Humanoid: Comparison between Monte Carlo simulation and Analytical Anisotropic Algorithms. The 2nd Saudi Students Conference, Jeddah, 2011.

56. UlHassan, M.S, AlDahwai I., **Maalej N**., Abdelrahaman W. Commissioning of a Total Skin Electron Therapy (TSET) Technique, International Conference on Radiation Medicine (ICRM2012) Clinical Applications and Innovative Approaches, King Faisal Specialist Hospital and Research Centre, Riyadh, Saudi Arabia 27 Feb. 2012.

57. Abdullah L A, Jalal B, **Maalej N** , Abdel-Rahman W. Commissioning a Monte Carlo Based Treatment Planning System at King Fahad Specialist Hospital Dammam. International Conference on Radiation Medicine (ICRM2012) Clinical Applications and Innovative Approaches, King Faisal Specialist Hospital and Research Centre, Riyadh, Saudi Arabia, 27 Feb. 2012.

58. **Maalej N**. Mammography Imaging optimization. International Conference on Radiation Medicine (ICRM2012) Clinical Applications and Innovative Approaches, King Faisal Specialist Hospital and Research Centre, Riyadh, Saudi Arabia 27 February, 2012.

59. **Maalej N**, Al-Karmi A, J Al-Sadah J, Abdel-Rahman W. Building and Strengthening the First Master's Program in Medical Physics in The Gulf Region. Med Phys 39, 3624, 2012.

60. **Maalej N.** Nanoparticles for Cancer Cell Imaging and Killing. Int. Conf. for Eng, Sci. for Biology and Medicine, Mahdia, Tunisia, Nov 29-Dec 1 , 2013.

61. **Maalej N**, Quraishi Ahsan Ul-Haq, Gondal Mohammad A., Shaikh Nasiruzzaman, Al-Quraishi Saleh, Maalej Ramzi. Synthesis and Characterization of Gd_2O_3 and Gd_2O_3:Eu Nanoparticles and Potential for MRI and Fluoresce Imaging. Symposium on Nano-Magnetics, Bahrain, 2013.

62. UlHassan, M.S.Z., Aldahlawi, I., **Maalej N**., Abdel-Rahman, W. Commissioning of a Total Skin Electron Therapy (TSET) technique. IFMBE Proceedings 39 IFMBE, pp. 1899-1902, 2013.

63. Al Asmary M, **Maalej N,** W. Abdel Rahman. Characterization of EBT3 Gafchromic Film as a radiation dosimeter for photon and electron beams. International Conference on Radiation medicine. Riyadh, Saudi Arabia, 16-20 Feb, 2014.

64. Ayaz A, **Maalej N**. Monte Carlo Modeling of a mammography machine. International Conference on Radiation Medicine. Riyadh, Saudi Arabia, 16-20 Feb, 2014.

65. Ayaz A, **Maalej N**. Monte Carlo Modeling of Medical Linear Accelerator (18 MeV Electron Beam). International Conference on Radiation Medicine. Riyadh, Saudi Arabia, 16-20 Feb, 2014.

66. **Maalej N.**, Rahman W. Abdel, Shahrure B., Alamodi F., Dawabsheh A. Monte Carlo Simulations in Teaching and Training Medical Physics Students. International Conference on Radiation Medicine. Riyadh, Saudi Arabia, 16-20 Feb., 2014.

67. Mohammed A Alasmary M A, Maalej N, Abdel Rahman W. Characterization of Gafchromic EBT3 Film as a Radiation Dosimeter for Photon and Electron Beams. International Conference on Radiation Medicine. Riyadh, Saudi Arabia, 16-20 Feb., 2014.

68. **Maalej N,** Qurashi H, Maalej R, Assadi A, Gondal M. Rare Earth Gadolinium Based Nanoparticles for Fluorescent Imaging. International Conference of Engineering Sciences for Biology and Medicine. Monastir, Tunisia, May1-3 2015.

69. **Maalej N**. The Role of a Medical Physicist in Mammography Image Optimization. International Conference of Engineering Sciences for Biology and Medicine. Monastir, Tunisia, May1-3 2015.

70. Ibrahim A, **Maalej N**, Khateeb Ur-Rehman, Abdel-Rahman W. Air Cavity Effect on Dose Distribution in Ir-192 Brachytherapy Source. IEEE Nuclear Science Symposium and Medical Imaging conference, San-Diego, USA, Nov 2015.

71. Ibrahim A, **Maalej N**, Jayesh K., Abdel-Rahman W. Patient-specific IMRT verification using dynamic MLCs log file analysis. International Conference on Radiation Medicine. Riyadh, Saudi Arabia, 21-25 Feb., 2016.

72. Ibrahim A, **Maalej N**, Khateeb Ur-Rehman, Abdel-Rahman W. Scatter and inhomogeneity effects on Ir-192 brachytherapy source dose distribution. International Conference on Radiation Medicine. Riyadh, Saudi Arabia, 21-25 Feb., 2016.

RESEARCH ACTIVITIES

• **Funded Research Projects**

Project Title	Funding Agency	Start Date	End Date	Role
A Hybrid System for the Analysis of EEG and ECG Biosignals	KACST	Sep 2013	Sep 2015	Investigator
Lanthanide chelate coated gold nanoparticles for visualization of fluid flow within rocks by X-ray CT and MR imaging	KACS	Sep 2013	Sep 2015	Investigator
Lanthanide-doped Oxide Nanoparticles Multi-modal Molecular Imaging Agents	KACST	Sep 2011	Sep-2013	Primary Investigator
Biocompatible and Biodegradable Polymer Nanoparticles (PNP) For Cancer Cell Imaging	KACST	Sep 2010	Sep-2012	Primary Investigator
Synthesis of Nanostructured ZnO and Development of sensing and biomedical applications	KACST	Sep 2009	Sep 2011	Investigator
Cancer Treatment Dosimetry Using Monte Carlo Simulation of Photon Beam Interaction with Body Tissues	KFUPM	Jan 2008	Jan 2011	Primary Investigator
Optimizing Mammography Grid Design and Imaging Geometry for Tumor Detection	KFUPM	Sep 2005	June 2007	Primary Investigator
Establishing Entrepreneurial and Value-added programs. KFUPM Strategic Plan Project	KFUPM	Mar 2005	Mar 2006	Investigator
Electric and Magnetic Field Guideline Evaluation and Magnetic Field Exposure	Saudi Electric Company	2003	2005	Investigator
Anti platelet-activation of foods and beverages Containing Falvanoids	Nutricia Research Foundation	94	97	Member
Cardiovascular Research	Rennebohm Foundation of Wisconsin	90	93	Member
Antithrombotic Research	National Institute of Health	90	93	Member
Diabetic Foot Sensory Substitution and Gait Analysis Device	Veteran Administration	88	90	Member

• **Graduate Student Supervision**

Project Title	Student Name	Level	Year	Role
Characterizing Tumor Contrast, Signal to noise ratio and ROC curve	Ruhul Amin	MS	2004	Supervisor
Mammography Grid Optimization	Abdullah Al-Kafi	MS	2004	Supervisor
Entrance Skin Dose Measurement in a Linear Accelerator Photon Beam	Hasan Al-Gamdi	MS	2005	Supervisor
Modeling Blood Flow In a Moving Wall Channel	Abdul Qaiyum Shaikh	MS	2006	Co-Supervisor
Effect of Air Gap on mammography image quality	Ahmed Nobah	MS	2006	Supervisor
Verification of the IMRT plan using HS Gafchromic film and 2-D Array	Ali Sid-Ahmed	MS	2006	Supervisor
Measurement and simulation of Modulation Transfer Function of a Mammogrpahy Machine	Amr Al-Thukair	MS	2006	Supervisor
Assessment of Entrance and Effective Dose to Patients using Calculation Technique	Hanan fawzan Akhdar	MS	2007	Committee Member

Skin dose measurements using Radiochromic films, TLDs and ionization chamber and comparison with Monte Carlo simulation	Saleh Abdullah Al-Ashrah	MS	2007	Supervisor
Linac-Based Stereotactic Radiosurgery Quality Assurance	Esam Eldeen E Rahmatalla	MS	2007	Supervisor
Monte Carlo and Treatment Planning dosimetry for patients	Mamoun Zakariya Shehadeh	MS	2007	Supervisor
Developing software for converting ZUBAL head phantom to MCNP code	Mostafa Hossny Elsobky	MS	2007	Supervisor
Comparison Of IMRT Patient Treatment QA With 2-D Array, Radiochromic Film And Electronic Portal Imaging Device	Ganiyu Adeniyi Asuni	MS	2007	Supervisor
Surface dose measurement using film, TLDs and ionization chamber	Saleh Al-Ashrah	MS	2008	Supervisor
Radiochromic film dosimetry in a LINAC beam	Ali sid-Ahmed	MS	2008	Supervisor
Neutron flux in high energy photon beam	Jalal, Bilal Omer Abid	MS	2008	Supervisor
Flattening filter design to compensate for heel effect	Abdulkhaliq, Fahad Ahmad	MS	2009	Supervisor
Focused grid optimization	Akintokun, Adekunle Hazee	MS	2009	Supervisor
Monte Carlo simulation of photon dosimetry in visible human	Maganda, Mwidu Umar	MS	2009	Supervisor
Mammography Focused Grid Design Optimization	A. H. Akintokun	MS	2010	Supervisor
Commissioning Of Electron Monte Carlo For Eclipse Treatment Planning System	Farouq Umar Abbas	MS	2011	Supervisor
Accuracy of Dose Distributions in Humanoid Phantom: Comparison between Monte Carlo simulation and Analytical Anisotropic Algorithms and experimental measurements.	Redha Sultan.	MS	2011	Supervisor
An improved active contour model for medical image segmentation	Sharif M. Al Sharif	MS	2010	Co-Supervisor
Fusion of ECG/EEG for improved seizure detection using Dempster-Shafe theory of Evidence	Mohammed Abdul Azeem Siddiqui	MS	2011	Co-Supervisor
Commissioning and Testing of a Monte Carlo based Treatment Planning	Lookman A Abdullah	MS	2012	Supervisor
Commissioning of a Total Skin Electron Therapy (TSET) Technique	Muhammad Salman	MS	2012	Supervisor
Characterization Of The Cs30 Cyclotron At KFSH@RC For Radiotherapy Applications	Faisal Al Zorkany	MS	2013	Supervisor
Film dosimetry for Linear accelerator photon and electron beams	Ibrahim Abdelkarim	MS	2014	Supervisor
Brachytherapy Dosimetry: Monte Carlo, TG43 and experimental comparison	Alexander Fadul	MS	2014	Supervisor

• Recent Seminars/Conference/ Invited Talks

Title	Date	Place
Attracting Students to Physics	22-2-04	Physics Dept., KFUPM
Computerizing a Physics 102 Experiment Using LabVIEW	6-2-05	Physics Dept., KFUPM
Using LabVIEW In Teaching Physics	3-11-05	National Instrument Academic Day (Bahrain)
Simple Procedures for Image Quality Assurance and Dose Reduction in Mammography	28-3-05	The first UAE International Conference on Biological and Medical Physics, UAE
Extracting Tumor Contrast ,Differential Signal to Noise Ratio and ROC characteristic curve using MATLA	29-3-05	The first UAE International Conference on Biological and Medical Physics, UAE
The use of MCNP Code for Radiation transport and Dosimetry Calculations in Training Medical Physics Students	28-3-05	The first UAE International Conference on Biological and Medical Physics, UAE
Future of Medical Physics In the Kingdom	2-10-05	Umm Al-Qura University
Nanotechnology: The BIG Impact of the SMALL	19-2-06	KFUPM
Grid Geometry Optimization for Mammography Imaging	9-5-06	King Fahd Medical City, Medical physics Symposium
Surface Dose Measurement in 6 MeV X-ray Beam Using Radiographic Film and TLD	9-5-06	King Fahd Medical City, Medical Physics Symposium
Power Line Worker Exposure to Electromagnetic Fields: a Simulation Study	14-5-06	Physics Dept., KFUPM
Physics Outreach Presentation, to High school students	6-12-06	Physics Dept., KFUPM
Entrepreneurships & Innovation program a Singapore Experience	8-4-07	KFUPM
Electromagnetic Occup. Exposure Under a 132 kV Power Line.	3-07	Saudi Science Conference
Performance of Anti-scatter Grids in Mammography Imaging.	3-07	Saudi Science Conference
Cancer Treatment Dosimetry Using Monte Carlo Simulation of Photon Beam Interaction with Body Tissues	5-1-07	KFUPM
The KFUPM Experience in Teaching and Training Medical Physicists in Collaboration with Local and National Hospitals in the Kingdom	9-5-07	2nd International Saudi Symposium on Medical Physics
Experimental Measurements of the Modulation Transfer Function of Diagnostic Mammography Machine Using a Point, a Line and an Edge Response Functions	9-5-07	2nd International Saudi Symposium on Medical Physics
Monte Carlo Technique for Simulating Total Skin Electron Therapy	9-5-07	2nd International Saudi Symposium on Medical Physics
Simulation and Verification of Dosimetric Properties of 6 MV Photon Beam	9-5-07	2nd International Saudi Symposium on Medical Physics
MRT Patient Dose Verification Using Radiochromic Film, 2–D Array, and Electronic Portal Imaging Device (EPID).	9-5-07	2nd International Saudi Symposium on Medical Physics
Radiochromic Film Measurement and Monte Carlo Calculation of Surface Dose from 6 MV Beam	9-5-07	2nd International Saudi Symposium on Medical Physics
Electromagnetic Occupational Exposure Under a 132 kV Power Line	3-07	King Faisal Specialist Hospital & Research Center
Establishing the First Master's Program in Medical Physics in Saudi Arabia	15-11-07	ICPE2007, Marrakech, Morocco
Ideas Challenge Contest	20-11-07	IEEE Student Club. KFUPM

Mammography Imaging Optimization for Early Detection of Cancer	4-12-07	Chemistry, KFUPM
Monte Carlo Simulation of Linear Accelerator Photon Beam Interaction with the Humanoid Phantoms	14 Apr-08	International Conference on Medical Physics Dubai, UAE
X-ray production	17 Mar08	King Fahd Specialist Hospital-Dammam
Screen Film Radiography	24 Mar08	King Fahd Specialist Hospital-Dammam
Image Quality	31 Mar08	King Fahd Specialist Hospital-Dammam
Mammography	5 May 08	King Fahd Specialist Hospital-Dammam
Entrepreneurial and Innovation Programs: The Singapore Experience	30-5-08	Center for Information and Guidance India,
Monte Carlo Simulation of Linear Accelerator Photon Beam Interaction with the Humanoid Phantoms	14-4-08	16th International Conference on Medical Physics, Dubai, UAE
What makes your idea innovative?	31-3-09	KFUPM idea challenge competition
Monte Carlo as a Research Tool in Training medical Physicists	11-3-09	Innovative Approaches in Radiation Therapy, King Faisal Specialist Hosp. & Res. Center
Mammography imaging Optimization for breast cancer detection	7-12-09	Physics Dept., KFUPM
A window on mammography QA in Saudi Arabia	23-May-09	4th Saudi Conf. on Medical Physics, Saad Specialist Hospital
Mammography Image optimization	7-Dec-09	Physics, KFUPM
Mammography Quality Assurance	10-May-10	Physics, KFUPM
Mammography Quality Assurance Workshop	25-May-09	4th Saudi Conf. on Medical Physics, Saad Specialist Hospital
Perspective on Medical Physics Training and Research	1-Dec-09	University of Sfax, Tunisia
Using the visual human to study the interaction of linear accelerator photon beam with Body Tissues	23-Mar-10	Saudi 4th Science Conf. Madinah
Mammography Lecture to Radiology Residents	25-May-11	National Guard Hospital- Jeddah
Using the Visual Human to Study the Interaction of Linear Accelerator Photon Beam with Body Tissues	22-Mar-10	Science Conference-Madinah
X-ray Tube Simple Incremental Innovation by KFUPM medical physics faculty and student that earned a US Patent	24-Apr-11	KFUPM
Mammography Imaging Optimization for Breast Cancer Detection	11-Jul-12	University of Abbes Laghrour-Khenchela, Algeria
Mammography Imaging Physics and Dosimetry	10-Jul-12	University of Abbes Laghrour-Khenchela, Algeria
Medical Imaging Physics	28-Feb-12	King Faisal Specialist Hospital, Riyadh, Saudi Arabia
APPLICATIONS OF NANO TECHNOLOGY IN MEDICINE	13-Nov-13	7th Saudi Conference on Medical Physics, Dammam KSA
Characterization of GAFCHROMIC EBT3 Film as a Radiation Dosimeter for Photon and Electron Beams	16-Feb-14	ICRM 2014, Riyadh, KSA
MEDICAL PHYSICS PROGRAM AT KING FAHD	14-Nov-13	7th Saudi Conference on Medical Physics, Dammam KSA
Monte Carlo Modeling of Medical Linear Accelerator (18MeV Electron Beam)	17-Feb-14	ICRM 2014, Riyadh, KSA

Monte Carlo Modeling of a Mammography X-ray Machine	18-Feb-14	ICRM 2014, Riyadh, KSA
Nanomaterial for Cancer Tissues Image Enhancement and Therapy	23-Apr-14	Annual Radiologic Science Symposium Dhahran, KSA
Nanoparticles Potential for Cancer Cell Imaging	7-Apr-13	Physics Dept., KFUPM
Nanomaterials for Cancer Cell Imaging and Therapy	12-Nov-13	7 Saudi Conference on Medical Physics,
Medical Physics Program at KFUPM	12-Nov, 2013	7 Saudi Conference on Medical Physics,
Nanoparticles for Cancer Cell Imaging and Killing	29-Nov-13	International conference for Engineering Sciences for Biology and medicine, Mahdia, Tunisia.
Synthesis and Characterization of Gd_2O_3 and Gd_2O_3:Eu Nanoparticles and Potential for MRI and Fluoresce Imaging.	27-Mar-2013	Symposium on Nano-Magnetics, Bahrain, 2013.
Rare Earth Gadolinium Based Nanoparticles for Fluorescent Imaging.	1 May, 2015	International conference for Engineering Sciences for Biology and medicine, Monastir, Tunisia.
The Role of a Medical Physicist in Mammography Image Optimization.	1 May, 2015	International conference for Engineering Sciences for Biology and medicine, Monastir, Tunisia.
Impact of Medical Physics Research in the field of Medicine	7 Nov., 2015	King Fahad Specialist Hospital, Dammam
Medical Physics Master's Program at KFUPM	17 May 2016	2016 Saudi Health Conference, Riyadh

• **Workshops Organization and Presentation**

Workshop Organization/Presentation	Date	Place
Presented and organized a Workshop : "LabView: Introduction to Graphical programming "	2003	Science Club , KFUPM
Presented and organized a Workshop: "LabView: Graphical Programming". & Hardware Interface"	2004	KFUPM
Presented and organized a Workshop: "LabView: Graphical Programming and Computer Interfacing"	2005	KFUPM
Presented and organized a Workshop : "LabView: Graphical Programming and Computer Interfacing"	2006	KFUPM
Presented and organized a Workshop : "LabView: Graphical Programming and Computer Interfacing"	2006	KFUPM
Organized a Workshop for BEAMnrc Monte Carlo simulation by Dr. Wamied Abdulrahman	2007	KFUPM
Presented a Workshop: "Brainstorming Skill" presented to Cultural Student Club	2007	Cultural Student Club , KFUPM
Co-organized a workshop: "center of Research Excellence in Nanotechnology"	2007	KFUPM
Presented and organized a Workshop : Mammography Quality Assurance Workshop	2009	4th Saudi Conf. on Medical Physics, Saad Specialist Hospital
Presented and organized a Workshop : Advanced LabView Instrument Control and Calibration	2009	KFUPM
Chairing a session : Radiation Oncology Physics Track (ICRM2012)	2012	International Conference on Radiation medicine, King Faisal Specialist Hospital and Research Center, Riyadh
Presented a continuing education presentation "Medical Imaging" (ICRM2012)	2012	International Conference on Radiation medicine, King Faisal Specialist Hospital and Research Center, Riyadh
Participation in the IAEA ARASIA Regional Residency Training program for medical physicict in radiation oncology Workshop.	21 Jan, 2013	King Faisal Specialist Hospital and Research Center, Riyadh
Organized an EGS Monte Carlo workshop for medical physics students and faculty	16-17-Apr 09	KFUPM
Organizing Committee member of International Conference on Radiation medicine. Riyadh, Saudi Arabia, 16-20 Feb., 2014.	16-20 Feb 2014	International Conference on Radiation medicine, King Faisal Specialist Hospital and Research Center, Riyadh
Organizing Committee and Scientific Committee member of International Conference on Radiation medicine. Riyadh, Saudi Arabia, 21-25 Feb., 2016.	16-20 Feb 2016	International Conference on Radiation medicine, King Faisal Specialist Hospital and Research Center, Riyadh

ACADEMIC Activities

• **Best Teacher and Advisor in the College of Science Award, KFUPM, 2005.**

• **Establish the First MS Program in Medical Physics in the Gulf Region**
The program was designed based on American Association of medical Physicists Guidelines and the University of Wisconsin-Madison program. The program included a one semester clinical training at the hospital and Master's research project.

• **Medical Physics Courses Design**: Designed graduate courses in Medical Physics including Physics of Diagnostic Radiology Physics, Radiotherapy Physic, Imaging in Medicine, Advanced External Radiation Oncology.

• **Medical Physics Laboratory Courses Design:** Design and development of new Medical Physics laboratory procedures Diagnostic Imaging (radiography, mammography, fluoroscopy, digital radiography, CT, and MRI) and Radiation Therapy (quality control, calibration, dosimetry, shielding, and treatment planning).

• **Teaching Pedagogy:** I design and conduct my courses and labs to achieve specific learning outcomes, impart important skills and convey attitudes. I make the class and lab activities interactive and student centered.   I often use computer software and audiovisual methods in my instructions. In my courses, the students conduct authentic job related exercises such as clinical procedures and group projects. I perform the assessment of my students at the different cognitive levels (comprehension, application, analysis, synthesis, evaluation) and based on the desired learning objectives. Usually, my students finish my courses and labs with a sense of fulfillment and achievement. I continuously strive to improve my teaching methods by attending teaching seminars, workshops and conferences.

• **Graduate Courses Taught**
        Radiological Physics and Dosimetry (MEPH561)
        Radiotherapy Physics (MEPH566 Lec + Lab)
        Advanced Radiation Oncology Physics (MEPH571 Lec)
        Diagnostic Radiology Physics (MEPH567 Lec + Lab)
        Imaging in Medicine (MEPH573)
        Laboratory in Radiological Physics – Radiotherapy (MEPH581)
        Laboratory in Radiological Physics – Diagnostic Radiology (MEPH582)
        Laboratory in Radiological Physics – CT, MRI, and DSA (MEPH585)
        Medical Physics Master's Project (MEPH600)
        Clinical medical physics training (MEPH590)
• **Undergraduate Courses Taught**
        Introduction to Medical Physics (PHYS365 Lec)
        General Physics I (Lec + Lab) (PHYS101 Lec+ Rec+ lab)
        General Physics II (PHYS102 Lec+ Rec+ Lab)
• **Workshops Taught**
        Mammography Quality Assurance Workshop
        Medical Physics Workshop for Medical Residents in radiology
        Introductory LabVIEW Graphical Programming
        Advanced LabVIEW Programming for Hardware Interfacing
        Advanced LabVIEW Programming for Calibration of Instruments

• Workshop/ Training Participation

Activity	Dates
Workshop on Infusing Critical and creative thinking into content instruction, KFUPM	7-10-2003
Workshop on Development of Web Based Courses using Macromedia Authorware, KFUPM	29-9 to 1-10-2004
Participated in Micro Media Flash DAD training, KFUPM	15 to 24-5-04
Discussion Forum of Faculty and Student Motivation, KFUPM	23-5-2004
Workshop on Using Group and Student Teams to promote learning, KFUPM	7-10-2004
Workshop on Active Learning to Foster Critical Thinking, KFUPM	6-10-2004
Participated in Micro Media Photoshop ITC training, KFUPM	24 to26-4-2004
Workshop on Developing the Communication Skills of Students, KFUPM	4 to 5-9-2004
Workshop "Graduates for Tomorrows World", KFUPM	3-9-2005
Workshop "Evaluating the Quality of Teaching", KFUPM	4-9-2005
Workshop "University Study Skills" , KFUPM	9 to 13-7-2005
Workshop "Experience-Sharing in Developing Online Courses", KFUPM	1-5-2005
Workshop on e-learning in higher education (KFUPM)	14-15-3-06
First KFUPM Workshop on Engineering Design (KFUPM)	11-12-4-06
Medical Physics Concepts & Clinical Practice (King Fahd Medical City, Riyadh)	8-10-5-06
Workshop on Experience Sharing in developing online courses (KFUPM)	21-5-2006
Workshop on Online Course Authoring (KFUPM)	27-8-2006
Workshop on Using Course Design for More Significant Learning Experience (KFUPM)	3-9-2006
Workshop on Good Learning and Good Teaching (KFUPM)	4-9-2006
Workshop on Effective Use of Collaborative Learning in the Classroom (KFUPM)	20-9- 06
Workshop on Increasing Enrolment in Graduate Programs (KFUPM)	17-9- 06
Workshop on Continuing Education (KFUPM)	2-11- 06
Workshop on nanotechnology and Applications (KACST)	29-31-2006
High-Quality Testing Practices, Deanship of Academic Development (KFUPM	9-1-2007
Workshop "Teaching for Learning" (KFUPM)	1-2/9/07
Organizer and Speaker : 3rd International Saudi Conference on Medical Physics (KFSH&RC)	5-7-Oct 08
Attended Radiation Oncology Basis & Future Direction (Symposium at KFSH-DMM)	20-21 Mar, 08
IEEE Short Course on Monte Carlo and its Applications in Medical Imaging (Dresden, Germany)	20 Oct, 2008
Attended and presented at International Conference on Physics Education ICPE 2007	11-16 Nov 2007
Organized and speaker at 4th Saudi Conf. on Medical Physics, Saad Specialist Hospital	23-25 May, 2009
Attended a Workshop on The application of X-ray diffraction and Fluorescence (RI workshop)	9-10 Nov, 2008
Attended the Atomic Force Microscope workshop organized by CENT	22 Apr. 09
Attended KFUPM-KAUST workshop, Office of Cooperation with KAUST	15 March, 2009
Attended a workshop on Cennexions Demonstration and Training (DAD workshop)	29 Aug, 2009
Workshop on Development of Rubrics (KFUPM)	04 Apr. 2010
Entrepreneurial Workshop organized by Babson College (KFUPM)	30-31 Oct. 2013
IAEA Train-the-Trainer Workshop for Medical Physics residency Program (KFSH&RC, Riyadh)	21-22 Jan 2013
Workshop on Teaching Engineering Design (KFUPM)	26 Aug. 2013
Workshop on Human-Centered Design (KFUPM)	26 Aug, 2013
Workshop on Teaching Engineering Using Community Engagement (KFUPM)	25 Aug, 2013
Workshop on RF Response Cards and Classroom clickers (KFUPM)	16 Apr. 2013
Workshop on Microscopy from Basic to Advanced (CENT, KFUPM)	15-16 Apr., 2013
Workshop on Active Learning Strategies (KFUPM)	20 Aug, 2014

Workshop on Strategies to Enhance Student Learning (KFUPM)	18 Aug. 2014
Workshop on Online /Digital Courses (KFUPM)	25 Aug 2014
Symposium for Entrepreneurship education, by Andrew Zacharakis, Bobson college	30-31 Oct 2014
Workshop on Process Oriented Guided Inquiry Learning (POGIL) (KFUPM)	25 Feb, 2015
Workshop on Blueprinting, Validity, and Reliability of Examination (KFUPM)	9 Mar, 2015
Workshop on Participatory Classrooms (KFUPM)	10 Mar. 2015
Exam Writing Workshop	18 Mar,2015
Exam Review Workshop	01 Apr, 2015
Passing Grade Standards in a University Setting	13 Apr, 2015
Test and Item Statistical Analysis Workshop	20-Apr,2015
Mobile devices and Apps for Creating Video Content	10-Aug, 2015
Mobile Technology for Modern Classrooms	10-Aug, 2015
Assessing Students Work and Giving them Feedback	11-Aug, 2015
How to Distribute Traditional File Types with Mobile Devices	11-Aug, 2015
Measuring 21st Century Skills: A Global Perspective	18-Aug, 2015
Advanced Blackboard	18-Au-2015
Evaluating the Quality of Examinations: Reliability, Validity, and Fairness	18-Au-2015
Evaluating Higher order thinking skills	19-Aug-2015
Teaching Problem Solving	26-Oct-2015
Active Learning through Technology	28-Oct-2015
Experiences in Creating Excitement in the Classroom through Active Learning	11-Feb02016
Active Learning and the Future of Engineering Education	30-May-2016
LEAN in Higher Education	22-Aug-2016
Experiential Education	22-Aug-2016
Linking Motivational Theories to Design of Learning Experience	24-Aug-2016
Vision 2030 in Higher Education	25-Aug-2016

Administrative/Organization Responsibilities

Name of Committees	Dept./Institution	Year	Role
Workshop: Medical Physics: Its Importance and Its Future in the Kingdom	Univ. KFUPM	2002	Chairman
Committee to prepare Undergraduate Program on Biomedical Science, Engineering and Informatics	Univ. KFUPM	03-04	Chairman
Faculty and Staff Search	Physics/KFUPM	03-04	Member
Physics Program Committee	Physics/KFUPM	03-04	Member
Teaching Labs	Physics/KFUPM	03-04	Member
Physics Program Committee	Physics/KFUPM	04-05	Chairman
College of Science Planning Committee	College of Science /KFUPM	04-05	Member
Premedical Feasibility Study Committee	College of Science /KFUPM	04-05	Chairman
Premedical Program Committee	College of Science /KFUPM	04-05	Chairman
Premedical Management Plan Committee	College of Science /KFUPM	04-05	Member
Academic Development Committee	Deanship Academic Dev./KFUPM	04-05	Member
Skills Development Committee	Deanship Academic Dev./KFUPM	04-05	Member
Program Committee	Physics/KFUPM	05-06	Chairman
Academic Development Committee	Deanship Academic Dev./KFUPM	05-06	Member
Skill Infusion in Curriculum	Deanship Academic Dev./KFUPM	05-06	Member
Office of International Collaboration	University, KFUPM	05-06	Member
Premed Committee	College of Science /KFUPM	05-06	Chairman
Department Plan	Physics/KFUPM	05-06	Member
Program Committee	Physics/KFUPM	2006	Member
Faculty Hiring Committee	Physics/KFUPM	2006	Member
Skill Incorporation Committee	Deanship Academic Dev./KFUPM	2006	Member
Math Olympiad	College of Science /KFUPM	2006	Member
Skills Committee	Deanship Academic Dev./KFUPM	2006	Member
Biotechnology Center of Excellence	College of Science /KFUPM	2006	Chairman
BS program in Biomedical Engineering	College of Science /KFUPM	2007	Member
MS program in Biotechnology	College of Science /KFUPM	2007	Member
Organizing Committee of 3rd International Saudi Conference on Medical Physics	King Faisal Specialist Hospital & Research Center	2007	Member
Physics Lab Committee	Physics/KFUPM	2008	Member
Physics Program Promotion Committee	Physics/KFUPM	2008	Member
Scientific Committee of 4th Saudi Conf. on Medical Physics,	Saad Specialist Hospital	2009	Member
CENT executive committee	University	2008-09	Member
CENT executive	University	2010-2011	Member
Excellence Award of Prince Turki	University	2011	Member

NCAA committee	Department	2011-11	Member
NSTIP QAC (DSR)	University	2010-11	Member
Research Committee	Department	2010-11	Member
Faculty Search for Biology Program	College	2011	Member
Short Courses Committee	College	2011	Member
CENT executive	University	2011-2012	Member
Excellence Award of Prince Turki	University	2012	Member
Research Committee	Department	2011-2012	Member
Scientific Committee	University	2012	Member
CENT Executive Committee	University	2013-14	Member
Innovative idea awards	University	2013-14	Member
Recruitment	Department	2013-14	Member
Safety Committee	Department	2013-14	Member
CENT Executive Committee	University	2014-15	Member
Research Committee	Department	2014-15	Member
Faculty Search Committee	Department	2014-15	Member
Medical Physics Program Revision Committee	Department	2014-15	Chairman
University Planning Committee	University	2015-16	Member
Innovative idea awards	University	2015-16	Member
Research Committee	Department	2015-16	Member
CENT Executive Committee	Department	2015-16	Member
Committee for recruitment of graduate student	College	2016	Member

CLINICAL EXPERIENCE

• **Radiation Therapy (Experience gained at the University of Wisconsin-Madison Hospital, USA; King Fahd Specialist Hospital, Dammam; Dhahran Medical Center, Saudi ARAMCO)**
LINAC Quality Assurance
Cobalt Machine Quality Assurance
LINAC Calibration Photon Beam (TG21, TG51, TRS398)
LINAC Calibration Electron Beam (TG21, TG51, TRS398)
Dosimetry Measurements and Calculations
Treatment Planning (Occasional use of PlanUNC Treatment Planning System)
Radiation Survey
Shielding Design

• **Diagnostic Imaging (Experience gained at the University of Wisconsin-Madison Hospital, USA; King Fahd Specialist Hospital, Dammam; Abkik Military Compound Hospital)**
Quality assurance of Radiography Machines
Quality Assurance of Fluoroscopy Machines
Quality Assurance of Mammography Machines
Quality Assurance of Ultrasound Machines
Quality Assurance of CT Machines
Quality Assurance of MRI Machine
Quality Assurance of Digital Angiography Machines
Quality Assurance of Film Processor
X-ray Machines (Radiography, Fluoroscopy, mammography, CT) Dosimetry

• **Nuclear Medicine and Health Physics (Experience gained at the University of Wisconsin-Madison, USA)**
Quality Assurance of Gamma Camera
High resolution Gamma Spectroscopy
Positron Emission Measurement and Coincidence Counting
Radioactive Tracer Kinetic Modeling and Measurement
Radiation Protection Dosimetry
Ion Activation using Neutrons
Personnel Dosimetry (film and TLD)
Neutron Dosimetry (Long Counter, Bonner Sphere)
Radiation Safety Surveys and Leak testing
Liquid Scintillation Dosimetry

• **Biomedical Instrumentation (Experience gained at the University of Wisconsin-Madison, USA, at Arthur D. Little Inc., Boston, USA)**
Analogue Circuit Design
Analogue Filter Design
Digital Circuit Design
Sensor Design and Calibration
Computer Interfacing for Signal Collection
Computer Interfacing for Instrument Control
Signal/Image Processing