

MARKO MOSCOVITCH, Ph.D.

PERSONAL INFORMATION

Office Address

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EDUCATION

B.Sc.	Physics, Ben-Gurion University, Israel	1978
M.Sc. with Honors	Physics, Ben-Gurion University, Israel	1981
Ph.D.	Physics, Ben-Gurion University, Israel	1985

PROFESSIONAL EXPERIENCE

Academic Positions

1980-1984	Instructor, Department of Physics, Ben-Gurion University, Beer-Sheva, Israel.
1990-	Associate Professor (tenure 1997), Department of Radiation Medicine, Georgetown University School of Medicine, Washington, DC.
1992-	Associate Professor (tenure 1997 , secondary appointment), Department of Biophysics, Georgetown University School of Medicine, Washington, DC.
1992-	Member, Vincent T. Lombardi Cancer Research Center, Washington, DC.
1996-	Director, Health Physics Program, Georgetown University Graduate School, Washington DC.
1998	Visiting Professor, Department of Physics, Ben Gurion University of the Negev, Beer Sheva, Israel

Industrial Positions

1983	Visiting Scientist, Harshaw/Bicron, Solon, OH (2 months during Ph.D. study).
1984-1990	Senior Staff Scientist, Research & Development, Harshaw/Bicron, Solon, OH.
1991-1992	Scientific Consultant, Oak Ridge National Laboratory, Oak Ridge, TN.
1990-	Scientific Consultant, Harshaw/Bicron, Solon, OH.

HONORS AND AWARDS

1990	R&D 100 Award for most technologically significant product of the year (Harshaw Model 8800 TLD System).
1991	Invited Speaker, 11th DOE Workshop on Personnel Neutron Dosimetry, Las Vegas (New approaches to neutron dosimetry - June, 1991).
1992	Invited Speaker, 10th International Conference on Solid State Dosimetry, Washington DC (TLD dose algorithms - July, 1992).
1993	Department of Energy Health Physics Faculty Award.
1996	Interdisciplinary Grant awarded by Georgetown University President Leo J. O'Donovan, S.J.
1998	Invited Speaker, 13th International Conference on Solid State Dosimetry, Burgos, Spain (Personal Dosimetry using LiF:Mg,Cu,P).

- 2001 Invited Speaker, 13th International Conference on Solid State Dosimetry, Athens, Greece (The application of optical memory materials to radiation dosimetry - July, 2001).
- 2003 Invited Speaker, World Congress on Medical Physics and Biomedical Engineering, Sydney, Australia (A new type of microdosimeter based on 3D computer optical memories – August 2003).

PROFESSIONAL SOCIETIES

- 1987- Member, American Physical Society.
- 1990- Member, Health Physics Society.
- 1990- Member, Baltimore-Washington Chapter of the Health Physics Society.
- 1995-2001 Treasurer and member, International Solid State Dosimetry Organization (ISSDO).

PUBLIC SERVICE

Membership on Editorial Board

- 1992- *Radiation Protection Dosimetry*

Journal Referee

- Health Physics*
Radiation Measurements
Journal of Applied Physics

National Standards

- 1991- Chairman, ANSI-N13.29 Working Group Committee; American National Standard for Dosimetry-Environmental Dosimetry Performance-Criteria for Testing.
- 1991- Member, ANSI-N13.37 Working Group Committee; American National Standard for Environmental Thermoluminescent Dosimeters.

Conferences

- 1990-1992 Organizer and Treasurer, 10th International Conference on Solid State Dosimetry, Washington D.C., July 1992.
- 1990-1992 Member, Scientific Advisory Committee, 10th International Conference on Solid State Dosimetry, Washington D.C., July 1992.
- 1992-1995 Treasurer and Member, Standing Committee, International Solid State Dosimetry Conference.
- 1993-1995 Member, Scientific Advisory Committee, 11th International Conference on Solid State Dosimetry, Budapest, Hungary, July 1995.
- 1993-1996 Member, Summer School Committee, Health Physics Society.
- 1995- Member, Scientific Advisory Committee, 12th International Conference on Solid State Dosimetry, Burgos, Spain, July 1998.
- 1998-2001 Member, Scientific Advisory Committee, 13th International Conference on Solid State Dosimetry, Athens, Greece, July 2001.
- 2001 Dean, Summer School, International Solid State Dosimetry Organization, Athens, Greece.
- 2002-2004 Organizer, 14th International Conference on Solid State Dosimetry, Yale University, New Haven, July 2004.
- 2003- Member, Scientific Advisory Committee, 14th International Conference on Solid State Dosimetry, New Haven, USA, July 2004.
- 2004 Dean, Summer School, International Solid State Dosimetry Organization, New Haven, USA.

IAEA and NRC

- 1993 International Atomic Energy Agency (IAEA): Expert consultant to the agency in the area of radiation dosimetry.
- 1995 National Research Council (NRC): Advisor in the IAEA Fellowship program.

UNIVERSITY SERVICE

- 1990- Member, committee of graduate admission, Health Physics Program.
- 1992-1997 Interviewer, School of Medicine Admission.
- 1994-1995 Member, committee of Resources on Biomedical Engineering (ROBE).
- 1996 Faculty Advisor to first year medical students.
- 1996- Director of the graduate Health Physics Program.
- 2003-2005 Member, Georgetown University Senate

TEACHING ACTIVITIES

Georgetown University (1990-present)

Course director:

- Radiation Detection.
- Radiation Dosimetry.
- Radiation Science.

Lecturer:

- Radiation Science I.
- Radiation Science II.
- Operational Health Physics.
- Health Physics Internship III.
- Physiology Tutorial.

b) Experience as Research Mentor

Mentor to Graduate Students:

- Dimitris Emfietzoglou, **Ph.D.**, 1996.
- Paula L. Taylor, M.S. 1991
- Michelle M. Kaufman, M.S. 1992
- Thomas J. O'Brien, M.S. 1992
- Dimitris Emfietzoglou, M.S. 1993
- Andrew Wallo III, M.S. 1994 (Received the Health Physics Society Student Award for 1994)
- Catherine A. Ribaudou, M.S. 1994
- Schleurious L. Gaiter, M.S. 1995
- Niel M. Barss, M.S. 1996
- Philip Liotta, M.S. 1996
- Steve Chase, M.S. 1999
- Amy Readshaw, M.S. 1999

Mentor to Visiting Research Scientists

- Talma Izak-Biran, Ph.D., Visiting Assistant Professor from Soreq, Israel (1995)
- Gary W. Phillips, Ph.D., Visiting Research Scientist from NRL, Washington, DC (1996)
- Usama Abdul Al-Akabawy, Ph.D., IAEA Fellow from Egypt (1997)
- Dimitris Emfietzoglou, Ph.D., Postdoctoral fellow (1999)

SCHOLARSHIP AND RESEARCH

External Research Grants (In reversed chronological order by end date.)

1. Title: **Health Physics Graduate Program with Specialization in Nuclear Nonproliferation**
Principal Investigator: Marko Moscovitch
Source and Number: Department of Energy, DOE 74X-SZ244C
Start Date: October 1, 2004
End Date: September 30, 2007
Funds: \$275,996 (Annual award)
Effort: 40%

We propose to expand the scope of existing Health Physics Program to include a certification in Nuclear Nonproliferation studies

2. Title: **Neutron Detection and Characterization for Non-Proliferation Applications Using 3D Computer Optical Memories**
Principal Investigator: Marko Moscovitch
Source and Number: Department of Energy, DOE 74X-SZ244C
Start Date: January 1, 1998
End Date: December 31, 2004
Total Funds: \$759,803
Effort: 75%

The goal of this project is to develop a novel prototype system for monitoring and characterizing neutron fields using detectors fabricated of material used in 3-dimensional (3D) computer optical memories.

3. Title: **3D ORAM dosimeter for space radiation environments**
Principal Investigator: Marko Moscovitch
Source and Number: NASA, AIBS# 9307-0347
Start Date: February 15, 1995
End Date: September 1, 1999
Total Funds: \$288,000
Effort: 25%

Application was submitted to NASA in response to Research Announcement NRA93-OLMSA-07 entitled "Ground-Based Research in Space Life Sciences". The application was ranked in the top 7 percentile, through competitive scientific review by the Radiation Peer Review Panel.

4. Title: **The feasibility of digital neutron dosimetry using 3D optical memories**
Principal Investigator: Marko Moscovitch
Source and Number: DOE, 93-3-811 -01
Start Date: August 30, 1993
End Date: August 30, 1996
Total Funds: \$134,000
Effort: 25%

Application was submitted to DOE in response to the "Health Physics Faculty Research Award Program" for 1993. The application was ranked in the top 10 percentile, through competitive scientific review by Oak Ridge Associated Universities Peer Review Panel.

5. Title: **DNA Strand Breaks Produced in Mammalian Cells by Heavy Ion Irradiation**
Principal Investigator: Timothy Jorgensen
Co-Investigator: Marko Moscovitch
Source and Number: Brookhaven National Laboratory AGS B8
Start Date: October 1, 1995
End Date: September 30, 1997
Total Funds: \$24,000 (for beam time on the AGS heavy ion accelerator).
Effort: N/A

The proposal was approved and awarded based on competitive peer review by their Scientific Advisory Committee for Radiobiology.

6. Title: **Development of an energy independent beta dosimeter based on $-Al_2O_3:C$**
Principal Investigator: Marko Moscovitch
Source and Number: Battelle Memorial Institute, BATTELLE 263414-A-12
Start Date: June 1, 1994
End Date: September 30, 1995
Total Funds: \$25,000
Effort: N/A

This was a sole-source, non-competitive award and involved collaboration with Oklahoma State University (S.W.S. McKeever) and ORALS Polytechnic Institute in Russia (M. S. Akselrod).

7. Title: **10th International Conference on Solid State Dosimetry**
Principal Investigator: Marko Moscovitch
Source and Number: DOE, DE-FG05-92ER61379
Start Date: September 30, 1992
End Date: September 30, 1993
Total Funds: \$5,000
Effort: N/A

8. Title: **10th International Conference on Solid State Dosimetry**
Principal Investigator: Marko Moscovitch
Source and Number: NIH/NCI, 1-R13-CA56310-01/1
Start Date: June 30, 1992
End Date: June 30, 1993
Total Funds: \$5,000
Effort: N/A

Internal Grants

8. **Marko Moscovitch** (Radiation Medicine), Susette C. Mueller (Cell Biology), and Janice M. Hicks (Chemistry), **Interdisciplinary Grant awarded by President Leo. J. O'Donovan, S.J.** to develop a "3D Computer Optical Memory - Data Storage and Retrieval Using Laser Imaging".
Date of Award: April 9, 1996
Total funds: \$20,000

Publications

Original Publications in Refereed Journals

1. Horowitz Y.S., Kalef-Ezra J. and **Moscovitch M.**, "Further studies on the non-universality of the TL-LET response in thermoluminescent LiF and lithium borate: The effect of high temperature TL," Nucl. Instr. Meths., **172**, 479-485 (1980).
2. Horowitz Y.S., **Moscovitch M.** and Dubi A., "Response Curves for the thermoluminescence induced by alpha particles: Interpretation using track structure theory," Phys. Med. Biol., **27**, 1325-1338 (1982).
3. Horowitz Y.S., **Moscovitch M.** and Dubi A., "Modified general cavity theory applied to the calculation of gamma dose in ^{60}Co thermoluminescent dosimetry," Phys. Med. Biol., **28**, 829-840 (1983).
4. Horowitz Y.S. and **Moscovitch M.**, "Track structure theory - track intersection model for heavy charged particle Thermoluminescence dose response curves," Radiat. Prot. Dosim., **6**, 33-36 (1984).
5. **Moscovitch M.**, Horowitz Y.S. and Oduko J., "LiF thermoluminescence dosimetry via computerized first order kinetics glow curve analysis," Radiat. Prot. Dosim., **6**, 157- 159 (1984) .
6. Horowitz Y.S. and **Moscovitch M.**, "Modified general cavity theory applied to gamma ray compton interaction LiF thermoluminescence dosimetry,~ Radiat. Prot. Dosim., **6**, 37-40 (1984).
7. Horowitz Y.S. and **Moscovitch M.**, "Refinements in the application of modified general cavity theory to ^{60}Co thermoluminescence dosimetry," Phys. Med. Biol., **29**, 455-457(1984).
8. Horowitz Y.S. and **Moscovitch M.**, "Computerized glow curve deconvolution applied to high dose (100-100000 Gy) TL dosimetry," Nucl. Instr. Meths., **A243**, 207-214 (1986).
9. Horowitz Y.S., **Moscovitch M.** and Wilt M., "Computerized glow curve deconvolution applied to ultra-low dose LiF thermoluminescence dosimetry," Nucl. Instr. Meths., **A244**, 556-564 (1986).
10. Horowitz Y.S., **Moscovitch M.**, Mack J.M., Hsu H. and Kearsley E., "Incorporation of Monte Carlo electron interface studies into photon general cavity theory," Radiat. Prot. Dosim., **17**, 437- 441 (1986).
11. **Moscovitch M.** and Horowitz Y.S., "Microdosimetric track interaction model applied to alpha particle induced supralinearity and linearity in LiF:Mg,Ti," Radiat. Prot. Dosim., **17**, 487- 491 (1986).
12. Horowitz Y.S. and **Moscovitch M.**, "LiF TLD in the microgray dose range via computerized glow curve deconvolution and background smoothing," Radiat. Prot. Dosim., **17**, 337-342 (1986).
13. **Moscovitch M.**, "Automatic method for evaluating elapsed time between irradiation and readout in LiF-TLD," Radiat. Prot. Dosim., **17**, 165-169 (1986).
14. **Moscovitch M.** and Horowitz Y.S., "A Microdosimetric track interaction model applied to alpha particle induced supralinearity and linearity in thermoluminescent LiF:Mg,Ti," J. Phys. D: Appl. Phys., **21**, 804-814 (1988).

15. Devine R.T., **Moscovitch M.** and Blake P.K., "The US Naval dosimetry center thermoluminescent dosimetry system," *Radiat. Prot. Dosim.* **30**, 231-236 (1990).
16. **Moscovitch M.**, Szalanczy A., Bruml W., Velbeck K.J. and Tawil R.A., "A TLD System based on gas heating with linear time-temperature profile," *Radiat. Prot. Dosim.*, **34**, 361-364 (1990).
17. **Moscovitch M.**, Velbeck K.J. and Bencke G.M., "Mixed field personnel dosimetry using a nearly tissue equivalent multi-element thermoluminescent dosimeter," *Radiat. Prot. Dosim.*, **34**, 145-148 (1990).
18. **Moscovitch M.**, Editorial, "Effective algorithms," *Radiat. Prot. Dosim.*, **35**, 147-148 (1991).
19. **Moscovitch M.** and Horowitz, Y.S., "The Siemens-Plessey Electronic Personal Dosimeter," *Radiat. Prot. Dosim.*, **42**, 57-59 (1992).
20. **Moscovitch M.**, Taylor P.L., Rodgers J.E. and McRae D.A., "An algorithm for supralinearity correction applied to radiation therapy thermoluminescence dosimetry," *Radiat. Prot. Dosim.*, **47**, 505-508 (1993).
21. **Moscovitch M.**, Tawil R.A., and Svinkin M., "Light-induced fading in $\alpha\text{-Al}_2\text{O}_3\text{:C}$," *Radiat. Prot. Dosim.*, **47**, 251-253 (1993).
22. Tawil R.A., Velbeck K.J., Rotunda J., Gooley R., **Moscovitch M.**, and Wu, C.F., "A system for extremity monitoring," *Radiat. Prot. Dosim.*, **47**, 445-450 (1993).
23. Tawil R.A., Velbeck K.J., Rotunda J., Flory C., and **Moscovitch M.**, "A system for environmental monitoring," *Radiat. Prot. Dosim.*, **47**, 317-321 (1993).
24. **Moscovitch M.**, Kaufman, M., Rodgers J.E., and Niroomand-Rad A., "Ultra-low dose (100 nGy-100 microGy) response of $\alpha\text{-Al}_2\text{O}_3\text{:C}$," *Radiat. Prot. Dosim.*, **47**, 173-176 (1993).
25. **Moscovitch M.**, Invited Paper, "Dose calculation algorithms in personnel dosimetry", *Radiat. Prot. Dosim.*, **47**, 373-380 (1993).
26. Izak-Biran T. and **Moscovitch M.**, "Light-induced TL and light-induced fading of TL in $\alpha\text{-Al}_2\text{O}_3\text{:C}$ ", *Radiation Measurements*, **26**, 259-264 (1996).
27. Emfietzoglou D., and **Moscovitch M.**, "Phenomenological study of light-induced effects in $\alpha\text{-Al}_2\text{O}_3\text{:C}$ ", *Radiat. Prot. Dosim.*, **65**, 259-262 (1996).
28. Akselrod M.S., McKeever S.W.S., **Moscovitch M.**, Emfietzoglou D, Durham J.S., and Soares C.G., "A thin-layer $\alpha\text{-Al}_2\text{O}_3\text{:C}$ beta TL detector", *Radiat. Prot. Dosim.* **66**, 105-110 (1996).
29. **Moscovitch M.** and Emfietzoglou D., "Simulation of radiation effects on three-dimensional computer optical memories", *J. Appl. Phys.* **81**, 58-69 (1997).
30. Emfietzoglou D. and **Moscovitch M.**, "A potential application to the study of microscopic energy deposition in a solid by means of heavy charged-particle induced photochromic alterations in a tissue-equivalent matrix," *Phys. Med. Biol.*, **44**, 207-221 (1999).
31. Phillips G. W., Readshaw A. K., Brown G. O., Weiss R. G., Guardala N. A., Price J. L., Mueller S. C. and **Moscovitch M.**, "Observation of radiation effects on three-dimensional optical random-access-memory materials for use in radiation dosimetry", *Appl. Radiat. Isot.*, **50**, 875-881 (1999).

32. **Moscovitch M.**, "Personal dosimetry using LiF:Mg,Cu,P," *Radiat. Prot. Dosim.*, **85**, 49-56 (1999).
33. Klemic G., Shobe J., Sengupta S., Shebell P., Miller K., Carolan P.T., Holeman G., Kahnhauser H., Lamperti P., Soares C., Azziz N., and **Moscovitch M.**, "State of the art of environmental dosimetry: 11th international intercomparison and proposed performance tests," *Radiat. Prot. Dosim.*, **85**, 201-206 (1999).
34. Perry O.R., **Moscovitch M.**, Velbeck K.J. and Rotunda J.E., "LiF:Mg,Cu,P based environmental dosimeter and dose calculation algorithm," *Radiat. Prot. Dosim.*, **85**, 273-281 (1999).
35. Readshaw A.K., Brown G.O., Phillips G.W., Weiss R.G., Guardala N. A., Price J. L., Mueller S.C. and **Moscovitch M.** "Investigation of 3D ORAM materials for radiation dosimetry," *Radiat. Prot. Dosim.*, **85**, 451-454 (1999).
36. Emfietzoglou D., Papamichael G and **Moscovitch M.** "An event-by-event computer simulation of interactions of energetic charged particles and all their secondary electrons in water," *J. Phys.D:* **33**, 932-944 (2000).
37. Emfietzoglou D, Papamichael G, Kostarelos K, **Moscovitch M**: A Monte Carlo track structure code for electrons (10 eV-10 keV) and protons (0.3-10 MeV) in water: partitioning of energy and collision events. *Phys. Med. Biol.* 45:3171-3194, 2000.
38. Cullum BM, Mobley J, Bogard JS, **Moscovitch M**, Phillips GW, Vo-Dinh T: Three-Dimensional Optical Random Access Memory Materials for Use as Radiation Dosimeters. *Anal. Chem.*, 72:5612-5617, 2000.
39. **Moscovitch M** and Phillips G W: Radiation dosimetry using three-dimensional optical random access memories., *Nucl. Instr. And Meth. In Phys. Res. B*, 184:207-218, 2001.
40. Emfietzoglou D, Papamichael G and **Moscovitch M**: Charged particle interactions in water: cross-sections and simulation. *Radiation Physics and Chemistry*, 61:597-598, 2001.
41. Cullum BM, Mobley J, Bogard JS, and **Moscovitch M**, Philips GW, Vo-Dinh T: Detection of neutrons using a novel three-dimensional optical random access memory technology (3D-ORAM). *Proceedings- Spie the International Society for Optical Engineering*, 4199:165-172, 2001.
42. **Moscovitch M** and McKeever SWS: Editorial: *Nucl. Instr. And Meth. In Phys. Res. B*, 184: 2001.
43. Emfietzoglou D, Papamichael G, **Moscovitch M**: Monte Carlo simulation of charged particle transport in biomatter. *Phys Med.*, 17 Suppl 1:113-4, 2001.
44. **Moscovitch M** , Philips GW, Cullum BM, Mobley J, Bogard JS, Emfietzoglou D and Vo-Dinh T. Radiation dosimetry using three-dimensional optical random access memories, *Rad. Prot. Dosim.* 101:17-22, 2002.
45. Emfietzoglou D and **Moscovitch M**: Inelastic collision characteristics of electrons in liquid water. *Nucl. Instr. And Meth. In Phys. Res. B*: 193:71-78, 2002.
46. Cassata JR, **Moscovitch M.**, Rotunda JE and Velbeck KE: A new paradigm in personnel dosimetry. *Rad. Prot. Dosim.* 101:27-42, 2002.

47. Skopec M, Price JL, Guardala N, Loew M and **Moscovitch M**: Glow curve analysis applied to the discrimination of x-ray versus proton irradiation. *Rad. Prot. Dosim.* 101:99-102, 2002.
48. Phillips GW, August RA, Campbell AB, **Moscovitch M**, Nelson ME, Guardala NA and Price JL: Feasibility of a neutron detector/dosimeter based on single event upsets in dynamic random access memories. *Rad. Prot. Dosim.* 101:129-32, 2002.
49. Song JM, Cullum BM, Mobley J, Bogard JB, **Moscovitch M**, Phillips GW and Vo-Dinh T: Crossed-Beam Two-Photon Readout System for Three-Dimensional Radiation Detectors. *Rev. Sci. Instrum.* 73:4214-4217, 2002.
50. Emfietzoglou D, Karava K, Papamichael G, **Moscovitch M**. Monte Carlo simulation of the energy loss of low-energy electrons in liquid water. *Phys Med Biol.* 48(15):2355-71, 2003.
51. McKeever SW, **Moscovitch M**. On the advantages and disadvantages of optically stimulated luminescence dosimetry and thermoluminescence dosimetry. *Radiat Prot Dosimetry.* 104(3):263-70, 2003.
52. Emfietzoglou D, Karava K, Papamichael G, **Moscovitch M**. Monte-Carlo calculations of radial dose and restricted-let for protons in water. *Radiat Prot Dosimetry.* 110(1-4):871-9, 2004.
53. Emfietzoglou D, Papamichael G, Androulidakis I, Karava K, Kostarelos K, Pathak A, **Moscovitch M**. A Monte-Carlo study of sub-keV electron transport in water: the influence of the condensed phase. *Nucl Instrum Meths B* 228: 341-348, 2005.
54. Emfietzoglou D, Pathak A, **Moscovitch M**. Modeling the energy and momentum dependent loss function of the valence shells of liquid water. *Nucl Instrum Meths B* 230: 77-84, 2005.
55. Emfietzoglou D, Pathak A, Papamichael G, Kostarelos K, Dhamodaran S, Sathish N, **Moscovitch M**. A study on the electronic stopping of protons in soft biological matter. *Nucl Instrum Meths B* (In press), 2006.
56. **Moscovitch M**, Horowitz YS. Thermoluminescence materials for medical applications: LiF:Mg,Ti and LiF:Mg,Cu,P. *Radiat Measurements* (In press), 2006.
57. **Moscovitch M**, St. John T, Blake P, Rotunda JE, Velbeck KJ, Luo L. The US Navy LiF:Mg,Cu,P based dosimetry program. *Radiat Prot Dosim* (In press), 2006.
58. Phillips GW, Span J, Bogard JS, VoDinh T, Emfietzoglou D, Robert Devine R, **Moscovitch M**. Neutron spectrometry using CR-39 track etch detectors. *Radiat Prot Dosim* 2006 May 30; [Epub ahead of print].
59. Ramlo M, **Moscovitch M**, Rotunda JE. Reduction of Residual in Harshaw TLD-100H (LiF:MCP). *Radiat Prot Dosim* (submitted).
60. Skopec M, Loew M, Price JL, **Moscovitch M**. The effect of radiation exposure order on thermoluminescent dosimeter response from mixed photon and proton irradiations. *Radiat. Measurements* (submitted).

Books, Special Issues

1. McKeever S.W.S., **Moscovitch M.**, and Townsend P.D., **Book**, "Thermoluminescence dosimetry materials - properties and uses", Nuclear Technology Publishing, Kent, England. ISBN 1 870965 19 1, (1995).

2. **M. Moscovitch** and SWS McKeever. Guest editors, Special issue of Nuclear Instruments and Methods in Physics Research Section B., "Advanced Topics in Solid State Dosimetry", NIMB 184, ISSN 0168-583X (1-2): 1- 294, 2001.

Patents

1. **Moscovitch M.**, "TLD apparatus and method with elapsed time readout capability," U.S. Patent No. 4,827,131, (1989).
2. **Moscovitch M.**, "TLD apparatus and method," U.S. Patent Number: 4,827,132, (1989).
3. Bnuml W., **Moscovitch M.** and Szalanczy A., "Thermoluminescence dosimetry card reader heating assembly," U.S. Patent No. 4,835,388, (1989).
4. Chamberlain J.D. and **Moscovitch M.**, "Thermoluminescent dosimeter with improved card holder," U.S. Patent No. 4,975,589, (1990).
5. **Moscovitch M.**, "Mixed field personnel dosimetry method and apparatus for determination of risk related quantity," U.S. Patent No. 5,004,921, (1991).
6. **Moscovitch M.**, "Personnel TL dosimetry method and apparatus for determination of risk related quantity," U.S. Patent No. 5,065,031 (1992).
7. Velbeck K.J., Chamberlain J.D., Tawil R.A., Panigrahi N., **Moscovitch M.** and Tailor R., "High temperature thermoluminescent dosimeter and method of making and using same," U.S. Patent No. 5,107,363, (1992).
8. **Moscovitch M.**, "Neutron dosimetry using three-dimensional optical memory," U. S. Patent No. 5,319,210 (1994).
9. **Moscovitch M.**, "Neutron spectrometer, real-time dosimeter and methodology using three-dimensional optical memory", International patent application No. PCT/US95/05837, International Publication No. WO/95/30909, Publication date: 16 November 1995.
10. **Moscovitch M.**, "Neutron spectrometer, real-time dosimeter and methodology using three-dimensional optical memory", U.S. Patent No. 5,498,876 (1996).
11. **Moscovitch M.** and Rotunda J. E., "Multi-element dosimetry system using neural network", U.S. Patent No. 5,572,028 (1996).

Other Publications

1. **Moscovitch M.**, "TL response of LiF:Mg,Ti to heavy charged particles - theoretical model," M.Sc. Thesis, Ben Gurion University of the Negev, Beer Sheva, Israel, (1981).
2. Horowitz Y.S., **Moscovitch M.** and Dubi A., "Modification of Burlin's general cavity theory for photons and application to ^{60}Co thermoluminescence dosimetry," In Proc. 8th Symp. Microdosimetry, Eds. J. Booz and H. G. Ebert, 1003-1013 (1982).

3. **Moscovitch M.**, Horowitz Y.S. and King C.W., "LiF-TLD via computerized glow curve deconvolution into component glow peaks," in Proc. "Computer Application in Health Phys.", Health Phys. Midyear Topical Meeting, Seattle, Wash., 4.89-4.96 (1984).
4. **Moscovitch M.**, "Microdosimetric concepts applied to photon general cavity theory and thermoluminescent dose response curves," Ph.D. Thesis, Ben Gurion University of the Negev, Beer Sheva, Israel, (1985).
5. **Moscovitch M.**, Chamberlain J. D. and Velbeck K.J., "Dose determination algorithms for a nearly tissue equivalent multi-element thermoluminescent dosimeter," In Proc. 2nd Conference on Radiation Protection and Dosimetry, Orlando, ORNL/TM-10971, pp. 48-59 (October 1988).
6. Velbeck K.J. and **Moscovitch M.**, "A time temperature controlled non-contact automatic TLD system methodology for performance evaluation," In Proc. 2nd Conference on Radiation Protection and Dosimetry, Orlando, ORNL/TM-10971, pp. 126-137 (October 1988).
7. Tawil R.A., Bencke G.M. and **Moscovitch M.**, "Quality assurance package for routine thermoluminescence dosimetry program," In Proc. 2nd Conference on Radiation Protection and Dosimetry, Orlando, ORNL/TM-10971, pp. 138-146 (October 1988).
8. **Moscovitch M.**, Invited paper, "Dosimeters for measuring neutron dose equivalent: New approaches," In Proc. 11th DOE Workshop on Personnel Neutron Dosimetry, Las Vegas, pp. 106-108 (June 1991).
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