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EREZ HASMAN
Professor

Personal Information

Date of birth: July 4, 1960
Place of birth: Tel-Aviv, Israel
Citizenship: Israeli
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Academic Degrees

B.Sc Physics and Astronomy (with honors), Tel-Aviv University, 1981.
M.Sc. Physics (with honors), Israel Institute of Technology, Technion, Haifa, 1985.
Thesis: "*Acceleration of Flyer plates by electrically exploded foils and the application to shock initiation*".
Supervisor: Prof. S.G. Lipson.
Ph.D Applied Physics, Weizmann Institute of Science, Rehovot, 1992.
Thesis: "*Holographic optical elements for far IR radiation*".
Supervisor: Prof. A.A. Friesem.

Employment

1980	Summer student, Faculty of Physics, Tel-Aviv University, Tel-Aviv, Israel.
1981-1986	Rafael, Israel Defense Research Center; Senior Physicist.
1988-1991	Teaching fellow in Advanced Physics Courses - The Feinberg graduate school of the Weizmann Institute of Science.
1990	Consultancy for Alumor Ltd.
1991	Consultancy for Spectronics Ltd., MLI Ltd., Sabco Ltd., Holo-Or Ltd.
1992-1994	Optrotech (Orbotech) Ltd., Israel: - Chief Physicist of Graphic and Recognition products line, - Senior Project Physicist.
1993-1996	Consultancy (research)- Weizmann Institute of Science, Department of Physics of Complex Systems.
1993-1998	Supervisor of M.Sc & Ph.D students-Weizmann Institute of Science, Department of Physics of Complex Systems.
1994-1996	Elop Electrooptics Industries Ltd., Israel - Technology Analysis Manager- (Corporate Business Development & Technologies)
1996-1998	Visiting Senior scientist - Weizmann Institute of Science, Department of Physics of Complex Systems.
1998-2011	Associate Professor, Technion, Faculty of Mechanical Engineering, Head of Optical Engineering program & Micro- and Nanooptics Laboratory, [<i>tenure</i> -1.10.02].
2010-present	Head of Danciger Laboratories, Technion.
2011-present	Full Professor, Technion, Faculty of Mechanical Engineering, Head of Micro- and Nanooptics Laboratory.

Military Service

1981-1986	Israel Defense Forces – Captain (in Rafael)
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Fields of Experience

Theoretical and experimental research:

- *High pressure physics and technology* - high pressure flow and shock waves, detonation, short pulses, explosives, pyrotechnics, diagnostic techniques (electro-optic and electric methods), high current and voltage systems, electric guns, high magnetic fields
- *Far IR application* - fiber optics, Laser radars, material processing
- *Physical optics* - Diffraction, focal properties of optical elements, gratings, polarization, non-diffracting beams
- *Optical design* - aspheric optical elements, wavefront shaping, optical geometric transformations
- *Holography* - diffractive optical elements (holographic optical elements), binary optics, computer generated, holograms, interferometry, scanners
- *Optical computing* - optical interconnects, liquid crystal light valve, architecture and correlation techniques
- *Photolithographic technology* - for metallic layers and Gallium Arsenide
- *Optical metrology* - machine vision, surface profile systems, confocal microscopes, triangulation techniques and velocity interferometry
- *R & D in photoplotters (laser plotters)* - imaging and technologies for:
 - Printed Circuit Boards industry,
 - Graphic Arts industry.
 - Involved Technologies - Ar lasers, high power diode lasers, optics for diode lasers, modulators (acousto optic deflectors and multichannel modulators), fiber optics technologies, microlens arrays, optical head for thermal laser plotters
- *Lasers* - solid state lasers, diode pumped lasers, diode lasers, CO₂ lasers, non linear optics (SHG, OPO), laser systems (rangefinders, designators)
- *Thermal imaging* - FLIRs, MCT & GaAs arrays (3-5, 8-12 micron radiation)
- *Optical displays* - Head-up & Helmet displays, automatic head & eye tracking
- *Anamorphic optical concentration* - solar radiation, spectroscopy
- *Optical memory* - 2D & 3D optical storage
- *Laser resonators* - Diffractive optical elements (DOEs) for laser resonators
- *Subwavelength optical elements* - design, realization and applications

- *Space-variant polarization manipulation*
- *Vectorial singular optics (vectorial vortices)*
- *Geometric phase (Pancharatnam phase; Berry phase)*
- *Surface phonon polaritons*
- *plasmonics in nanoscale structures*
- *spin-based nanostructures*
- *Thermodynamic in the near-field*
- *Coherent thermal emission*
- *Micro-and nanoscale radiative heat transfer*

Current Research Interests

Polarization state manipulation, Subwavelength optical elements, Nanostructured optical elements, Nanophotonics, Nanooptics, Optical-metamaterial, Vectorial optics, Diffractive optics, Imaging polarimetry, Surface phonon and plasmon polaritons, Plasmonics, Near-field optics, Singular optics, Vectorial vortices, Geometric phase (Berry phase, Pancharatnam phase), Spinoptics, Angular momentum of light, Spin-based plasmonics in nanostructures, Spin orbit interaction, Optical spin Hall effect, Dynamics of spinning light in nanoscale structures, Geometric symmetry breaking in nanoscale structures.

Manipulation of a thermal emission, Thermodynamic in the near-field, Micro- and nanoscale radiative heat transfer, Coherent thermal emission, Thermal nano-antennas, Thermally excitation of surface waves (plasmons and phonon-polaritons), Geometrical effects on Thermal emission induced by surface waves.

Teaching Experience

- Experimental methods in Advanced Physics - The Feinberg graduate school of the Weizmann Institute of Science (graduate).
- Selected Topics in Optics for Engineers 1 – Technion (graduate)
- Selected Topics in Optics for Engineers 2 – Technion (graduate)
- Linear Optics and Applications 1 – Technion (undergraduate, 035198); Originally authored

- Linear Optics and Applications 2 – Technion (undergraduate, graduate, 036055); Originally authored
- Projects in Optical Engineering 1– Technion (undergraduate, 034373)
- Projects in Optical Engineering 2– Technion (undergraduate, 034374)
- Nanooptics & Periodic Structures (undergraduate, graduate, 036070); Originally authored

Technion Activities

- Head of Optical Engineering Program, Faculty of Mechanical Engineering (1998-present)
- Head of Micro and Nanooptics Laboratory, Faculty of Mechanical Engineering (1998-present)
- Member, Governing Board of Energy Engineering Center, Faculty of Mechanical Engineering (1999-present)
- Head of Danciger Laboratories, Technion (1.8.10-present).

Professional Societies

- OSA - Optical Society of America, (member).
- ILEOS - Israel Laser and Electro-Optics Society.
- SPIE - The International Society of Optical Engineering, (member).
- APS - American Physical Society (member).
- IPS - Israel Physical Society.
- EOS – European Optical Society.

Honors and Awards

- Dean's list, B.Sc. Tel-Aviv University, 1979, 1980, 1981.
- Amos De-Shalit Ulpana, Weizmann Institute of Science, 1979, 1980.
- Dean's list, M.Sc. Technion, Haifa, 1985.
- Excellent Scientist Award, Rafael, Israel Defence Research Center, 1985.
- Eshkol fellowship for the Ph.D, 1989, (Award given by Israeli President).
- Excellence prize for Doctoral student from the Feinberg Graduate School, Weizmann Institute of Science, 1991.
- Excellent Student Award, Knesset (Israeli Parliament), Jerusalem, 1991.

- Salomon Simon Mani Award for Excellence in Teaching, Technion, 2002.
- * The Henry Taub Prize for Academic Excellence, Technion, 2009.
- Award for Excellence in Teaching, Technion, 2010.
- Award for outstanding contribution to the success of the IHTC14 as a Keynote Speaker "*Manipulation of a Thermal Emission by Use of Micro and Nanoscale Structures*" at the 14th International Heat Transfer Conference Washington, DC, USA, August 8-13, 2010.

Activities in Conferences & Reviewing

- Professional Reviewing of Nature Photonics, Nature Nanotech., Phys. Rev. Lett., Opt. Lett., Appl. Opt., Opt. Eng., J.O.S.A., JQE, Opt. Commun., Opt. Express, Appl. Phys. Lett., Phys. Rev. B
- Professional Reviewing of Swiss National Science Foundation.
- Professional Reviewing of Ministry of Science- Physics Dep.
- Chairman; Diffractive Optics -session
The 9 th Meeting on Optical Engineering in Israel, Oct. 1994.
- Professional examiner- Ph.D & M.Sc students.
- Member of the program committee;
The 10 th Meeting on Optical Engineering in Israel, March 1997.
- Chairman; Solar Energy Optics -session
The 11th International Meeting on Electro-Optics in Israel, Nov. 1999.
- Member of the program committee; Workshop on Micro-Electro-Mechanical Systems (MEMS) , Technology, Design and Application, North Carolina – Israel Partnership, May 22-24, 2000.
- Member of the research grant committee of the Israel academy of sciences and humanities (2003);
- Chairman; Optical Engineering –session ; The 29th Israel Conference on Mechanical Engineering, Technion, May 12-13, 2003.
- Member of the program committee; Photonics West 2004, Micromachining Technology for Microoptics and Nanooptics Conference, San Jose, CA, USA. 25-29 January 2004.

- Session Chair ; Photonics West 2004, Micromachining Technology for Microoptics and Nanooptics Conference, San Jose, CA, USA. 25-29 January 2004.
- Member of the program committee; Photonics West 2005, Micromachining Technology for Microoptics and Nanooptics Conference, San Jose, CA, USA. 22-27 January 2005.
- Session Chair ; Photonics West 2005, Micromachining Technology for Microoptics and Nanooptics Conference, San Jose, CA, USA. 25-27 January 2005.
- Member of the program committee; Photonics West 2006, Micromachining Technology for Microoptics and Nanooptics Conference, San Jose, CA, USA. 21-27 January 2006.
- Session Chair; Photonics West 2006, Micromachining Technology for Microoptics and Nanooptics Conference, San Jose, CA, USA. 21-27 January 2006.
- Session Chair- Presider,: (Passive Photonics II) , Frontiers in Optics 2005, the 89th OSA Annual Meeting, Tucson Arizona, USA. 16-20 October 2005.
- Member of the organizing committee; 6th Israeli-French Workshop, "Advances in optical and laser materials: crystals, amorphous Materials, Photonic crystals and nano-particles", Maale Hachmisha, Israel, 11-12 December 2006.
- Member of the program committee; Photonics West 2007, Micromachining Technology for Microoptics and Nanooptics Conference, San Jose, CA, USA. 20-25 January 2007.
- Member of the organizing & program committee; The 11th Meeting on Optical Engineering and Science in Israel, (OASIS), Tel-Aviv, 26-27 March 26-27, 2007.
- Session Chair; "Micro and nanooptics and periodic structures", The 11th Meeting on Optical Engineering and Science in Israel, (OASIS), Tel-Aviv, 26-27 March 26-27, 2007.
- Track Leader of the Optical Engineering Track at the 9th Biennial ASME Conference on Design and Analysis-ESDA 2008, July 2008 , Technion, Haifa, Israel.

- Session Chair, "Optical Engineering and imaging", The 9th Biennial ASME Conference on Design and Analysis-ESDA 2008, July 2008 , Technion, Haifa, Israel.
- Member of the program committee; Photonics West 2008, Advanced Fabrication Technologies for Micro/Nano-Optics & Photonics (MF06) Conference, San Jose, CA, USA. 19-24 January 2008.
- Session Chair, "Diffractive micro and nano structures for sensing and information processing I ", OSA's 92nd Annual Meeting, Frontiers in Optics 2008, Laser Science XXIV, Rochester, USA, 19-23 October 2008.
- Session Chair, "Micro-and nanoscale radiative heat transfer", Topical Meeting at the EOS Annual Meeting 2008 in Paris (European Optical Society), "Micro- and nano-scale Photonic Systems", 29 September- 2 October 2008, Paris-Nord Villepinte, France.
- Session Chair, "Post-deadline session", Topical Meeting at the EOS Annual Meeting 2008 in Paris (European Optical Society), "Micro- and nano-scale Photonic Systems", 29 September- 2 October 2008, Paris-Nord Villepinte, France.
- Session Chair, "Imaging and microscopy", Topical Meeting at the EOS Annual Meeting 2008 in Paris (European Optical Society), "Micro- and nano-scale Photonic Systems", 29 September- 2 October 2008, Paris-Nord Villepinte, France.
- (*) **Co-chair of Topical Meeting at the EOS Annual Meeting 2008** in Paris (**European Optical Society**), "Micro- and nano-scale Photonic Systems", 29 September- 2 October 2008, Paris-Nord Villepinte, France.
- Member of the program committee; Photonics West 2009, Advanced Fabrication Technologies for Micro/Nano-Optics & Photonics (MF106) Conference, San Jose, CA, USA. 24-29 January 2009.
- Member of the organizing & program committee; The 12th Meeting on Optical Engineering and Science in Israel, (OASIS), 16-17 March, 2009.
- Session Chair; "Micro and nanooptics and periodic structures", The 12th Meeting on Optical Engineering and Science in Israel, (OASIS), 16-17 March 2009.

- Session Chair; CLEO/IQEC 2009, Conference on Laser and Electro-Optics/ Quantum Electronics and Laser Science Conference, session: "Quantum dot science II", Baltimore, USA, May 31 – June 5, 2009.
- Session Chair; "Electromagnetic eigenstates and resonances in nanoplasmonic systems ", Metallic Nanostructures and their optical properties VII (OP103), NanoScience, San Diego, CA, USA, 2-6 August 2009.
- Member of the program committee; Photonics West 2010, Advanced Fabrication Technologies for Micro/Nano-Optics & Photonics (MF106) Conference, San Francisco, CA USA, 23-28 January 2010.
- Session Chair: European Optical Society; EOS Topical Meeting on Diffractive Optics, Koli, Finland, 14-18 February 2010.
- Member of the organizing & program committee; The 13th Meeting on Optical Engineering and Science in Israel, (OASIS), Tel Aviv, Israel, 9-10 March 2011.
- Session Chair; "Micro and nanooptics and periodic structures", The 13th Meeting on Optical Engineering and Science in Israel, (OASIS), Tel Aviv, Israel, 9-10 March 2011.
- Member of the scientific committee; International workshop on Nano-Micro Thermal Radiation, Sendai, Japan (Matsushima Bay Area), 26-29 May 2012.

Activities in Scientific Editorial Board

- Member in editorial board of Journal of Nanoelectronics and Optoelectronics (JNO) (new international journal; 2005, web-site <http://aspbs.com/ino/> ; American Scientific publishers ASP).
- **** Associate Editor for Optics Express, in the fields of nanophotonics, Nanoscale optics, Plasmonics** (from 3.06-5.09). Optics Express is OSA's (Optical Society of America) peer-reviewed journal. (*Impact factor 3.3*).
- Member in editorial board of Journal of Optics A: Pure and Applied Optics (from 3.07-7.09); published by the Institute of Physics Publishing & European Optical Society; *IF 1.2*).

Graduate Students

Completed Theses

“Optical Profilometers”, M.Sc. Shay Keren, Weizmann Inst. of Science (1998).

M.E.

“Piezoluminescent ZnS:Mn materials: design, realization and applications”, M.E.. Avihai Kirshner., Technion (2001).

M.Sc.

“Computer-Generated Subwavelength structured Optical Elements: design, realization and applications”, M.Sc., Zeev Bomzon, Technion (1.5.02).

“Subwavelength polarization gratings: design, realization, and applications”, M.Sc. Gabriel Biener, Technion (1.9.03).

“Space-variant polarization-state manipulations by use of subwavelength gratings”, M.Sc., Avi Niv , Technion (30.3.04).

“Space-variant polarization manipulation of a thermal emission by a subwavelength grating supporting surface phonon-polaritons”, M.Sc., Nir Dahan , Technion (30.9.05).

“Optical properties of polarization-dependent geometric phase elements with partially polarized light”, M.Sc., Yuri Gorodetski , Technion (31.12.05).

“Infrared radiation absorption manipulation by use of two dimensional subwavelength metallic metamaterials”, M.Sc., Benyahu Hanukayev, Technion (1.07).

“Excitation of a single hollow waveguide mode using inhomogeneous anisotropic subwavelength structures”, M.Sc., Yaniv Yirmiyahu , Technion (22.9.08).

“Spinoptics: optical spin symmetry breaking in plasmonic nanostructures”, M.Sc., Nir Shitrit, Technion (10.10.10).

PhD.

“Light manipulation by use of subwavelength structures”, PhD. Gabriel Biener, Technion (1.9.07). [currently, postdoc. in Univ. of California, Los Angeles, USA].

“Vectorial vortices obtained with anisotropic and inhomogeneous subwavelength structures”, PhD. Avi Niv, Technion (26.10.08). [currently, postdoc. in Prof. Xiang Zhang's group, Mech. Eng. University of California, Berkeley].

“Geometrical effects on thermal emission induced by surface waves”, PhD., Nir Dahan, Technion, (12.11.09). [currently, postdoc. in Prof. Jean-Jacques Greffet's group, Institute d'Optique, Univ. Paris-sud, France].

“Geometric spin-orbit interaction of surface waves”, PhD., Yuri Gorodetski, Technion, (1.10.10). [currently, postdoc. in Prof. Thomas Ebbesen's group, Univ. of Strasbourg, France].

Theses in Progress

PhD.

“IR sensors based on slow surface waves ”, PhD., Igal Balin, Technion, (start- 1.7.07).

“Spin symmetry breaking in plasmonics”, PhD., Nir Shitrit, Technion, (start- 1.8.10).

“Spinoptics: spin degeneracy breaking in nanostructures”, PhD., Dekel Veksler, Technion, (start- 1.8.11).

M.Sc.

“Spin-based plasmonic devices”, MSc., Itay Bartner , Technion, (start- 1.5.08).

“Plasmonic Aharonov-Bohm effect”, MSc., Sargey Nitziev (Nanoscience-Technion program), Technion, (start- 9.11.08).

“Nanoscale radiative heat transfer”, MSc., Kobi Frischwasser, Technion, (start- 1.4.09).

“spin-dependent radiative heat transfer”, MSc., Igor Yulevich, Technion, (start- 2010).

“nano-plasmonics”, MSc., Guy Shalem, Technion, (start- 2010).

Research Grants

- Acceleration of Flyer plates by electrically exploded foils and the application to shock initiation (1981-1986), Israel Ministry of Defense.
- Holographic Optical Elements for IR Radiation (1988-1991), Israel Ministry of Defense.
- Optical Computing and Interconnects (1989-1991), Israel Ministry of Defense.
- Photoplotters for graphic arts industry (1992-1994), Israel Ministry of Trade and Industry.
- Eye-safe Laser (1994-1996), Israel Ministry of Defense.
- GaAs Thermal Detectors (1995-1996), Israel Ministry of Defense.
- Diffractive Optical Elements (1994-1999), Israel Ministry Science.
- Sub-wavelength and Sub-micron Diffractive Optical Elements (1999-2002), Israel Ministry of Science.
- Computer-generated nano-structured optical elements: design, realization, and applications, (2000, 2001, 2002), Israel Ministry of Defence, Principle Investigator.
- Computer-generated nano-structured *metal* optical elements: design, realization, and applications, (2000, 2001, 2002), Israel Ministry of Defence, Principle Investigator.
- Piezoluminescent ZnS:Mn materials (smart structures applications), (2000, 2001, 2002, 2003), Rafael, Israel Defense Research Center, Principle Investigator.
- Subwavelength optical MEMS, Israel Ministry of trade and industry, (2002-2005), Principle Investigator .
- Nano-periodic optical materials, Israel Ministry Defence, (2004-2012) , Principle Investigator .
- Coherent thermal emission of coupled resonant cavities due to surface waves excitation, Israel Science Foundation (ISF) (from 2007 ; 4 years) , Principle Investigator.
- Studying DNA-Protein interaction with a novel optical method based on plasmonics nano-structures (NEVET, Technion-Bar Ilan Unv.) (from 2010 ; 1.5 years), Principle Investigators - Yuval Garini – Bar Ilan Unv. and Erez Hasman – Technion).

Publications

Theses

1. "*Acceleration of Flyer plates by electrically exploded foils and the application to shock initiation*", E. Hasman, M.Sc. (1985).
2. "*Holographic Optical Elements for far IR radiation*", E. Hasman, Ph.D. (1992).

Refereed papers in professional journals

* My group members in the Technion (graduate students, Lab. Engineer, Postdoc) are underlined>.

1. "*Measurement of shock initiation threshold of HNAB by flyer plate impact*", E. Hasman, M. Gvishi and Y. Carmel, *Propellants, Explosives, Pyrotechnics* **11**, 144-149 (1986).
2. "*The initiation threshold sensitivity of HNS as a function of explosive grain size*", E. Hasman, M. Gvishi and A. Solomonovici, *Propellants, Explosives, Pyrotechnics* **12**, 130-132 (1987).
3. "*Optimal design for holographic focussing elements*", E. Hasman, N. Davidson and A.A. Friesem, *Rev. Roum. Phys.*, tome **33** N 4-6 P. 643-651 (1988).
4. "*Analytic optimization for holographic optical elements*", E. Hasman and A.A. Friesem, *J. Opt. Soc. Am. A* **6**, 62-72 (1989).
5. "*Holographic focussing elements for far IR radiation*", E. Hasman, N. Davidson, A.A. Friesem, M. Nagler and R. Cohen, *Meas. Sci. Technol.* **1**, 59-64 (1990).
6. "*Holographic axilens-high resolution and long focal depth*", N. Davidson, A.A. Friesem and E. Hasman, *Opt. Lett.* **16**, 523-525 (1991).
7. "*Efficient multilevel phase holograms for CO₂ lasers*", E. Hasman, N. Davidson and A.A. Friesem, *Opt. Lett.* **16**, 423-425 (1991).
8. "*Curved holographic elements for optical coordinate transformations*", N. Davidson, A.A. Friesem, E. Hasman and I. Shariv, *Opt. Lett.* **16**, 1430-1432 (1991).
9. "*Heterostructure Multilevel Binary Optics*", E. Hasman, N. Davidson and

- A.A. Friesem, *Opt. Lett.* **16**, 1460-1462 (1991).
10. "*Multifunctional holographic elements for surface measurements*", E. Hasman, N. Davidson and A.A. Friesem, *Opt. Eng.* **31**, 363-368 (1992).
 11. "*Optical coordinate transformations*", N. Davidson, A.A. Friesem and E. Hasman, *Appl. Opt.* **31**, 1067-1073 (1992).
 12. "*Realization of perfect shuffle and inverse perfect shuffle transforms with holographic elements*", N. Davidson, A.A. Friesem and E. Hasman, *Appl. Opt.* **31**, 1810-1812 (1992).
 13. "*Efficient formation of non-diffracting beams with uniform intensity along the propagation direction*", N. Davidson, A.A. Friesem and E. Hasman, *Opt. Commun.* **88**, 326-330 (1992).
 14. "*Aspheric holographic elements for far IR radiation*", E. Hasman, N. Davidson and A.A. Friesem, *Opt. Commun.* **89**, 306-315 (1992).
 15. "*Diffractive elements for annular laser beam transformation*", N. Davidson, A.A. Friesem and E. Hasman, *Appl. Phys. Lett.* **61**, 381-383 (1992).
 16. "*On the limits of optical interconnects*", N. Davidson, A.A. Friesem and E. Hasman, *Appl. Opt.* **31**, 5426-5430 (1992).
 17. "*Blazed holographic grating for polychromatic and multi-directional incidence light*", N. Davidson, R. Duer, A.A. Friesem and E. Hasman, *J. Opt. Soc. Am.* **9**, 1196-1199 (1992).
 18. "*Computer generated relief gratings as space-variant polarization elements*", N. Davidson, A.A. Friesem and E. Hasman, *Opt. Lett.* **17**, 1541-1543 (1992).
 19. "*Analytic design of hybrid diffractive-refractive achromats*", N. Davidson, A.A. Friesem and E. Hasman, *Appl. Opt.* **32**, 4770-4774 (1993).
 20. "*Reflective and refractive systems for general two dimensional beam transformations*", N. Davidson, A.A. Friesem and E. Hasman, *Appl. Opt.* **33**, 815-820 (1994).
 21. "*Multilevel diffractive elements for generalized wavefront shaping*", Y. Danziger, E. Hasman, A.A. Friesem and A.W. Lohmann, *Opt. Eng.* **35**, 2556-2565 (1996).
 22. "*Diffractive optics: design, realization and applications*", E. Hasman, N. Davidson, Y. Danziger and A.A. Friesem, *Fiber & Integrated Optics* **16**, 1-25 (1997).
 23. "*Discontinuous phase elements for transverse mode selection in laser resonators*", R. Oron, Y. Danziger, N. Davidson, A.A. Friesem and E. Hasman, *Appl. Phys. Lett.*, **74**, 1373-1375 (1999).

24. "*Three dimensional optical metrology with color-coded extended depth of focus*", E. Hasman, S. Keren, N. Davidson, A.A. Friesem, *Opt. Lett.*, **24**, 439-441 (1999).
25. "*Laser mode discrimination with intra-cavity spiral phase elements*", R. Oron, Y. Danziger, N. Davidson, A.A. Friesem and E. Hasman, *Opt. Commun.*, **169**, 115-121 (1999).
26. "*High-resolution spectrometry for diffuse light using anamorphic concentration*", N. Davidson, L. Khaykovich and E. Hasman, *Opt. Lett.*, **24**, 1835-1837 (1999).
27. "*High power single mode laser operation with intracavity phase elements*", R. Oron, N. Davidson, A.A. Friesem and E. Hasman, *OPN, Optics & Photonics News*, **10**, 19-20 (1999).
28. "*Anomaly in a high-numerical-aperture diffractive focusing lens*", R. Oron, J.L. Guedalia, N. Davidson, A.A. Friesem and E. Hasman, *Opt. Lett.*, **25**, 439-441 (2000).
29. "*Anamorphic concentration of solar radiation beyond the one-dimensional thermodynamic limit*", N. Davidson, L. Khaykovich and E. Hasman, *Appl. Opt.* **39**, 3963-3967 (2000).
30. "*Efficient formation of pure helical laser beams*", R. Oron, N. Davidson, A.A. Friesem and E. Hasman, *Opt. Commun.* **182**, 205-208 (2000).
31. "*Continuous phase elements can improve laser beam quality*", R. Oron, N. Davidson, A.A. Friesem and E. Hasman, *Opt. Lett.* **25**, 939-941 (2000).
32. "*The formation of laser beams with pure azimuthal or radial polarization*", R. Oron, S. Blit, N. Davidson, A.A. Friesem, Z. Bomzon, and E. Hasman, *Appl. Phys. Lett.* , **77**, 3322-3324 (2000).
33. "*Color-coded optical profilometry with $>10^6$ resolved depth steps*", E. Hasman, and V. Kleiner, *Appl. Opt.* **40**, 1609-1619 (2001).
34. "*Computer generated space-variant polarization elements with subwavelength metal stripes*", Z. Bomzon, V. Kleiner, and E. Hasman, *Opt. Lett.* **26**, 33-35 (2001).
35. "*Achromatic phase retarder by slanted illumination of a dielectric grating with period comparable to the wavelength*", N. Bokor, R. Shechter, N. Davidson, A.A. Friesem, and E. Hasman, *Appl. Opt.* **40**, 2076-2080 (2001).
36. "*Manipulating the Wigner distribution of high order laser modes*", R. Oron, N. Davidson, A.A. Friesem, E. Hasman, *Opt. Commun.*, **193**, 227-232 (2001).

37. "*Space-variant polarization state manipulation with computer-generated subwavelength metal stripe gratings*", Z. Bomzon, V. Kleiner, E. Hasman, Opt. Commun. **192**, 169-181 (2001).
38. "*Pancharatnam-Berry phase in space-variant polarization state manipulations with subwavelength gratings*", Z. Bomzon, V. Kleiner, E. Hasman, Opt. Lett. **26**, 1424-1426 (2001).
39. "*Formation of radially and azimuthally polarized light using space-variant subwavelength metal stripe gratings*", Z. Bomzon, V. Kleiner, E. Hasman, Appl. Phys. Lett. **79**, 1587-1589 (2001).
40. "*Spatial Fourier-transform polarimetry using space-variant subwavelength metal stripe polarizers*", Z. Bomzon, G. Biener, V. Kleiner, E. Hasman, Opt. Lett. **26**, 1711-1713 (2001).
41. "*Improving the beam quality of high-order laser modes*", A. Ishaaya, R. Oron, N. Davidson, E. Hasman, A.A. Friesem, (Optics in 2001), OPN, Optics & Photonics News, **12**, 55 (2001).
42. "*Space-variant polarization-state manipulation with computer generated subwavelength gratings*", Z. Bomzon, G. Biener, V. Kleiner, E. Hasman, (Optics in 2001), OPN, Optics & Photonics News, **12**, 33 (2001).
43. "*Efficient conversion of a Gaussian beam to a high purity helical beam*", G. Machavariani, N. Davidson, E. Hasman, S. Blit, A.A. Ishaaya, and A.A. Friesem, Opt. Commun. **209**, 265-271 (2002).
44. "*Laser operation with two orthogonally polarized transverse modes*", R. Oron, L. Shimshi, S. Blit, N. Davidson, A.A. Friesem, and E. Hasman, Appl. Opt. **41**, 3634-3637 (2002).
45. "*Radially and azimuthally polarized beams generated by space-variant dielectric subwavelength gratings*", Z. Bomzon, G. Biener, V. Kleiner, E. Hasman, Opt. Lett. **27**, 285-287 (2002).
46. "*Real-time analysis of partially polarized light with space-variant subwavelength dielectric grating*", Z. Bomzon, G. Biener, V. Kleiner, E. Hasman, Opt. Lett. **27**, 188-190 (2002).
47. "*Efficient formation of high quality beam from a pure high order HG mode*", G. Machavariani, N. Davidson, A. Ishaaya, A.A. Friesem, E. Hasman, Opt. Lett. **27**, 1501-1503 (2002).
48. "*Space-variant Pancharatnam-Berry phase optical elements with computer-generated subwavelength gratings*", Z. Bomzon, G. Biener, V. Kleiner, E. Hasman, Opt. Lett. **27**, 1141-1143 (2002).

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10. "*Space variant holographic filters*", N. Davidson, A.A. Friesem, E. Hasman and I. Shariv, 15th Congress of ICO, Optics in complex systems, Garmisch-Partenkirchen, Germany, August 1990.
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12. "*Elements with high focal depth and high lateral resolution*", N. Davidson, A.A. Friesem and E. Hasman, Annual Meeting, Israel, Optical Engineering Society, Tel-Aviv, Nov. 1990.
13. "*Dynamic elements with SLM*", P. Bahat, A.A. Friesem and E. Hasman, Annual Meeting, Israel, Optical Engineering Society, Tel-Aviv, Nov. 1990.
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17. "*Temperature effects in flash lamp pumped Nd: doped lasers*", V. Krupkin, E. Hasman and I. Shoshan, The 9 th Meeting on Optical Engineering in Israel, Tel-Aviv, Oct. 1994.
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26. "*Specialized DOEs*", N. Davidson, E. Hasman and A.A. Friesem, Second Workshop on Non-Conventional Optics, Jerusalem Israel, June 1997.
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96. “*Enhanced coherent thermal emission of coupled resonant cavities due to surface waves excitation*”, N. Dahan, A. Niv, G. Biener, Y. Gorodetski, V. Kleiner, E. Hasman, The 52th Annual Meeting of the Israel Physical Society, (ISP 2006), Jerusalem, December 17, 2006, Bulletin of the Israel Physical Society Vol. 52, p. 64, 2006.
97. “*Enhanced coherent thermal emission of coupled resonant cavities due to surface waves excitation*”, N. Dahan, A. Niv, G. Biener, Y. Gorodetski, V. Kleiner, E. Hasman, OASIS, The 11th Meeting on Optical Engineering and Science in Israel, Tel Aviv, Israel, March 26-27 2007.
98. “*Manipulation of Pancharatnam phase in vectorial vortices*”, A. Niv, G. Biener, V. Kleiner, E. Hasman, OASIS, The 11th Meeting on Optical Engineering and Science in Israel, Tel Aviv, Israel, March 26-27 2007.
99. “*Broadband absorption control of an Infrared radiation using subwavelength metal structures*”, G. Biener, A. Niv, V. Kleiner, E. Hasman, OASIS, The 11th Meeting on Optical Engineering and Science in Israel, Tel Aviv, Israel, March 26-27 2007.

100. “*Vectorial vortex mode transformation for a hollow fiber using subwavelength structures*”, Y. Yirmiyahu, A. Niv, G. Biener, V. Kleiner, E. Hasman, OASIS, The 11th Meeting on Optical Engineering and Science in Israel, Tel Aviv, Israel, March 26-27 2007.
101. “*Optical properties of polarization dependent geometric lens with partially polarized light*”, Y. Gorodetski, G. Biener, A. Niv, V. Kleiner, E. Hasman, OASIS, The 11th Meeting on Optical Engineering and Science in Israel, Tel Aviv, Israel, March 26-27 2007.
102. “*Enhanced coherent thermal emission of coupled resonant cavities due to surface phonon-polariton excitation*”, E. Hasman, N. Dahan, V. Kleiner, A. Niv, G. Biener, Y. Gorodetski, QTuG7, CLEO/QELS 2007, Conference on Laser and Electro-Optics/ Quantum Electronics and Laser Science Conference, Baltimore, Maryland, USA., 6-11 May 2007.
103. “*Enhanced coherent of thermal emission by coupled resonant cavities supporting surface waves*”, N. Dahan, A. Niv, G. Biener, Y. Gorodetski, V. Kleiner, E. Hasman, Photonic Crystal Materials and Devices VII (OE16), part of SPIE International Symposium on Integrated Optoelectronics Devices 2008, Photonics West 2008, San Jose, CA, USA. 19-24 January 2008.
104. “*Coherent thermal source formed by periodic microcavities*”, N. Dahan, A. Niv, G. Biener, Y. Gorodetski, V. Kleiner, E. Hasman, Advanced Fabrication Technologies for Micro/Nano-Optics & Photonics (MF06), part of SPIE MOEMS-MEMS 2008, Photonics West 2008, San Jose, CA, USA. 19-24 January 2008.
105. “*Geometric phase of surface waves induced by spin-to-orbital angular momentum transfer in nanoscale periodic structures*”, Y. Gorodetski, A. Niv, V. Kleiner, E. Hasman, ASME – 9th Biennial ASME Conference on Engineering Systems, Design and Analysis, ESDA 2008, Haifa, Israel, July 7-9, 2008.
106. “*Enhanced coherency of thermal emission from SiC by coupled resonant cavity structure*”, N. Dahan, A. Niv, Y. Gorodetski, V. Kleiner, E. Hasman, ASME – 9th Biennial ASME Conference on Engineering Systems, Design and Analysis, ESDA 2008, Haifa, Israel, July 7-9, 2008.
107. “*Inhomogeneous anisotropic subwavelength structures for the excitation of single hollow waveguide modes*”, A. Niv, Y. Yirmiyahu, G. Biener, V. Kleiner, E. Hasman, (CMY4), CLEO/QELS 2008, Conference on Laser and Electro-Optics/ Quantum Electronics and Laser Science Conference, San Jose, CA, USA., 4-9 May 2008.
108. “*Coherent control of thermal emission from SiC due to coupled resonant cavity structure*”, N. Dahan, A. Niv, G. Biener, Y. Gorodetski, V. Kleiner, E. Hasman, (CFO6), CLEO/QELS 2008, Conference on Laser and Electro-Optics/ Quantum Electronics and Laser Science Conference, San Jose, CA, USA., 4-9 May 2008.

109. “*Spin-based plasmonics in nanoscale structures*”, Y. Gorodetski, A. Niv, V. Kleiner, E. Hasman, European Optical Society, EOS Annual Meeting 2008, TOM4, Paris, France, 29 September-2 October, 2008.
110. “*Modifying the dynamics of surface waves for enhanced coherent thermal emission*”, N. Dahan, A. Niv, G. Biener, Y. Gorodetski, V. Kleiner, E. Hasman, European Optical Society, EOS Annual Meeting 2008, TOM4, Paris, France, 29 September-2 October, 2008.
111. “*Spin-Hall and Magnus effects in optics*”, K. Bliokh, A. Niv, V. Kleiner, E. Hasman, Australian Institute of Physics (AIP), 18th National Congress, The University of Adelaide, Australia, 30 November - 5 December 2008.
112. “*Coherent emission from microcavity structures due to thermal excitation of surface waves*”, N. Dahan, A. Niv, G. Biener, Y. Gorodetski, V. Kleiner, E. Hasman, OASIS, The 12th Meeting on Optical Engineering and Science in Israel, Tel Aviv, Israel, March 16-17 2009.
113. “*Spinoptics: Spin-based plasmonics in nanostructures*”, Y. Gorodetski, K. Bliokh, A. Niv, V. Kleiner, E. Hasman, OASIS, The 12th Meeting on Optical Engineering and Science in Israel, Tel Aviv, Israel, March 16-17 2009.
114. “*Dynamics of spinning light: optical spin-Hall effect*”, K. Bliokh, A. Niv, V. Kleiner, E. Hasman, OASIS, The 12th Meeting on Optical Engineering and Science in Israel, Tel Aviv, Israel, March 16-17 2009.
115. “*Slow surface phonon polaritons for sensing in the mid-infrared spectrum*”, I. Balin, N. Dahan, V. Kleiner, E. Hasman, OASIS, The 12th Meeting on Optical Engineering and Science in Israel, Tel Aviv, Israel, March 16-17 2009.
116. “*Spinoptics: Dynamics of spinning light in nanoscale-structure*”, E. Hasman, Y. Gorodetski, K. Bliokh, A. Niv and V. Kleiner, CLEO/IQEC 2009, Conference on Laser and Electro-Optics/ Quantum Electronics and Laser Science Conference, Baltimore, Maryland, USA., 31 May- 5 June 2009.
117. “*Observation of optical spin symmetry breaking in nanoapertures*”, Y. Gorodetski, N. Shitrit, I. Bretner, V. Kleiner, E. Hasman, The 55 Annual Meeting of the Israel Physical Society, (ISP 2009), Bar-Ilan University, Ramat-Gan, Israel, 13 December 2009, Bulletin of the Israel Physical Society Vol. 55, 2009.
118. “*Geometrodynamics and spin-orbit interaction of light*”, K. Bliokh, Y. Gorodetski, A. Niv, V. Kleiner, E. Hasman, Aharonov Bohm Effect and Berry Phase Anniversary 50/25 2009, Physics Laboratory, University of Bristol, UK, 14 - 15 December 2009.
119. “*Plasmonic Aharonov-Bohm effect: optical spin as the magnetic flux parameter*”, S. Nechayev, Y. Gorodetski, V. Kleiner, E. Hasman, The 56 Annual

- Meeting of the Israel Physical Society, (ISP 2010), Tel-Aviv University, Tel-aviv, Israel, 5 December 2010, Bulletin of the Israel Physical Society Vol. 56, 2010.
120. “*Spin symmetry breaking in thermal emission*”, K. Frischwasser, N. Dahan, Y. Gorodetski, V. Kleiner, E. Hasman, The 56 Annual Meeting of the Israel Physical Society, (ISP 2010), Tel-Aviv University, Tel-aviv, Israel, 5 December 2010, Bulletin of the Israel Physical Society Vol. 56, 2010.
 121. “*Bandgap structure of thermally excited surface photon polaritons*”, I. Balin, N. Dahan, V. Kleiner, E. Hasman, The 56 Annual Meeting of the Israel Physical Society, (ISP 2010), Tel-Aviv University, Tel-aviv, Israel, 5 December 2010, Bulletin of the Israel Physical Society Vol. 56, 2010.
 122. “*Plasmonic Aharonov-Bohm Effect*”, V. Kleiner, S. Nechayev, Y. Gorodetski and E. Hasman, Workshop on Dual beam focused ion beam (FIB), Technion Rusell Berrie Nanotechnology Institute (RBNI), 3 March 2011.
 123. “*Spin symmetry breaking in thermal emission*”, K. Frischwasser, N. Dahan, Y. Gorodetski, I. Yulevich, V. Kleiner, E. Hasman, OASIS III, The 13th Meeting on Optical Engineering and Science in Israel, Tel Aviv, Israel, 9-10 March 2011.
 124. “*Observation of optical spin symmetry breaking in nanoapertures*”, N. Shitrit, Y. Gorodetski, I. Bretner, V. Kleiner, E. Hasman, OASIS III, The 13th Meeting on Optical Engineering and Science in Israel, Tel Aviv, Israel, 9-10 March 2011.
 125. “*Plasmonic Aharonov-Bohm effect: optical spin as the magnetic flux parameter*”, S. Nechayev, Y. Gorodetski, V. Kleiner, E. Hasman, OASIS III, The 13th Meeting on Optical Engineering and Science in Israel, Tel Aviv, Israel, 9-10 March 2011.
 126. “*Bandgap structure of thermally excited surface phonon polaritons*”, I. Balin, N. Dahan, V. Kleiner, E. Hasman, OASIS III, The 13th Meeting on Optical Engineering and Science in Israel, Tel Aviv, Israel, 9-10 March 2011.
 127. “*Spin symmetry breaking in thermal emission*”, E. Hasman, V. Kleiner, K. Frischwasser, N. Dahan, Y. Gorodetski and I. Ballin, CLEO/IQEC 2011, Conference on Laser and Electro-Optics/ Quantum Electronics and Laser Science Conference, Baltimore, Maryland, USA., 1-6 May 2011.
 128. “*Plasmonic Aharonov-Bohm Effect*”, V. Kleiner, S. Nechayev, Y. Gorodetski and E. Hasman, CLEO/IQEC 2011, Conference on Laser and Electro-Optics/ Quantum Electronics and Laser Science Conference, Baltimore, Maryland, USA., 1-6 May 2011.

Plenary, Keynote & Invited Talks (in conferences)

1. "*Advances in holographic optical elements*", E. Hasman, A.A. Friesem, N. Davidson, and O. Kinrot, SPIE Vol. 1319 p. 276-280 (1990).
2. "*Optics in MEMS: Design, Realization, and Applications*", E. Hasman, Workshop on Micro-Electro-Mechanical Systems (MEMS) , Technology, Design and Application, North Carolina – Israel Partnership, May 22-24, 2000.
3. "*Amplitude, phase, wavelength and polarization state manipulations with non-conventional optical elements*", E. Hasman, A Symposium on Modern Methods in Optics, Weizmann Inst. of Science, May 16, 2001.
4. "*Space-variant polarization-state manipulation with computer generated subwavelength gratings*", E. Hasman, Joint IEEE-Israel ComSoc and LEOS seminar on Broadband Communications and Imaging, Ben Gurion University, 28 October 2001.
5. "*Space-variant polarization-state manipulation with computer-generated subwavelength gratings*", E. Hasman, Photonics West 2003, Micromachining Technology for Microoptics and Nanooptics Conference I, SPIE Vol. 4984, p 171-185, San Jose, CA, USA. 25-31 January 2003.
6. "*Space-variant polarization-state manipulation by use of computer-generated subwavelength gratings*", E. Hasman, V. Kleiner, A. Niv, G. Biener, ICO Topical Meeting on Polarization Optics, Polvijarvi, Finland, University of Joensuu , Department of Physics, Selected papers 8, P. 30-31, June 30, 2003.
7. "*Pancharatnam-Berry phase optical elements by use of space-variant subwavelength gratings*", E. Hasman , Physics, Theory, and Applications of Periodic Structures in Optics II, International symposium on optical science and technology SPIE's 48th Annual meeting, San Diego, CA USA. 3-8 August 2003.
8. "*Polarization-shaping using space-variant subwavelength gratings*", E. Hasman, Frontiers in Optics 2005, the 89th OSA Annual Meeting, Technical Digest, FWL1, Tucson Arizona, USA. 16-20 October 2005.
9. "*Polarization manipulation of a thermal emission obtained with space-variant subwavelength gratings supporting surface phonon-polaritons*", E. Hasman, Bi-National Israel-Italian Optronics Workshop, Ben-Gurion University of the Negev, 30 November-1 December 2005.
10. "*Quasi-periodic nanostructures for polarization manipulation in optics*", E. Hasman, Workshop on Nano-Bio Materials (sponsored by air force materials laboratory-Israel Mod), Technion, 16-17 November 2005.
11. "*Space-variant polarization manipulation by use of subwavelength gratings*", E. Hasman, Workshop on Photonic Crystals and Related Applications-WPCA, Weizmann Institute of Science, Rehovot, 19 June, 2005.

12. “*Space-variant polarization manipulation by use of subwavelength gratings*”, E. Hasman, Advances in Optics and Computational Imaging, Workshop, Holon Academic Institute of Technology, 1 May, 2005.
13. “*Quasi-periodic subwavelength gratings for polarization manipulation*”, E. Hasman, European Optical Society, EOS Annual Meeting 2006, Proceeding TOM 4 p.60, Paris, France, 16-19 October, 2006.
14. “*Quasi-periodic subwavelength structures*”, E. Hasman, 6th Israeli-French Workshop, "Advances in optical and laser materials: crystals, amorphous materials, photonic crystals and nano-particles", p. 69-70, Maale Hachmisha , Israel, 11-12 December 2006.
15. “*Light manipulation by use of micro and nanostructures*”, E. Hasman, The 53rd Annual Meeting of the Israel Physical Society, (ISP 2007), Weizmann Institute of Science, Rehovot, December 9, 2007, Bulletin of the Israel Physical Society Vol. 53, p. 81, 2007.
16. “*Light manipulation by use of micro and nanostructures*”, A. Niv, G. Biener, N. Dahan, Y. Gorodetski, Y. Yirmiyahu, V. Kleiner, E. Hasman, Turkish Israeli workshop on Nano Photonics, Bar-Ilan University, Ramat-Gan, Israel, 28 March, 2007.
17. “*Light manipulation by use of inhomogeneous anisotropic subwavelength structures*”, E. Hasman, V. Kleiner, N. Dahan, A. Niv, Y. Yirmiyahu, Y. Gorodetski, Complex Light and Optical Forces II (OE20), part of SPIE International Symposium on Integrated Optoelectronics Devices 2008, Photonics West 2008, Proceeding of SPIE Vol. 6905, p. 690509, San Jose, CA, USA. 19-24 January 2008.
18. “*Light manipulation by use of inhomogeneous anisotropic nanoscale structures*”, E. Hasman, Frontiers in Optics 2008, the 92ND OSA Annual Meeting, Tech. Digest, FThV6, Rochester, NY, USA. 19-23 October 2008.
19. * **KEYNOTE Talk** (45 minutes)* “*Spinoptics: Spin symmetry breaking in plasmonic nanostructures*”, E. Hasman, Plasmonics: Metallic Nanostructures and their optical properties VII (OP103), NanoScience, Proceeding of SPIE Vol. 7394, 73941W, San Diego, CA, USA, 2-6 August 2009.
20. “*Spinoptics: Spin symmetry breaking in nanostructures*”, E. Hasman, Workshop on: Meta- and Bio/Nano Materials, (with US AFRL), 2-4 November 2009.
21. * **KEYNOTE Talk** (60 minutes)* “*Spinoptics: Spin symmetry breaking in nanostructures*”, E. Hasman, European Optical Society; EOS Topical Meeting on Diffractive Optics, Koli, Finland, 14-18 February 2010.
22. * **KEYNOTE Talk** (60 minutes)* “*Manipulation of a thermal emission by use of micro- and nanoscale structures*”, E. Hasman, International Heat Transfer

Conference (IHTC-14), paper IHTC14-23379, ASME, Washington DC., USA, 8-13 August 2010.

23. * **KEYNOTE Talk** (60 minutes)* “*Spin Hall effect in plasmonics*”, E. Hasman, Plasmonics: Metallic Nanostructures and their optical properties IX (OP104), NanoScience, Proceeding of SPIE Vol. XX , San Diego, CA, USA, 21-25 August 2011.
24. “*Nanoscale spinoptics in plasmonics*”, E. Hasman, 29th Israel Vacuum Society IVS annual conference and technical workshop-2011, Herzliya, 6 June 2011.
25. ** **PLENARY Talk** (60 minutes)* “*Spinoptics: Spin symmetry breaking in nanoscale*”, E. Hasman, SPIE Photonics West, San Francisco, CA, USA, 21-26 January 2012; (Photonics West is the world's leading photonics, laser, and biomedical optics event; about 19,000 attendees).
26. “*Acrobatics for thermal emission using metastructures*”, E. Hasman, SPIE Photonics West, High Contrast Metastructures (OE131), San Francisco, CA, USA, 21-26 January 2012

Recent Invited seminars & colloquium (selected only)

- University of Cape Town, South Africa, Department of Physics, Seminar, August 1999.
- CSIR, South Africa, Laser System Dep., Seminar, August , 1999.
- Pretoria University, South Africa, Seminar, August , 1999.
- Technion, Haifa, Israel, Seminar, May , 2000.
- Weizmann Inst. of Science, Rehovot, Israel, Seminar, May, 2001.
- University of Pavia, Italy, Seminar, September 2001.
- Ben-Gurion University, Seminar, October 2001.
- Tel Aviv University Departments of Physics & Engineering, Seminar – "Light manipulation by use of micro & nanostructures, 7 June 2007.
- Laboratoire Charles Fabry de l'Institut d'Optique, Institut d'Optique Graduate School, 91127 Palaiseau Cedex, France, “Spinoptics: Spin symmetry breaking in nanostructures”, 16 June 2009.
- Physics **colloquium** at the Hebrew university, “Spinoptics: Spin symmetry breaking in nanostructures”, 26 October 2009.
- Physics department and BINA center for nano-technology, Bar Ilan University, "Spinoptics: Spin symmetry breaking in nanostructures", 1 December 2009.
- Department of Physics of Complex Systems, Weizmann Institute of Science, Rehovot, Israel, Spinoptics: "Spin symmetry breaking in nanostructures", 1 February 2010.
- University of Toronto, Faculty of Applied Science and Engineering, "Spinoptics: Spin symmetry breaking in plasmonics", October 2011.