Sept. 2025

Amiel A. Ishaaya

CURRICULUM VITAE AND LIST OF PUBLICATIONS

Personal details:

Date & place of birth: Dec. 14, 1966, Canada

Address (office): School of Electrical and Computer Engineering
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Education:

1987: B.Sc. in Physics and Computer Science, Tel-Aviv University, Israel.

1995: M.Sc. in Physics, Tel-Aviv University, Tel-Aviv, Israel. Subject of Thesis: "Measurement of the velocity and spatial distribution of cathode spots on the cathode surface of a vacuum arc as a function of the magnetic field", conducted under the supervision of Prof. S. Goldsmith. Magna Cum Laude.

2005: Ph.D in Physics, Weizmann Institute of Science, Rehovot, Israel. Subject of Thesis: "Laser configurations for high-order transverse mode selection and coherent beam combining", conducted under the supervision of Prof. A. A. Friesem.

Employment history and experience:

2024- Head of the School of Electrical and Computer Engineering, BGU

2018- Full Professor - Ben Gurion University

2012-2018 Associate Professor – Ben Gurion University (tenure since Dec. 2012)

2007-2012 Senior Lecturer – Ben Gurion University

Laser sources and nonlinear optical devices based on photonic crystal fibers and semiconductor waveguides. Developing efficient high-power fiber-based laser designs, investigating synchronization and coherent combining of multiple laser sources, extending the wavelength range of lasers into the UV and infrared by various non-linear optical processes, and developing compact on-chip optical devices.

2005-2007 Postdoctoral research associate – Cornell University

Experimental research of nonlinear optical interactions in bulk Kerr media and in photonic crystal fibers. In bulk Kerr media, this includes studying the collapse dynamics and filamentation of special beams in the femto-second regime, such as super-Gaussian, phase vortex, necklace, and radially-azimuthally polarized beams, as well as the interaction and collapse dynamics of coupled beams. In photonic crystal fibers, studying nonlinear interactions

in gas filled hollow core photonic band gap fibers, such as harmonic generation within these fibers and various other nonlinear processes (Electromagnetic induced transparency, slow light, etc.).

2001-2005 Ph.D research - Weizmann Institute of Science

Investigated laser configurations for phase locking and coherent addition of laser beams, as well as high-order transverse mode selection in various laser configurations utilizing novel phase elements. These configurations included Q-switched pulsed solid-state lasers, microlasers and fiber lasers. Furthermore, investigated laser beam shaping techniques and transverse mode transformations for improving and controlling the beam quality of laser beams.

1999-2001 Project Manager / System Engineer - Laser Products Operation, El-Op Electro-Optics Industries Ltd.

- Project manager of the APACHE Switchable Eyesafe Laser Rangefinder Designator.
- Led and coordinated a large-scale proposal concerning laser development and production.

1994-1999 Laser Physicist - Laser Products Operation, El-Op Electro-Optics Industries Ltd.

Performed and led various laser R&D projects and feasibility studies. Conducted laboratory development of new solid state lasers. Actively involved also in system-level R&D including transmitter-receiver-observation systems, LIDAR, simulations and modeling for performance evaluation, and field tests of prototype systems. These included activities with Nd:YAG lasers, unstable resonators (Hard edge, GRM), MOPA schemes, nonlinear processes and nonlinear crystals, beam analyzing and characterization, and high power Q-switched laser systems. The work also involved preparation of technical proposals and reports, and presentation in numerous Design Reviews (Concept, PDR, CDR etc.).

1991-1994 Master's research - Tel-Aviv University

Investigated high current (500A DC) vacuum arc discharge systems. Specifically, measurement of cathode spot retrograde motion under various transverse magnetic fields.

1986-1991 Research Officer - Planning Branch, The Center for System Analysis, Israeli Defense Forces
Rank: *Major*

Conducted Operations Research and system analysis studies. These included planning the assimilation of new technical systems, cost-effective evaluation of systems, optimization models and simulations. All these exploited physics, mathematics and computers.

Professional activities:

Positions in academic administration

2024- Head, school of Electrical and Computer Engineering, BGU

2023-2024 Deputy Dean, Faculty of Engineering, BGU

2023-2024	Head of Admissions Committee, School of Electrical and Computer Engineering, BGU
2022-	BGU Senate member
2017-2021	BGU Senate member
2017-2021	Deputy Dean, Faculty of Engineering, BGU
2016-2021	Member of the university Ethics Committee, BGU
2016-2017	Member of the Engineering Faculty Teaching Committee.
2013-2016	Head of the undergraduate teaching committee in the ECE department (~1000 students).
2012-2016	Coordinator of undergraduate Physics courses for ECE students.
2012-2013	Undergraduate second year advisor.
2011-2013	Undergraduate advisor for pre-military students (Atuda program).
2011-2013	Member of ECE department committee for projects and Industry relations.
2010-2013	Member of ECE department Undergraduate Teaching committee.

Professional functions outside the university

- A member of the organizing committee of the "International Meeting on Fiber Lasers and Applications", Tel Aviv, Israel (April 2019).
- A member of the Scientific Committee of the OASIS 2019 conference (Tel Aviv, Israel).
- Part of the team leading the establishment of the Israeli Center of Advanced Photonics, Yavne, Israel (2014-present).
- The local organizer of 2nd Annual Conference of COST Action MP1401, Tel Aviv University, Israel (March 2017).
- A member of the organizing committee of the "International Meeting on Fiber Lasers and Applications", Tel Aviv, Israel (Feb. 2017).
- A member of the organizing committee of the OASIS 2015 and OASIS 2017 conferences (Tel Aviv, Israel).
- Chairman of the "Lasers and Applications" session at OASIS 2017, the 16th International Meeting on Optical Engineering and Science in Israel, Tel-Aviv, Israel (Feb. 2017).
- Chairman of the "Lasers and Applications" session at OASIS 2015, the 15th International Meeting on Optical Engineering and Science in Israel, Tel-Aviv, Israel (Feb. 2015).
- A member of the organizing committee of the "International Meeting on Fiber Lasers and Applications", Bar Ilan University, Israel (June 2014).
- Chairman of the "Lasers and Applications" session at OASIS 2013, the 14th International Meeting on Optical Engineering and Science in Israel, Tel-Aviv, Israel (Feb. 2013).

Reviewer for journals

Optics Letters, Optics Express, J. of the Optical Society of America B, Applied Optics, Optics Communications, Physical Review Letters, Physical Review A, Applied Physics B.

Reviewer for grant proposals

Israel Science Foundation (ISF), German Israeli Foundation (GIF), Swiss National Science Foundation (SNSF).

Membership in scientific societies

2001-present Optical Society of America (OSA).

2002-present IEEE Photonics Society.

Educational activities:

2018-present	Full Professor in ECE at Ben Gurion University, Israel.
2012-2017	Assoc. Professor in ECE at Ben Gurion University, Israel.
2007-2012	Senior Lecturer in ECE at Ben Gurion University, Israel.
1995-1998	Lecturer of Statistics, Ramat-Gan College, Ramat-Gan, Israel.
1992-1994	Physics teaching assistant at the Raymond and Beverly Sackler Faculty of Exact Sciences, Tel-Aviv University, Tel-Aviv, Israel.
1985-1986	Physics teaching assistant at the Raymond and Beverly Sackler Faculty of Exact Sciences, Tel-Aviv University, Tel-Aviv, Israel.

Courses taught at Ben-Gurion University

1. Laser Engineering – for senior undergraduate and graduate students.
2. Infrared Engineering – for senior undergraduate students.
3. Nonlinear Optics – for graduate students.
4. Introduction to Photoelectronics – for senior undergraduate students.

Teaching load ~ three courses per year

Research students - MSc

2008-2010	**Boris Shulga**, "High peak power photonic crystal fiber laser".
2008-2009	**Amir Gilad**, "Self-phase modulation in gas filled hollow core photonic crystal fibers". Did not complete thesis. (secondary supervisor – Prof. Bar from Ben-Gurion University)
2009-2011	**Amir Hertzog**, "Wavelength conversion of nano-second pulses to the mid-IR in optical fibers and waveguides".
2010-2011	**Avishay Shamir**, "Wavelength conversion in photonic crystal fibers and femtosecond material processing".
2010-2012	**Oleg Shnieder**, "Spectral narrowing in a system of coherently combined fiber lasers".
2011-2013	**Moshe Vanohozker**, "Single mode lasing and amplification in a highly multimode active fiber".
2011-2013	**Lior Kedar**, "Stimulated Raman scattering in gas filled hollow core photonic crystal fibers".
2012-2014	**Avry Shirakov**, "High peak and average power flexible PCF laser".
2012-2014	**Zeev Montz**, "Hollow core photonic crystal fibers with special spectral characteristics".
2014-2016	**Ziv Alperovich**, "Misalignment sensitivities in an intra-cavity coherent combining crossed-Porro resonator configuration".
2015-2016	**Harel Hecht**, "Passive Q-switching of a Tm:YLF laser with a Co^{2+} doped silver halide saturable absorber".

2016-2019 **Shachar Edelstein** – MSc, "Wavelength conversion schemes for a high peak power PCF laser".

2016-2020 **Omri Moschovits** – MSc, "Experimental optimization of Er:Yb phosphate fiber amplifiers at 1.538 μm".

2016-2020 **Yair Alon** – MSc, "Inscription of Femtosecond Bragg Gratings in Yb-doped Multicore Fiber lasers".

2018-2021 **Sapir Humphries** – MSc, "Spectral characterization of passive coherent beam combining of fiber lasers at 1.55 mm".

2022-2025 **Aron Peseikhov** – MSc. in process

2023- **Guy Shafriri** – MSc. in process

2025- **Michal Mor** – MSc. in process

Research students - PhD

2008-2013 **Eitan Ronen**, "Phase locking of large laser arrays". (in the last two years additional supervisor Prof. Davidson from the Weizmann Institute).

2010-2014 **Boris Rosenstein**, "Coherent combining of high peak power pulsed fiber lasers".

2012-2016 **Amir Herzog**, "Biological tissue ablation using laser- sources, delivery and applications".

2012-2017 **Avishay Shamir**, "Femtosecond laser induced permanent and transient fiber Bragg gratings".

2012-2024(est.) **Yehuda Benudiz**, "Ultrashort pulse amplification in active PCFs". Part-time student.

2014-2021 **Ted Frumkin**, "Silicon based photonic nanostructures".

2014-2021 **Avry Shirakov**, "Co^{2+} doped materials for ultra-short pulsed lasers".

2014-2021 **Zeev Montz**, "Conversion to the UV in gas filled kagome and antiresonant fibers".

2015-2019 **Aviran Halstuch**, "Transient Bragg gratings in waveguides based on Kerr and free carriers".

2016-2021 **Ziv Alperovich**, "Acoustic tissue characterization in pulsed laser ablation".

2017-2021 **Igor Sakaev,** "Laser Supported Combustion of Steel and Laser-induced Micro-explosion in Thin-film Structures: from Basic Physics to Advanced Applications".

2019- **Yakov Greenberg**, in process

2022- **Eilon Meidan**, in process

Awards and Fellowships:

2016 NTU Tan Chin Tuan Exchange Fellowship in Engineering FY2017, awarded by Nanyang Technological University, Singapore.

2005 Fulbright Post-doctoral Scholar Award, awarded by the United States – Israel Educational Foundation (USIEF).

2004 New Focus Travel Grant, awarded by the Optical Society of America.

2004 LEOS Travel Grant, awarded by the IEEE Lasers and Electro-Optics Society.

2001/2/3	High-Technology Research Prize for excellence in research, awarded by the Israeli Council for High Education, VATAT.
2002-2005	Eshkol Excellence Fellowship, awarded by the Israeli Ministry of Science.
1994-2001	Several internal awards of excellence, El-Op Electro-Optics Industries Ltd, Israel.
1995	M.Sc. degree with distinction, Tel-Aviv University, Tel-Aviv, Israel.
1985	Second year physics undergraduate studies with distinction, Tel-Aviv University, Tel-Aviv, Israel.

Scientific publications:

h-index: 19 (ISI), 23 (Google Scholar)

Total number of citations: 1263 (ISI), 1923 (Google Scholar)

Total number of citations without self references: 1122 (ISI)

Book chapters

1. "Coherent addition of laser beam distributions", V. Eckhouse, **A. A. Ishaaya**, N. Davidson and A. A. Friesem, ICO Book VI on Information Optics, Edited by R. Danliker and A. Friberg (SPIE press 2008).
2. "Femtosecond tranisent Bragg gratings", A. ShamirS, Aviran HalstuchS, and A. A. IshaayaPI, published in "Brillouin Distributed and Fiber-bragg-grating-based Fiber Sensing - Principle, Measurement and Applications", edited by Dr. Shien-Kuei Liaw (IntechOpen 2018).

Refereed articles and letters in scientific journals

1. **A. A. Ishaaya**, R. Oron, N. Davidson, E. Hasman and A. A. Friesem, "Improving the beam quality of high-order laser modes", *Optics & Photonics News – Optics in 2001*, **12**(12), 55-55 (2001).
2. G. Machavariani, N. Davidson, E. Hasman, S. Blit, **A. A. Ishaaya** and A. A. Friesem, "Efficient conversion of a Gaussian beam to a high purity helical beam", *Optics Communications* **209**, 265-271 (2002).
3. G. Machavariani, N. Davidson, **A. A. Ishaaya**, A.A. Friesem and E. Hasman, "Efficient formation of high-quality beam from a pure high-order Hermite-Gaussian mode", *Optics Letters* **27**, 1501-1503 (2002).
4. **A. Ishaaya**, R. Oron, N. Davidson, E. Hasman and A. A. Friesem, "Efficient mode conversion of laser beams", *Optics & Photonics News - Optics in 2002*, **13** (12), 43-43 (2002).
5. **A. A. Ishaaya**, N. Davidson, G. Machavariani, E. Hasman and A. A. Friesem, "Efficient selection of high-order Laguerre-Gaussian modes in a Q-switched Nd:YAG laser", *IEEE Journal of Quantum Electronics* **39**, 74-82 (2003).
6. **A. A. Ishaaya**, G. Machavariani, N. Davidson, E. Hasman and A. A. Friesem, "Conversion of a high-order mode beam into a nearly Gaussian Beam using a single interferometric element", *Optics Letters* **28**, 504-506 (2003).
7. G. Machavariani, **A. A. Ishaaya**, L. Shimshi, N. Davidson, A. A. Friesem and E. Hasman, "Efficient mode transformations of degenerate Laguerre-Gaussian beams," *Applied Optics* **43**, 2561-2567 (2004).
8. **A. A. Ishaaya,** N. Davidson, L. Shimshi and A. A. Friesem, "Intra-cavity coherent addition of Gaussian beam distributions using a planar interferometric coupler", *Applied Physics Letters* **85**, 2187-2189 (2004).
9. G. Machavariani, N. Davidson, **A. A. Ishaaya** and A. A. Friesem, "Improving the stability of longitudinal and transverse laser modes", *Optics Communications* **239**, 147-151 (2004).
10. **A. A. Ishaaya,** L. Shimshi, N. Davidson and A. A. Friesem, "Coherent addition of spatially incoherent light beams", *Optics Express* **12**, 4929-4934 (2004).
11. V. Eckhouse, **A. A. Ishaaya**, L. Shimshi, N. Davidson and A. A. Friesem, "Imposing a Gaussian distribution in multichannel laser resonators", *IEEE Journal of Quantum Electronics* **41**, 686-693 (2005).
12. **A. A. Ishaaya**, V. Eckhouse, L. Shimshi, N. Davidson and A. A. Friesem, "Improving the output beam quality of multimode laser resonators", *Optics Express* 13, 2722-2730 (2005).

13. **A. A. Ishaaya**, V. Eckhouse, L. Shimshi, N. Davidson and A. A. Friesem, "Intra-cavity coherent addition of single high order modes", *Optics Letters* **30**, 1770-1772 (2005).
14. **A. A. Ishaaya**, N. Davidson and A. A. Friesem, "Very high-order pure Laguerre-Gaussian mode selection in a passive Q-switched Nd:YAG laser", *Optics Express* **13**, 4952-4962 (2005).
15. V. Eckhouse**, A. A. Ishaaya**, L. Shimshi, N. Davidson and A. A. Friesem, "Intra-cavity coherent addition of sixteen laser distributions", *Optics Letters* **31**, 350-352 (2006).
16. L. Shimshi, **A. A. Ishaaya**, V. Eckhouse, N. Davidson and A. A. Friesem, "Passive intracavity coherent addition of nine laser distributions", *Applied Physics Letters* **88**, 041103 (2006).
17. L. Shimshi, **A. A. Ishaaya**, V. Eckhouse, N. Davidson and A. A. Friesem, "Passive intra-cavity phase locking of laser distributions", *Optics Communications* **263**, 60-64 (2006).
18. L. T. Vuong, T. D. Grow, **A. A. Ishaaya**, A. L. Gaeta, G. W. 't Hooft, E. R. Eliel, and G. Fibich, "Collapse of optical vortices", *Physical Review Letters* **96**, 133901 (2006).
19. T. D. Grow, **A. A. Ishaaya**, L. T. Vuong, A. L. Gaeta, N. Gavish, G. Fibich, "Collapse dynamics of Super-Gaussian beams", *Optics Express* **14**, 5468-5475 (2006).
20. **A. A. Ishaaya**, T. D. Grow, S. Ghosh, L. T. Vuong and A. L. Gaeta, "Self-focusing dynamics of coupled optical beams", *Physical Review A* **75**, 023813 (2007).
21. T. D. Grow, **A. A. Ishaaya**, L. T. Vuong and A. L. Gaeta, "Collapse and stability of necklace beams in Kerr media", *Physical Review Letters* 99, 133902 (2007).
22. L. Shimshi, **A. A. Ishaaya**, N. Davidson and A. A. Friesem, "Upscaling coherent addition of laser distributions", *Optics Communications* **275**, 389-393 (2007).
23. R. Rabinovici, **A. A. Ishaaya**, I. Peer, L. Shimshi, N. Davidson, and A. A. Friesem, " Increasing output energy from a passively Q-switched Er:glass laser", *Applied Optics* **46**, 7426-7431 (2007).
24. **A. A. Ishaaya**, L. T. Vuong, T. D. Grow and A. L. Gaeta, "Self-focusing dynamics of polarization vortices in Kerr media", *Optics Letters* **33**, 13-15 (2008).
25. **A. A. Ishaaya**, C. J. Hensley, B. Shim, S. Schrauth, K. W. Koch and A. L. Gaeta, "Highly-efficient coupling of linearly- and radially-polarized femtosecond pulses in hollowcore photonic band-gap fibers", *Optics Express* **17**, 18630-18637 (2009).
26. **A. A. Ishaaya**, N. Davidson and A. A. Friesem, "Passive laser beam combining with intra-cavity interferometric combiners", **special issue** on Laser Beam Combination and Fiber Laser Systems, *IEEE Journal of Selected Topics in Quantum Electronics* **15**, 301-311 (2009). **[INVITED PAPER]**
27. B. Shim, S. E. Schrauth, C. J. Hensley, L. T. Vuong, P. Hui, **A. A. Ishaaya**, and A. L. Gaeta, "Controlled Interactions of Femtosecond Light Filaments in Air", *Physical Review A* **81**, 061803(R) (2010). **[rapid communication]**
28. B. Shulga and **A. A. Ishaaya**, "Off-axis pumping of a photonic crystal fiber laser", *Applied Physics B* **101**, 701-704 (2010). **[rapid communication]**
29. E. Ronen and **A. A. Ishaaya**, "Phase locking a fiber laser array via diffractive coupling", *Optics Express* **19**, 1510-1515 (2011).
30. E. Ronen and **A. A. Ishaaya**, "Phase clusters induced by degeneracy in a phase locked fiber laser array", *IEEE Journal of Quantum Electronics* **47**, 1526-1530 (2011). **[appeared on cover page]**
31. A. Herzog, A. Shamir, and **A. A. Ishaaya**, "Wavelength conversion of nano-second pulses to the Mid-IR in photonic crystal fibers", *Optics Letters* **37**, 82-84 (2011).
32. E. Ronen, **A. A. Ishaaya**, "Frequency, phase, and polarization locking of evanescent coupled lasers", *Journal of the Optical Society of America B* **29**, 1226-1230 (2012).
33. E. Ronen, **A. A. Ishaaya**, M. Nixon, A. Godel, A. A. Friesem, and N .Davidson, "Phase locking of lasers with self-stabilized minimal coupling", Optics Express **27**, 28163-28170 (2012).
34. O. Shneider, B. Shulga, **A. A. Ishaaya**, "Imposing spectral content when coherently combining laser channels", *Optics Letters* **38**, 603-605 (2013).
35. A. Shamir and **A. A. Ishaaya**, "Large volume ablation of Sapphire with ultra-short laser pulses", *Applied Surface Science* **270**, 763-766 (2013).
36. E. Ronen, B. Rosenstein, E. Grinvald, N. Davidson, and **A. A. Ishaaya**, "Single large mode cladding amplification in active double-clad fibers", *Laser Physics* **23**, 105102 (2013).
37. T. Frumkin, H. Genish, **A. A. Ishaaya**, and Z. Zalevsky, "Silicon nano photonic multi taper for efficient light coupling between fiber and silicon waveguide", *Journal of Nanophotonics* **7**, 073084 (2013).

38. B. Rosenstein, A. Shirakov, D. Belker, and **A. A. Ishaaya**, "0.7 MW output power from two arm coherently combined Q-switched photonic crystal fiber laser", *Optics Express* **22**, 6416-6421 (2014).
39. B. Rosenstein, A. Shirakov, D. Belker, and **A. A. Ishaaya**, "Experimental characterization of an off-axis scheme for pumping high power photonic crystal fiber lasers", *Appllied Physics B: Lasers and Optics* **114**, 327-331, Rapid Communication (2014).
40. L. Ben Yehud, D. Belker, G. Ravnitzki, and **A. A. Ishaaya**, "Competition between stimulated Raman and Brillouin scattering processes in CF4 gas", *Optics Letters* **39**, 1026-1029 (2014).
41. A. Herzog, B. Hadad, V. Lyubin, M. Klebanov, A. Reiner, A. Shamir, and **Amiel A. Ishaaya**, "Chalcogenide waveguides on a sapphire substrate for mid-IR applications", *Optics Letters* **39**, 2522-2525 (2014).
42. B. Rosenstein, A. Shirakov, D. Belker, and **A. A. Ishaaya**, "Single-channel Q-switching in a system of coherently combined fiber lasers," *Appl. Phys. B: Lasers and Optics* **117**, 995-999 (2014).
43. Z. Montz and **A. A. Ishaaya**, "Dual-bandgap hollow-core photonic crystal fibers for third harmonic generation," *Optics Letters* **40**, 56-59 (2015).
44. A. Herzog, D. Malka, Z. Zalevsky, and **A. A. Ishaaya**, "The effect of spatial-coherence on damage occurrence in multimode optical fibers," *Optics Letters* **40**, 415-418 (2015).
45. B. Rosenstein, A. Shirakov, D. Belker, and **A. A. Ishaaya**, "Highly efficient 10-cm long fiber laser," *Optics Letters* **40**, 407-410 (2015).
46. A. Herzog, S. Bogdan, M. Glikson, **A. A. Ishaaya**, and C. J. Love, "Selective tissue ablation using laser radiation at 355 nm in lead extraction by a hybrid catheter; a preliminary report," *Lasers in Surgery and Medicine*, doi: 10.1002/lsm.22451 (2015).
47. A. Herzog, I. Steinberg, E. Geinsberg, R. Nomberg, and **A. A. Ishaaya**, "A route to laser angioplasty in the presence of fluoroscopy contrast media, using a nanosecond-pulsed 355 nm laser," *IEEE JSTQE* **22**, 1-6 (2016).
48. A. Shamir and **A. A. Ishaaya**, "Effect of femtosecond photo-treatment on inscription of fiber Bragg gratings," *Optics Letters* **41**, 765-768 (2016).
49. A. Shamir and **A. A. Ishaaya**, "Femtosecond inscription of phase-shifted gratings by overlaid fiber Bragg gratings," *Optics Letters* **41**, 2017-2020 (2016).
50. Y. Sivan, S. Rozenberg, A. Halstuch, and **A. A. Ishaaya**, "Nonlinear wave interactions between short pulses of different spatio-temporal extents," *Scientific Reports* **6**, 29010; doi: 10.1038/srep29010 (2016).
51. H. Herzog, I. Steinberg, and **A. A. Ishaaya**, "Shaping photomechanical effects in tissue ablation using 355 nm laser pulses", *J. Biophotonics*, 1–9, DOI 10.1002/jbio.201600094 (2016).
52. A. Herzog, G. Oszkinis, D. Planer, K. Ziaja, Ł. Kruszyna, M Goran Stanisic´, D. Ziaja, **A. A. Ishaaya**, and W. Kuczmik, "Atherectomy using a solid-state laser at 355 nm wavelength", *J. Biophotonics* 1–8 /DOI 10.1002/jbio.201600209 (2017).
53. H. Hecht, Z. Burshtein, A. Katzir, S. Noach, M. Sokol, E. Frumker, E. Galun, **A. A. Ishaaya**, "Passive Q-switching of a Tm:YLF laser with a Co^{2+} doped silver halide saturable absorber", *Optical Materials* **64**, 64-69 (2017).
54. Z. Alperovich, O. Buchinsky, S. Greenstein, and **A. A. Ishaaya**, "Misalignment sensitivities in an intra-cavity coherent combining crossed-porro resonator configuration", *Laser Physics Letters* **14**, 085802 (2017).
55. A. Shamir and **A. A. Ishaaya**, "Ns-duration transient Bragg gratings in silica fibers", *Optics Letters* **42**, 4748-4751 (2017).
56. T. Frumkin, **A. A. Ishaaya**, and Z. Zalevsky, "Multi-Taper high efficiency coupler that overcomes coupling misalignment errors", *Journal of Nanophotonics* **12** (2018).
57. A. Shirakov, Z. Burshtein, A. Katzir, E. Frumker, and **A. A. Ishaaya**, "Competing radiative and nonradiative decay of embedded ions states in dielectric crystals: theory, and application to Co2+:AgCl0.5Br0.5", *Optics Express* **26**, 11694-11707 (2018).
58. A. Halstuch, O. Westreich, N. Sicron, and **A. A. Ishaaya**, "Femtosecond laser inscription of Bragg gratings on a thin GaN film grown on a sapphire substrate", *Optics and Lasers in Engineering* **109**, 68-72 (2018).
59. A. Halstuch and **A. A. Ishaaya**, "Characterizing the effect of femtosecond photo-treatment on the center wavelength of fiber Bragg gratings", *Optics Express* **26**, 18990-18997 (2018).
60. J. Ji, S. Raghuraman, X. Huang, J. Zang, D. Ho, Y. Zhou, Y. Benudiz, U. Ben Ami, **A. A. Ishaaya**, and Seongwoo Yoo, "115 W fiber laser with all solid-structure and large-mode-area multicore fiber", *Optics Letters* **43**, 3369-3372 (2018).
61. A. Halstuch and **A. A. Ishaaya**, "Strain-assisted femtosecond inscription of phase-shifted gratings", *Optics Letters* **43**, 3893-3896 (2018).

62. Z. Montz, A. Shirakov, U. Ben Ami, and **A. A. Ishaaya**, "Inscribing an output coupler grating directly through the fiber coating with a 266 nm femtosecond laser", *Optics Letters* **44**, 13-16 (2019).
63. A. Halstuch, A. Shamir, and **A. A. Ishaaya**, "Femtosecond inscription of fiber Bragg gratings through the coating with a Low-NA lens", *Optics Express* **27**, 16935-16944 (2019).
64. Z. Alperovich, G. Yamin, E. Elul, G. Bialolenker, **A. A. Ishaaya**, "In situ tissue classification during laser ablation using acoustic signals", *Journal of Biophotonics* **12**, e201800405 (2019).
65. S. Edelstein and **A. A. Ishaaya**, "High-efficiency Raman conversion in SF6- and CF4-filled hollow-core photonic bandgap fibers", *Optics Letters* **44**, 5856-5859 (2019).
66. A. Shirakov, Z. Burshtein, Y. Shimony, E. Frumker, **A. A. Ishaaya**, "Radiative and non-radiative transitions of excited Ti3+ cations in sapphire", *Scientific Reports* **9**, 18810 (2019).
67. Z. Montz, A. Shirakov, U. Ben Ami, S. Genish, and **A. A. Ishaaya**, "Optimal output coupler grating reflectivity for Er/Yb fiber lasers", *Optics and Laser Technology* **126**, 106070 (2020).
68. R. Sidharthan, J. H. Ji, N. Xia, Y. Y. Zhou, J. C. Zang, X. S. Huang, W. J. Lai, Y. Benudiz, U. Ben Ami, **A. A. Ishaaya**, S. Yoo, "Mode Selection in Large-Mode-Area Step-Index Multicore Fiber Laser and Amplifier", *IEEE Photonics Technology Letters* **32**, 722-725 (2020).
69. A. Shirakov, Z. Burshtein, A. Goldstein, E. Frumker, **A. A. Ishaaya**, "Use of Co2+:MgAl2O4 transparent ceramics in passive Q-switching of an Er:Glass laser at 1.534 μm", *Optics Express* **28**, 21956-21970 (2020).
70. Y. Alon, A. Halstuch, R. Sidharthan, S. Yoo, **A. A. Ishaaya**, "Femtosecond Bragg grating inscription in an Yb-doped large-mode-area multicore fiber for high-power laser applications", *Optics Letters* **45**, 4563-4566 (2020).
71. O. Moschovitz, N. G. Boetti, D. Pugliese, D. Gallichi-Nottiani, D. Milanese, D. Janner, and **A. A. Ishaaya**, "Characterization of sub-nanosecond pulsed laser amplification with Er:Yb co-doped phosphate glass fibers", *Optics Letters* **45**, 5291-5294 (2020).
72. I. Sakaev, Y. Berg, Z. Kotler, **A. A. Ishaaya**, "Scaling effects and brittle fracture mechanisms in laser punching of PECVD SiO(2)films", *Journal of Micromechanics and Microengineering* **30**, 115016 (2020).
73. Z. Montz and **A. A. Ishaaya**, "Applying tiling and pattern theory in the design of hollow-core photonic crystal fibers for multi-wavelength beam guidance", *Scientific Reports* **10**, 19697 (2020).
74. Z. Alperovich, O. Cohen, Y. Muncher, I. Ben-Oren, W. Kuczmik, W. Zelawski, **A. A. Ishaaya**, "Tissue post-classification using the measured acoustic signals during 355 nm laser atherectomy procedures", *Journal of Biophotonics* **14**, e202000185 (2020).
75. I. Sakaev and **A. A. Ishaaya**, "Diode laser assisted oxygen cutting of thick mild steel with off-axis beam delivery", Optics and Laser Technology 138, 106876 (2020).
76. H. Li, J. Zang, S. Raghuraman, S. Chen, C. Goel, N. Xia, **A. A. Ishaaya**, S. Yoo, "Large-mode-area multicore Yb-doped fiber for an efficient high power 976 nm laser," Optics Express 29, 21992-22000 (2021).
77. A. Halstuch, **A. A. Ishaaya**, "Femtosecond inscription of phase-shifted fiber Bragg gratings using defocusing and phase-mask movement," Optical Fiber Technology 67, 102689 (2021).
78. I. Sakaev, J. Linden, **A. A. Ishaaya**, "Dynamic fracture of SiO2 films due to laser-induced confined micro-explosion at the Si/SiO2 interface: time-resolved imaging and finite-element simulation," Optics & Laser Technology 150, 107938 (2022).
79. B. Ratzker, R. Shrem, I. Ayalon, A. Shirakov, Z. Burshtein, S. Kalabukhov, N. Maman, V. Ezersky, **A. Ishaaya**, E. Galun, N. Frage, "Co2+: MgAl2O4 saturable absorber transparent ceramics fabricated by high-pressure spark plasma sintering," Journal of the European *Ceramic Society* **42**, 6067-6074 (2022).
80. A. Halstuch, **A. A. Ishaaya**, "Femtosecond inscription of chirped fiber Bragg gratings and fiber Bragg grating arrays using a single uniform phase-mask," *Optics and Lasers in Engineering* **160**, 107286 (2023).
81. A. Halstuch, **A. A. Ishaaya**, "Femtosecond Inscription of a Fiber Bragg Grating Spectral Array in the Same Spatial Location," *Sensors* **23**, 4064 (2023).
82. R. Avrahamy, D. Cohen, B. Milgrom, B. Amir, D. Belker, A. Solodar, E. Golan, O. Sadot, **A. A Ishaaya**, "Comprehensive optical and thermal investigation of optimal near-infrared absorption enhancement of nano-patterned aluminum," *Optics & Laser Technology* **175**, 110871(2024).

<u>Classified articles and reports (internally reviewed)</u>

- Several operations research and system analysis technical reports dealing with R&D of new systems, performance assessment of systems in various field scenarios, cost effective studies,
  modeling and simulations. IDF-Planning Branch, 1986-1991.
- **20 first author technical reports** dealing with novel laser designs, laser lab experiments, models and simulations, evaluation of system performance and field experiments of lasers. El-Op Inc. proprietary, 1994-2001.

Invited conference presentations

1. A. A. Friesem, N. Davidson, E. Hasman, **A. A. Ishaaya**, G. Machavariani, R. Oron and L. Shimshi, Conference on Lasers and Electro-Optics Europe, Munich, Germany (2003).
2. **A. A. Ishaaya**, N. Davidson, V. Eckhouse, L. Shimshi and A. A. Friesem, Conference on Laser and Fiber-Optical Networks Modeling (LFNM), Kharkov, Ukraine (2004).
3. A.A. Friesem, **A.A. Ishaaya**, N. Davidson, V. Eckhouse and L. Shimshi, 5th Iberoamerican Meeting on Optics and 8th Latinoamerican Meeting on Optics, Lasers and Their Applications, RIAO/OPTILAS, (Oct. 2004).
4. **A. A. Ishaaya**, L. Shimshi, V. Eckhouse, N. Davidson and A. A. Friesem, Electro-optics conference, Hi-Tech Technologies 2005, Tel Aviv, Israel (March 2005).
5. A. A. Friesem, **A. A. Ishaaya**, N. Davidson, V. Eckhouse and L. Shimshi, International Conference on Optics and Optoelectronics (ICOL 2005), Dehradrum, India (Dec. 2005).
6. **A. A. Ishaaya**, T. D. Grow, L. T. Vuong and A. L. Gaeta, International Conference on Coherent and Nonlinear Optics (ICONO 2007), Minsk, Belarus (May 2007).
7. V. Eckhouse, **A. A. Ishaaya**, M. Fridman, N. Davidson, A. A. Friesem, Photonics West - SPIE Symposium on Lasers and Applications in Science and Engineering, San Jose, CA, USA (Jan. 2008).
8. **A. A. Ishaaya**, IPS Conference 2012, Jerusalem, Israel (Dec. 2012).
9. L. Ben Yehud and **A. A. Ishaaya**, Optical Engineering 2014, Natanya, Israel (Feb. 2014).
10. **A. A. Ishaaya**, International Meeting on Fiber Lasers and Applications - IFLA, Bar Ilan University, Israel (2014).
11. **A. A. Ishaaya**, "Light in Defense", Ben-Gurion University of the Negev, Israel, (May 2015).
12. A. Shamir, Z. Montz, A. Halstuch, and **A. A Ishaaya**, IFLA (OASIS6), Tel-Aviv, Israel (Feb. 2017).

Contributed conference presentations

13. **A. A. Ishaaya**, R.L. Boxman and S. Goldsmith, "Measurement of cathode spot velocity and distribution on a disk cathode in a radial magnetic field", Conference on Metallurgical Coatings and Thin Films, San Diego, California, USA (1992).
14. **A. A. Ishaaya**, G. Ravnitzky and I. Shoshan, "Axial amplified spontaneous emission measurements in Nd:YAG oscillator-amplifier laser configurations", 11th International Meeting of Electrooptics and Microelectronics, Tel Aviv, Israel (1999).
15. G. Machavariani, N. Davidson, A. A. Friesem, **A. A. Ishaaya**, S. Blit and E. Hasman, "Efficient formation of pure helical beams from a gaussian beam", Conference on Lasers and Electro-Optics (CLEO), Long Beach, California, USA (2002).
16. **A. A. Ishaaya**, N. Davidson, G. Machavariani, A. A. Friesem and E. Hasman, "High-order mode selection in Q-switched Nd:YAG lasers", Conference on Lasers and Electro-Optics (CLEO), Long Beach, California, USA (2002).
17. G. Machavariani, N. Davidson, **A. A. Ishaaya**, A.A. Friesem and E. Hasman, "Transformation of a high order HG mode to a nearly Gaussian beam", Conference on Advanced Laser technologies, Adelboden, Switzerland (2002).
18. **A. A. Ishaaya**, G. Machavariani, N. Davidson, A. A. Friesem and E. Hasman, "Compact optical mode converter", Conference on Lasers and Electro-Optics (CLEO), Baltimore, Maryland, USA (2003).
19. G. Machavariani, **A. A. Ishaaya**, N. Davidson, A. A. Friesem, S. Blit and E. Hasman, "Effect of phase errors on laser mode selection with binary phase elements", Conference on Lasers and Electro-Optics Europe, Munich, Germany (2003).
20. G. Machavariani, **A. A. Ishaaya**, N. Davidson, A. A. Friesem and E. Hasman, "Compact and simple configurations for converting laser beam distributions", Conference on Lasers and Electro-Optics Europe, Munich, Germany (2003). **[post-deadline presentation]**

21. L. Shimshi, **A. A. Ishaaya**, N. Davidson, A. A. Friesem and E. Hasman, "Second harmonic generation with a high-order mode laser beam", Frontiers in Optics, OSA Annual Meeting, Tucson, Arizona, USA (2003).
22. **A. A. Ishaaya**, N. Davidson, L. Shimshi and A. A. Friesem, "Intra-cavity coherent addition of Gaussian laser beam distributions", Conference on Lasers and Electro-Optics (CLEO), San Francisco, California, USA (2004).
23. **A. A. Ishaaya**, L. Shimshi, V. Eckhouse, N. Davidson and A. A. Friesem, "Coherent addition of single mode and multimode laser beam distributions", EPS-QEOD Europhoton Conference, Lausanne, Switzerland (2004).
24. **A. A. Ishaaya**, N. Davidson, A. A. Friesem, E. Galun, M. Sirota, V. Krupkin and I. Shoshan, "Very high-order transverse mode selection in a passive Q-switched Nd:YAG laser", EPS-QEOD Europhoton Conference, Lausanne, Switzerland (2004).
25. L. Shimshi, **A. A. Ishaaya**, N. Davidson and A. A. Friesem, "Intra-cavity phase-locking of several laser distributions", EPS-QEOD Europhoton Conference, Lausanne, Switzerland (2004).
26. V. Eckhouse, **A. A. Ishaaya**, L. Shimshi, N. Davidson and A. A. Friesem, "Novel laser resonator configurations for achieving high power and brightness", CLEO/Europe-EQEC Conference, Munich, Germany (2005).
27. **A. A. Ishaaya**, N. Davidson and A. A. Friesem, I. Pe'er, E. Galun, M. Sirota, E. Luria, V. Krupkin, and I. Shoshan, "Stable selection of very high transverse modes in passive Q-switched lasers", CLEO/Europe-EQEC Conference, Munich, Germany (2005).
28. L. Shimshi, **A. A. Ishaaya**, V. Eckhouse, N. Davidson and A. A. Friesem, "Efficient intra-cavity passive coherent addition of nine laser channels", CLEO/Europe-EQEC Conference, Munich, Germany (2005).
29. L. T. Vuong, A. L. Gaeta, G. Fibich, G. W. t'Hooft, E. Eliel, T. D. Grow, **A. A. Ishaaya**, "Collapse of optical vortices", CLEO/QELS 06, Long Beach, California (May 2006).
30. G. Machavariani, N. Davidson, **A. A. Ishaaya**, A. A. Friesem, "Phase element can improve stability of longitudinal and transverse laser modes", XVI International Symposium on Gas Flow and Chemical Lasers & High Power Laser Conference, Gmunden, Austria (Sept. 2006).
31. **A. A. Ishaaya**, T. D. Grow, S. Ghosh, L. T. Vuong, A. L. Gaeta, "Optical collapse of coupled beams in Kerr media", Frontiers in Optics 2006/Laser Science XXII conference, Rochester, New York (Oct. 2006).
32. L. T. Vuong, **A. A. Ishaaya**, T. D. Grow, A. L. Gaeta, E. R. Eliel, "Orbital angular momentum switching of optical vortices", Frontiers in Optics 2006/Laser Science XXII conference, Rochester, New York (Oct. 2006).
33. **A. A. Ishaaya**, T. D. Grow, L. T. Vuong and A. L. Gaeta, "Multiple-beam collapse in Kerr media", CLEO/QELS 07, Baltimore, Maryland (May 2007).
34. T. D. Grow, **A. A. Ishaaya**, L. T. Vuong and A. L. Gaeta, "Collapse and stability of necklace beams in Kerr media", CLEO/QELS 07, Baltimore, Maryland (May 2007).
35. **A. A. Ishaaya**, L. T. Vuong, T. D. Grow and A. L. Gaeta, "Stability of polarization vortices in self-focusing Kerr media ", CLEO/QELS 07, Baltimore, Maryland (May 2007).
36. L. Shimshi, V. Eckhouse, **A. A. Ishaaya**, N. Davidson, and A. A. Friesem, "Upscaling Coherent Addition of Laser Distributions", CLEO/QELS 07, Baltimore, Maryland (May 2007).
37. L. T. Vuong, **A. A. Ishaaya**, T. D. Grow, E. R. Eliel, G. t'Hooft, A. L. Gaeta, "Experiments showing orbital angular momentum exchange with optical vortices", CLEO/Europe - IQEC 2007, p. 1181, (2007).
38. **A. A. Ishaaya**, B. Shim, C. J. Hensley, S. E. Schrauth, A. L. Gaeta and K. W. Koch, "Efficient excitation of polarization vortices in a photonic bandgap fiber with ultrashort laser pulses", CLEO/QELS 08, San Jose, Ca, USA (May 2008).

39. B. Shim, S. E. Schrauth, C. J. Hensley, P. Hui, A. D. Slepkov, **A. A. Ishaaya**, L. T. Vuong, and A. L. Gaeta, "Controlled interactions of femtosecond light filaments in air", FiO, OSA Annual Meeting, Rochester, NY, USA (Sept. 2008).
40. E. Ronen and **A. A. Ishaaya**, "Phase locking a fiber laser array via diffractive coupling", FiO, OSA Annual Meeting, Rochester, NY, USA (Oct. 2010).
41. E. Ronen and **A. A. Ishaaya**, "Phase locked clusters in laser arrays and a novel method for detecting them", FiO, OSA Annual Meeting, Rochester, NY, USA (Oct. 2010).
42. A. Gilad and **A. A. Ishaaya**, "Self phase modulation of chirped ultrashort pulses in gas filled hollow core photonic bandgap fibers", FiO, OSA Annual Meeting, Rochester, NY, USA (Oct. 2010).
43. B. Shulga and **A. A. Ishaaya**, "Off-axis pumping of air-clad photonic crystal fiber based systems", Oasis 2011, The 13th Meeting on Optical Engineering and Science in Israel, Tel Aviv, Israel (March 2011).
44. B. Shulga and **A. A. Ishaaya**, "Off-axis pumping of air clad photonic crystal fiber lasers and amplifiers", CLEO/Europe, Munich, Germany (May 2011).
45. B. Shulga and **A. A. Ishaaya**, "High Power Photonic Crystal Fiber Lasers and their Intracavity Coherent Combining", Advanced Solid-State Photonics (ASSP), San Jose, California, USA (Feb. 2012).
46. O. Shneider, B. Shulga and **A. A. Ishaaya**, "Spectral Narrowing in a System of Coherently Combined Fiber Lasers", 5th EPS-QEOD Europhoton Conference (Europhoton 2012), Stockholm, Sweden (Aug. 2012).
47. A. Herzog, A. Shamir, and **A. A. Ishaaya**, "Wavelength conversion of nanosecond pulses to the mid-IR using four wave mixing in photonic crystal fibers", 5th EPS-QEOD Europhoton Conference (Europhoton 2012), Stockholm, Sweden (Aug. 2012).
48. A. Shamir and **A. A. Ishaaya**, "Large-scale Sapphire etching with ultrashort laser pulses", IEEE 27-th Convention of Electrical and Electronics Engineers in Israel (IEEEI 2012), Eilat, Israel (Nov. 2012).
49. A. Shamir, A. Herzog, and **A. A. Ishaaya**, "Inter-modal cascaded four-wave-mixing with ns pulses in photonic crystal fibers", IEEE 27-th Convention of Electrical and Electronics Engineers in Israel (IEEEI 2012), Eilat, Israel (Nov. 2012).
50. B. Shulga and **A. A. Ishaaya**, "Passive Coherent Combining of High Power Photonic Crystal Fiber Lasers", OASIS 2013, the 14th International Meeting on Optical Engineering and Science in Israel, Tel-Aviv, Israel (Feb. 2013).
51. L. Kedar and **A. A. Ishaaya**, "Competition Between Stimulated Raman and Brillouin Scattering Processes in CF_4", OASIS 2013, the 14th International Meeting on Optical Engineering and Science in Israel, Tel-Aviv, Israel (Feb. 2013).
52. A. Shamir and **A. A. Ishaaya**, "Cascaded Four-Wave Mixing with ns Pulses in Photonic Crystal Fibers", OASIS 2013, the 14th International Meeting on Optical Engineering and Science in Israel, Tel-Aviv, Israel (Feb. 2013).
53. B. Shulga and **A. A. Ishaaya**, "Imposing Temporal and Frequency Characteristics in a System of Coherently Combined High Peak Power Photonic Crystal Fiber Lasers", CLEO/Europe, Munich, Germany (May 2013).
54. M. Vanhotsker, B. Shulga, and **A. A. Ishaaya**, "Fundamental Mode Amplification in 140 um Core Diameter Fiber", CLEO/Europe, Munich, Germany (May 2013).
55. B. Rosenstein, A. Shirakov, **A. A. Ishaaya**, "Characterization of Coherently Combined High Peak Power Photonic Crystal Fiber Lasers", Workshop on Specialy Optical Fiber and their Applications (WSOF), Sigtuna, Sweden (Aug. 2013).
56. B. Rosenstein, A. Shirakov, **A. A. Ishaaya**, "High Power Off-axis Pumping of a Flexible Photonic Crystal Fiber Laser", Workshop on Specialy Optical Fiber and their Applications (WSOF), Sigtuna, Sweden (Aug. 2013).

57. E. Ronen, B. Rosenstein, E. Grinvald, N. Davidson, **A. A. Ishaaya**, "Cladding Amplification of Very Large Area Modes in a Novel Double-Clad Fiber", Workshop on Specialy Optical Fiber and their Applications (WSOF), Sigtuna, Sweden (Aug. 2013).
58. B. Rosenstein, A. Shirakov, **A. A. Ishaaya**, "Efficient Off-axis Pumping of a High Power Flexible Photonic Crystal Fiber Laser", Advanced Solid State Lasers (ASSL), Paris, France (Oct. 2013).
59. B. Rosenstein, A. Shirakov, **A. A. Ishaaya**, "0.7 MW Output Power from Coherently Combined Q-Switched Fiber Lasers", Advanced Solid State Lasers (ASSL), Paris, France (Oct. 2013).
60. B. Rosenstein, A. Shirakov, D. Belker, **A. A. Ishaaya**, "0.7 MW Output Power from Coherently Combined Q-switched Photonic Crystal Fiber Laser", CLEO/QELS 08, San Jose, Ca, USA (June 2014).
61. L. Ben-Yehud, **A. A. Ishaaya**, "Highly efficient wavelength conversion in CF4-filled hollow-core photonic bandgap fibers", CLEO/QELS 08, San Jose, Ca, USA (June 2014).
62. A. Herzog, **A. A. Ishaaya**, "The influence of spatial-coherence on damage occurrence in multimode optical fibers", International Meeting on Fiber Lasers and Applications - IFLA, Bar Ilan University, Israel (June 2014).
63. Z. Montz, **A. A. Ishaaya**, "Dual bandgap hollow-core photonic crystal fibers for third harmonic generation", International Meeting on Fiber Lasers and Applications - IFLA, Bar Ilan University, Israel (June 2014).
64. B. Rosenstein, A. Shirakov, D. Belker, **A. A. Ishaaya**, "Efficient operation of extremely short 10 cm long photonic crystal fiber laser", International Meeting on Fiber Lasers and Applications - IFLA, Bar Ilan University, Israel (June 2014).
65. Z. Montz and **A. A. Ishaaya**, "Hollow-core photonic bandgap fiber cladding designs for third harmonic generation," JTu3A.8, SOF Conference, Spain, Barcelona, Specialty Optical Fibers & Applications (2014).
66. L. Ben Yehud and **A. A. Ishaaya**, "Efficient wavelength conversion in CF4-filled photonic bandgap fibers," SoTh2B.5, SOF Conference, Spain, Barcelona, Specialty Optical Fibers & Applications (2014).
67. A. Herzog, B. Hadad, V. Lyubin, M. Klebanov, A. Reiner, A. Shamir and **A. A. Ishaaya**, "Chalcogenide waveguides on a sapphire substrate for 3-5 μm wavelengths applications," JM5A.31, Nonlinear Photonics (NP): All-Optical Devices and Applications, Spain, Barcelona, (2014).
68. A. Herzog and **A. A. Ishaaya**, "Spatial-coherence effect on damage occurrence in multimode optical fibers using nanosecond pulses," JM5A.13, SOF Conference, Spain, Barcelona, Specialty Optical Fibers & Applications (2014).
69. A. Herzog, I. Steinberg, E. Geinsberg, R. Nomberg, and **A. A. Ishaaya**, "A route to laser angioplasty in the presence of fluoroscopy contrast media using a nanosecond-pulsed 355nm laser", 9706-27, Photonics West - SPIE Symposium on Lasers and Applications in Science and Engineering, San Francisco, CA, USA (Feb. 2016).
70. A. Herzog, S. Bogdan, M. Glikson, **A. A. Ishaaya**, C. Love, "Lead extraction by selective operation of a nanosecond-pulsed 355nm laser", 9706-28, Photonics West - SPIE Symposium on Lasers and Applications in Science and Engineering, San Francisco, CA, USA (Feb. 2016).
71. A. Shamir and **A. A. Ishaaya**, "Femtosecond photo treatment effects on fiber Bragg grating inscription", 9886-21, SPIE Photonics Europe, Brussels, Belgium (April 2016).
72. Z. Alperovich, G. Bialolenker, Z. Montz, **A. A. Ishaaya**, "Fabrication of a multicore coupler for phase locking of fiber lasers", Europhoton 2016, Vienna, Austria (August 2016).
73. H. Hecht, A. Katzir, Z. Burshtein, M. Sokol, S. Noach, E. Frumker, E. Galun, and **A. A. Ishaaya**, "Passive Q-switching of a Tm:YLF laser with a cobalt doped silver halide saturable absorber", Europhoton 2016, Vienna, Austria (August 2016).
74. S. Noach, D. Sebbag , A. Korenfeld, U. Ben Ami , A. Herzog , and **A. A. Ishaaya**, "Passively Q-Switched 2um Lasers, for Medical and Industrial Applications", OASIS 6, Tel-Aviv, Israel (Feb. 2017).

75. A. Herzog, G. Oszkinis, D. Planer, K. Ziaja, Ł. Kruszyna, M. G. Stanisić, D. Ziaja, W. Kuczmik, and **A. A. Ishaaya**, "Laser atherectomy using a nanosecond pulsed laser at 355 nm: a first-in-human study", CLEO Europe, Munich, Germany (June 2017).
76. A. Halstuch and **A. A. Ishaaya**, "Femtosecond laser inscription Bragg gratings formed on a thin GaN film grown on a sapphire substrate", CLEO Europe, Munich, Germany (June 2017).
77. A. Halstuch, O. Westreich, N. Sicron, and **A. A. Ishaaya**, "Inscription of Bragg gratings in GaN layers and waveguides with a NIR Femtosecond laser", WSOF 2017, Limassol, Cyprus (Oct. 2017)
78. A. Halstuch and **A. A. Ishaaya**, "Femtosecond inscription of phase-shifted gratings by exploiting fiber strain", Advanced Photonics 2018 Congress, KTH, Zurich, Switzerland (July 2018).
79. A. Halstuch and **A. A. Ishaaya**, "Fine-tuning the fiber Bragg grating wavelength by femtosecond photo-treatment", Advanced Photonics 2018 Congress, KTH, Zurich, Switzerland (July 2018).
80. Z. Montz, A. Shirakov, U. Ben Ami, S. Genish, and **A. A. Ishaaya**, "Optimizing an Er/Yb doped fiber laser by inscribing with fs pulses customized output couplers on the fly", Advanced Photonics 2018 Congress, KTH, Zurich, Switzerland (July 2018).
81. A. Halstuch, A. Shamir, and **A. A. Ishaaya**, "Femtosecond fiber Bragg grating inscription through the coating using a low NA lens", 8th EPS-QEOD Europhoton Conference, Barcelona, Spain (Sept. 2018).
82. J. Ji, R. Sidharthan, X. Huang, Y. Zhou, J. Zang, D. Ho, Y. Benudiz, U. Ben Ami, **A. A. Ishaaya**, and S. Yoo, "An All-solid Large-mode-area Multicore Fiber Laser with A Pinhole for Mode Selection ", OSA Laser Congress , Boston, USA (Sept. 2018).
83. J. Ji, R. Sidharthan, X. Huang, J. Zang, Y. Zhou, W. Jing Lai, Y. Benudiz, U. Ben Ami, **A. A. Ishaaya**, and S. Yoo, "Large-Mode-Area Multicore Fiber Amplifier at 1070 nm", 2018 Opto-Electronics and Communications Conference (OECC2018), Jeju, Korea (July 2018).
84. J. Ji, R. Sidharthan, X. Huang, J. Zang, D. Ho, Y. Benudiz, U. Ben Ami, **A. A. Ishaaya**, and S. Yoo, "115 W Large-mode-area Multi-core Fiber Laser with All Solid Structure", CLEO 2018, San Jose, California, USA (May 2018).
85. A. Halstuch, O. Westreich, N. Sicron, and **A. A. Ishaaya**, "Inscription of nano gratings on GaN thin films and waveguides with a NIR femtosecond laser", NANO IL (Oct. 2018).
86. A. Halstuch and **A. A. Ishaaya**, " Femtosecond laser induced of Nano-gratings on a thin GaN layer grown on a sapphire substrate", CLEO/Europe-EQEC (June 2019).
87. S. Edelstein and **A. A. Ishaaya**, "Efficient Raman Conversion in SF6-and CF4-Filled Hollow-Core Photonic Bandgap Fibers", CLEO (May 2020).
88. Y. Alon, A. Halstuch, R. Sidharthan, S. Yoo, **A. A. Ishaaya**, "Yb-doped Large Mode Area Multicore Fiber Laser with a Fs-inscribed Fiber Bragg Grating", CLEO (May 2020).
89. N. G. Boetti, **A. Ishaaya**, M. Guina, D. Janner, D. Milanese, D. Pugliese, A. Penttinen, A. Härkönen, O. Moschovitz, Y. Alon, F. Leone, Advanced Technologies for Security Applications, 175, Leuven, Belgium (Sept 2019).
90. A. Halstuch, **A. A. Ishaaya**, Micro-structured and Specialty Optical Fibres VII 11773, 98-104 (2021).
91. N. G. Boetti, D. Pugliese, O. Moschovits, E. Balliu, J. Lousteau, D. Gallichi-Nottiani, D. Janner, **A. Ishaaya**, M. Engholm, D. Milanese, Micro-structured and Specialty Optical Fibres VII 11773, 11773 (2021).
92. H. Li, S. Raghuraman, S. Chen, J. Zang, **A. Ishaaya**, S. Yoo, Conference on Lasers and Electro-Optics (CLEO), 1-2 (2021).
93. R. Avrahamy, B. Milgrom, M. Zohar, M. Auslender, T. David, **A. A. Ishaaya**, Conference on Lasers and Electro-Optics (CLEO), 1-2 (2021).
94. A. Halstuch, **A. A. Ishaaya**, Conference on Lasers and Electro-Optics Europe & European Quantum Electronics Conference (CLEO/Europe-EQEC), 1-1 (2021).
95. I. Sakaev, J. Linden, **A. A. Ishaaya**, The European Conference on Lasers and Electro-Optics, cm_p_9 (2021).

96. I. Sakaev, **A. A. Ishaaya**, Conference on Lasers and Electro-Optics Europe & European Quantum Electronics Conference (CLEO/Europe-EQEC), 1-1 (2021).
97. R. Avrahamy, A. Halstuch, D. Belker, **A. A. Ishaaya**, CLEO: Applications and Technology, JTu3B. 21 (2022).
98. R. Avrahamy, **A. A. Ishaaya**, M. Auslender, CLEO: QELS_Fundamental Science, FTh4D. 8 (2022).
99. R. Avrahamy, S. Edelstein, A. Halstuch, D. Belker, **A. A. Ishaaya**, Fiber Lasers and Glass Photonics: Materials through Applications III, PC121420U (2022).
100. A. Halstuch, **A. A. Ishaaya**, Bragg Gratings, Photosensitivity and Poling in Glass Waveguides and Materials BW5A. 7 (2022).
101. Y. Greenberg, A. Halstuch, **A. A. Ishaaya**, Bragg Gratings, Photosensitivity and Poling in Glass Waveguides and Materials BW5A. 8 (2022).
102. R. Avrahamy, A. Halstuch, D. Belker, **A. A. Ishaaya**, Nonlinear Photonics, NpTu4F. 1 (2022).
103. TGL Frumkin, **AA Ishaaya**, Z Zalevsky, Physics and Simulation of Optoelectronic Devices XXXI 12415, 163-170 (2023).
104. A Halstuch, **AA Ishaaya**, Specialty Optical Fibres 12573, 12-19 (2023).
105. A Halstuch, **AA Ishaaya**, The European Conference on Lasers and Electro-Optics, cm_7_2 (2023).
106. A Halstuch, **AA Ishaaya**, Laser+ Photonics for Advanced Manufacturing 13005, 163-168 (2024).
107. N.G. Boetti, M. Segura, **A Ishaaya**, D. Janner, F. Diaz, X. Mateos, J. Lousteau, Specialty Optical Fibers, SoTu3F. 4 (2024).
108. R. Avrahamy, D. Cohen, B. Milgrom, B. Amir, D. Belker, A. Solodar, E. Golan, O. Sadot, A. A. Ishaaya, Conference on Lasers and Electro-Optics/Pacific Rim, Fr2J_6 (2024).

Seminar presentations at universities and institutions

2004 Dept. of Applied Physics, Stanford University, USA
2004 Nuclear Research Center, Israel
2004 Ariel University Center of Samaria, Israel
2005 Dept. of Engineering, Bar-Ilan University, Israel
2005 Elop Electrooptics Industries Ltd., Israel
2006 Dept. of Applied Physics, Hebrew University, Israel
2006 Dept. of Engineering, Bar-Ilan University, Israel
2006 Dept. of Electrical and Computer Engineering, Ben-Gurion University, Israel
2006 Dept. of Physics of Complex Systems, Weizmann Institute of Science, Israel
2006 School of Electrical Engineering, Tel-Aviv University, Israel
2006 Nuclear Research Center, Israel
2007 Dept. of Physics, Ben-Gurion University, Israel
2008 ILEOS meeting, Bar-Ilan University, Israel
2012 Nano center, Bar-Ilan University, Israel
2013 Xlim Laboratory, University of Limoges, France (*)
2015 2nd Working Group Meeting, COST Action 1401, Dresden, Germany (*)
2016 Dept. of Applied Physics, Hebrew University, Israel (*)
2017 General seminar, The Photonics Institute, Nanyang Technological University, Singapore (*)
2017 Specific seminar, The Photonics Institute, Nanyang Technological University, Singapore (*)
2017 DSO, Singapore (*)

Patents:

1. **A. A. Ishaaya**, N. Davidson, A. A. Friesem and L. Shimshi, "Resonator cavity configuration and method", US patent No. 7,933,301.
2. **A. A. Ishaaya**, N. Davidson, A. A. Friesem and L. Shimshi, "Resonator cavity configuration and method", US patent No. 7,555,024.
3. B. Shulga and **A. A. Ishaaya**, "Fiber laser pumping configuration and method", US patent application, first submitted July 2010 (PCT/IL2011/000502).
4. E. Ronen and **A. A. Ishaaya**, "Single large mode cladding amplification in active double-clad fibers", provisional US patent application (2012).
5. B. Rosenstein and **A. A. Ishaaya**, "Multi-pump-pass scheme of fiber based lasers and amplifiers", provisional US patent application (2014).
6. **A. A. Ishaaya** and Y. Sivan, "Transient Bragg gratings in optical waveguides and their applications", provisional US patent application (2014).

Research grants:

2007	University startup/seed funding for setting up a lab; total - $550,000. PI
2008	Chief Scientist (Ministry of Labor, Trade, and Industry, Israel), "Advanced Fiber Lasers" (consortium); total – $384,000. 2008-2011. PI
2008	Israel Science Foundation (ISF) personal grant 1205/08; "Lasers and wavelength converters based on photonic crystal fibers"; total – $204,000. 2008-2012. PI
2008	Israel Science foundation (ISF) New Faculty Equipment Grant 1626/08; "Lasers and nonlinear optical devices laboratory"; total – $400,000 (50% matching). PI
2011	Israel MOD (Mafat); "multicore fibers"; total budget – $276,000. 2011-2014. PI
2012	Chief Scientist (Ministry of Labor, Trade, and Industry, Israel) Kamin Grant; "Low cost, compact, PCF laser"; total budget – $222,000. 2012-2014. PI
2012	Chief Scientist (Ministry of Labor, Trade, and Industry, Israel) Magneton Grant; "Novel UV High Power Fiber Laser Technologies"; total budget – $142,000. 2012-2013. PI
2013	Israel MOD (Mafat); High power laser + OSA equipment; cost – $250,000. PI
2013	M.F.S grant (internal BGU); "Transient gratings in fibers and waveguides for ultrafast applications"; total budget – $90,000. 2013. PI
2014	Israel Chief Scientist (Ministry of Labor, Trade, and Industry) Magneton Grant; "Passive coherent combining of solid-state lasers"; total budget – $166,000. 2014-2016. PI
2014	Israel MOD (Mafat); "High power laser processing"; total budget $320,500. 2014-2017. PI
2014	Israel Ministry of Science, MOST, "Wavelength conversion to the UV with gas-filled Kagome and antiresonant fibers"; total budget $200,000. 2014-2017. PI
2016	Chief Scientist (Ministry of Labor, Trade, and Industry, Israel), "Advanced Lasers technologies for Industrial Applications" (consortium); First year – $162,000; 2016-2019. PI
2017	NATO Science for Peace and Security Program, "Compact Eye-Safe Lidar Source for Airborne Laser Scanning (CALIBER)"; 90,000 Euro for two years; 2017-2019. PI

2018 Israel Science Foundation (ISF) personal grant 2021/18; “Spatial mode control in novel active Yb-doped multicore fibers”; total – $302,700. 2018-2022. PI

2021 Israel Innovation Authority Meymad grant – “High power Raman conversion in hollow core fibers”; total $172K

2022 Israel MOD (Mafat); “Towards high power 1.5um fiber lasers”; total budget $120K. 2022-2024. PI

2023 NATO Science for Peace and Security Program, “Novel laser technologies for 2 µm eye-safe next generation drone interceptors (Laser2Drones)”; 150,000 Euro for two years; 2023-2025. PI

2025 Israel Innovation Authority Nofar grant, “High peak power 1um laser”; total budget $K334 2025-2027. PI

2025 Israel Innovation Authority Nofar grant, “Laser fs welding of silica to Aluminum”; total budget $K167 2025-2026. PI

Additional information:

News coverage

1. "Multimode lasers get brighter", Opto & Laser Europe 128, May 2005.
2. "Multimode lasers get brightness boost", Optics.org, April 2005. (http://optics.org/articles/news/11/4/12)
3. "Simple scheme combines multiple beams", Optics.org, Jan. 2006. (http://optics.org/articles/news/12/1/11)
4. "LASER OPTICS: Sixteen laser beams combined with 88% efficiency", Laser Focus World, March 2006.
5. "Overcoming peak-power limitations of fiber lasers", SPIE Newsroom, Feb. 2014. (http://spie.org/x106177.xml)
6. News coverage on a laser based balloon interception system called “Lahav-Or” 2019-2020.
7. Article in Israeli newspaper “Makor Rishon”, Oct. 3 2025.