Dr. Alina Karabchevsky December, 2019

CURRICULUM VITAE

• Personal Details

Name:	Alina Karabchevsky
Address and telephone number at work:	School of Electrical and Computer Engineering Ben-Gurion University of the Negev Room 3, Building 64, The Marcus Family Campus P.O. Box 653, Beer-Sheva 8410501, Israel Tel: 972-8-6479720
Place of birth	Soviet Ukraine (USSR)
Date of immigration	23 December 1993
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• Education

B.Sc – 2001-2005 – University of Ben-Gurion, Biomedical Engineering.

M.Sc – 2006-2008 – University of Ben-Gurion, Biomedical Engineering
Name of advisor: Dr. Ofer Levi
Title of dissertation: '*Development of algorithms for physiological signal processing*'

Ph.D. – 2008-2012 University of Ben-Gurion, Electrooptical Engineering Unit
Name of advisor: Prof. Ibrahim Abdulhalim
Title of thesis: '*Nanophotonic structures for optical biosensing and application in water quality control*'. Nominated for an excellent thesis award.

• Employment History

Senior Lecturer
2018-Present: Electrooptical Engineering Unit, BGU, IL.

Lecturer
2015-2018: Electrooptical Engineering Unit, BGU, IL.

Research fellow
2012-2015: Optoelectronics Research Center, University of Southampton, UK.

External Lecturer
2011-2012: Electrooptical Engineering Unit, BGU, IL.

External Lecturer

2008-2011: Department of Electrical and Electronic Engineering, ORT Braude College, Carmiel, IL.

Lab Instructor
2009-2011: Electrooptical Engineering Unit, BGU, IL.

Teaching Assistant
2007-2008: Department of Industrial Engineering and Management, Achva Academic College, IL.

Teaching Assistant
2006-2008: Department of Industrial Engineering and Management, BGU, IL.

Teaching Assistant
2006-2008: Flight Academy, IL.

Teaching Assistant
2005-2006: Department of Biomedical Engineering, BGU, IL.

- **Professional Activities**

(b) Professional functions outside universities/institutions (inter-university, national, international)

International Conference and Exhibition on Optics and Electro-Optics (OASIS), session Chair (*Invited*), 2020

The International Conference on Metamaterials, Photonic Crystals and Plasmonics (META19) conference: special session organizer (*Invited*): Novel guided wave configurations with nanostructures for emerging applications, Portugal Spain, July 23, 2019 – July 26, 2019

The International Conference on Metamaterials, Photonic Crystals and Plasmonics (META18) conference: special session organizer (*Invited*): Novel guided wave configurations with nanostructures for emerging applications, Marcel France, June 24, 2018- July 1, 2018

Apr. 2018 – Initiation of Mutual agreement of scientific and academic collaboration (MoU) between BGU and Belarussian State University (Belorussia).

Jun. 2017 – Establishing the International joint PhD program between BGU and Vladimir State University[1] (Russian Federation).

Jun. 2017 – Initiation of Mutual agreement of scientific and academic collaboration (MoU) between BGU and Belarussian State University (Minsk, Belorussia).

Mar. 2017 – Initiation of Mutual agreement of scientific and academic collaboration (MoU) between BGU and MiSIS[2] (Russian Federation).

[1] Vladimir State University (VLSU), Vladimir, Russian Federation.

Mar. 2017 – Establishing the International joint PhD program between BGU and National University of Science and Technology MiSIS[2] (Russian Federation).

Mar. 2017 – Initiation of Mutual agreement of scientific and academic collaboration (MoU) between BGU and Russian Quantum Center.

Oct. 2016 – Establishing the International joint PhD program between BGU and ITMO[3] University (Russian Federation) which is one Russia's leading higher education and research institutions, specializing in Information Technology, Optical Design and Engineering.

Oct. 2016 – Initiation of Mutual agreement of scientific and academic collaboration (MoU) between BGU and ITMO[3] (Russian Federation).

Mar. 2016 – Organization of conference and Brokerage event: Photonics mission to Israel of leading UK scientists delegation (sponsored by the British embassy in Israel).

(e) Ad-hoc reviewer for journals

Nature Nanotechnology, Light Science and Applications, Optics Express, Optics Letters, Applied Optics, Biosensors and Bioelectronics, Journal of Nanophotonics.

(f) Membership in professional/scientific societies

October 2019 – OSA member

April 2016 – SPIE member

Nov. 2010 – OSA member student

Feb. 2010 - Dec. 2011 - President of the SPIE BGU student chapter

Nov. 2010 - Organizer of SPIE students chapter at BGU, the first in the Middle East.

• Educational activities

(a) Courses taught

1. Advanced Topics in Silicon Photonics, Lecturer, Graduate level, Electrooptical Engineering Unit, BGU, IL. New course.
2. Integrated Photonics, Lecturer, Graduate level, Electrooptical Engineering Unit, BGU, IL. New course.
3. Fiber Optics for Optical Communication, Lecturer, Graduate level, Electrooptical Engineering Unit, BGU, IL.

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[2] National University of Science and Technology MISiS, Moscow, Russian Federation.
[3] ITMO University (Saint-Petersburg National Research University of Information Technologies, Mechanics and Optics), Saint Petersburg, Russian Federation.

4. Integrated Optics for Optical Communication, External Lecturer, Graduate level, Electrooptical Engineering Unit, BGU, IL.
5. Introduction to Digital Signal Processing, External Lecturer, Undergraduate level, Department of Electrical and Electronic Engineering, ORT Braude College, Carmiel, IL.
6. Electrooptical Laboratory, Instructor, Graduate level, Electrooptical Engineering Unit, BGU, IL.
7. Laboratory of Optics and Photonics, Instructor, Graduate level, Electrooptical Engineering Unit, BGU, IL.
8. Operating Research, Teaching assistance, Undergraduate level, Department of Industrial Engineering and Management, Achva Academic Collage, IL.
9. Operating Research, Teaching assistance, Undergraduate level, Flight Academy, IL.
10. Operating Research, Teaching assistance, Undergraduate level, Department of Industrial Engineering and Management, BGU, IL.
11. Introduction to Image Processing, Graduate level, Department of Industrial Engineering and Management, BGU, IL.
12. Introduction to Biomedical Signal Processing, Undergraduate level, Department of Biomedical Engineering, BGU, IL.

(b) Research students

Graduated students:

Ali Mosayyebi – MSc, University of Southampton, jointly supervised with Prof. James S Wilkinson, year of graduation 2014.

Aviad Katiyi, MSc, Ben-Gurion University of the Negev, year of graduation 2017. Recived Negev Scholarship for excellent research 2017

Yakov Greenberg, MSc, Ben-Gurion University of the Negev, year of graduation 2019. Recived Negev Scholarship for excellent research 2019

Yarden Tzabari, BSc student, project entitled: 'Multipole excitation in sub-wavelength particles on optical waveguide', year of graduation 2019.

Kobi Harush, BSc student, project entitled: 'Multipole excitation in sub-wavelength particles on optical waveguide', year of graduation 2019.

Michael Elman, BSc student, project entitled: 'Phase accumulation in all-dielectric metamaterials', year of graduation 2019.

Yakov Keren, BSc student, project entitled: 'Phase accumulation in all-dielectric metamaterials', year of graduation 2019.

Adir Hazan, BSc student, project entitled: 'SPR sensors in wavelength interrogation', year of graduation 2019.

Current **Post-docs**:

Dr Eran Falek, Ben-Gurion University of the Negev, post-doc entitled: 'Investigation of light-matter integration on optical waveguides', expected graduation year 2020.

Current **PhD** students:

2017 –Aviad Katiyi, PhD student, Ben-Gurion University of the Negev, thesis entitled: 'Optical waveguides for sensing applications', expected graduation year 2021.

2017 –Angeelene Ang –PhD student, Ben-Gurion University of the Negev, thesis entitled: 'Tailoring Optical Forces through Electromagnetic Field Manipulation Using Auxiliary Structures', expected graduation year 2021.

2017 –Daler Dadadzhanov– joint PhD student, Ben-Gurion University of the Negev (co-supervisor Tigran Vartanyan ITMO[3] University), thesis entitled:

'Optical nanoantennas for applications in label-free chemical and biological sensors', expected graduation year 2020.
2017 – Pavel Terekhov – joint PhD student, Ben-Gurion University of the Negev (co-supervisor Alexander Shalin ITMO[3] University), thesis entitled: 'Light manipulation with all dielectric metasurfaces made of high refractive index nanoparticles which support multipoles of second and third orders', expected graduation year 2020.

Current **MSc** students:
Tal Elbaz, MSc student, Ben-Gurion University of the Negev, thesis entitled: 'Optomechanical forces for biomedical applications', expected graduation year 2020.
Adir Hazan, MSc student, Ben-Gurion University of the Negev, thesis entitled: 'Light-matter interaction at nanoscale', expected graduation year 2021.

• **Awards, Citations, Honors, Fellowships**

(a) Honors, Citation Awards (including during studies)

Year 2014 – Optoelectronics Research Centre, University of Southampton, UK – 'Brilliance in Research' Prize – 1K£, Prof. Sir. Dave N Payne.

Year 2012, - Ben-Gurion University of the Negev – 45K$- President's Award 'Outstanding Woman in Science'.

Year 2011 SPIE Optics and Photonics Conference, San Diego, Proc. SPIE, 8104– 20(2011). Best paper award.

Year 2011 SPIE Optics and Photonics Conference, San Diego, USA. Best Lecture award.

Year 2010 NanoIsrael Conference 2010, Tel-Aviv Israel, 8-9 Nov 2010. Best Poster award.

• **Scientific Publications**

(c) Refereed chapters in collective volumes

1) **A. Karabchevsky**[S] and I. Abdulhalim[PI] (2015) 'Techniques for signal analysis in surface plasmon resonance sensors', edited by I. Abdulhalim and R. S. Marks- Volume title: 'Nanomaterials for Water Management Signal Amplification for Biosensing from Nanostructures', Publisher - Pan Stanford Series on the High-Tech of Biotechnology [ISBN 9789814463478 -CAT N11160].

Conference proceedings

1) I. Abdulhalim[PI], **A. Karabchevsky**[S], C. Patzig[S], B. Rauschenbach[C], B. Fuhrmann[C], 'Comparative study of enhanced fluorescence from nano sculptured thin films', SPIE Optics and Photonics, San Diego 2008, Proc. SPIE, Vol. 7041, 70410G (2008).
2) **A. Karabchevsky**[S], L. Tsapovsky[S], R. S. Marks[C], I. Abdulhalim[PI], 'Optical immunosensor for endocrine disruptor nanolayer detection by surface plasmon resonance imaging', SPIE Optics and Photonics, San Diego 2011, Proc. SPIE, 8099 - 32 (2011).

3) **A. Karabchevsky**[S], C. Patzig[S], B. Rauschenbach[C], I. Abdulhalim[PI], 'Microspot surface enhanced fluorescence from sculptured thin films for control of antibody immobilization', SPIE Optics and Photonics, San Diego 2011, Proc. SPIE, 8104 - 20 (2011). Best paper award.
4) **A. Karabchevsky**, A. Shalabney[C], 'Strong interaction of molecular vibrational overtones with near-guided surface plasmon polariton', SPIE Photonics Europe, Brussels, Proc. SPIE, 9899 (2016).
5) **A. Karabchevsky**[PI], Y. Gorodetski[C], 'Plasmonic rac-and-pinion gear with chiral metasurfaces', SPIE Photonics Europe, Brussels, Proc. SPIE, Vol. 9883, 9883H (2016).
6) **A. Karabchevsky**[PI], 'Glowing microfluidics without external light source', Proceedings of the 34th Israeli Conference of Mechanical Engineering, Faculty of Mechanical Engineering, Technion I.I.T, Haifa, 22-23 November 2016.
7) P. D. Terekhov[S], K. V. Baryshnikova[PD], Y. A. Artemyev[S], A. S. Shalin[C], A. B. Evlyukhin[C], **A. Karabchevsky**[PI], 'Multipole optical response of a silicon nanocones', Proceedings of the International Conference Days on Diffraction 2017, St Petersburg, Russia.
8) Y. Galutin[S], E. Falek[S], **A. Karabchevsky**[PI], 'Invisibility Cloak Scheme with Composite Plasmonic Waveguides and Metsurface Overlayers', Proceedings of the Progress In Electromagnetics Research Symposium, St Petersburg, Russia, (2017).
9) P. D. Terekhov[S], K. V. Baryshnikova[PD], A. S. Shalin[C], A. B. Evlyukhin[C], **A. Karabchevsky**[PI], 'Toroidal Dipole Associated Resonant Forward Scattering of Light by Silicon Nanoparticles', Proceedings of the Progress In Electromagnetics Research Symposium, St Petersburg, Russia, (2017).
10) P. D. Terekhov[S], K. V. Baryshnikova[PD], Y. A. Artemyev[S], **A. Karabchevsky**[PI], A. S. Shalin[C], A. B. Evlyukhin[C], 'Optical multipole resonances of non-spherical silicon nanoparticles and the influence of illumination direction', SPIE Proceedings Volume 10528, Optical Components and Materials XV; 1052802 (2018).
11) Dadadzhanov D.R., Vartanyan T.A.A., **Karabchevsky A**., 'Vibrational overtones spectroscopy enabled by plasmonic nanoantennas'. SPIE Nanoscience + Engineering. Plasmonics: Design, Materials, Fabrication, Characterization, and Applications XVI, (2018).
12) Novitsky, D., **Karabchevsky**, **A.**, Lavrinenko, A., Shalin, A.S., Novitsky, D., 2018, 'Light dynamics in PT-symmetric multilayers: Phase transition, nonreciprocity, and propagation direction locking', IOP Conf. Series: Journal of Physics: Conf. Series 1092 (2018) 012100 DOI:10.1088/1742-596/1092/1/0121002, (2018).
13) P. D. Terekhov, V. E. Babicheva, K. V. Baryshnikova, A. S. Shalin, **A. Karabchevsky** and A. B. Evlyukhin, 'Transmission and reflection features of all-dielectrics metasurfaces with electric and magnetic resonances', Photonic and Phononic Properties of Engineered Nanostructures IX. – International Society for Optics and Photonics, Vol. 10927, (2019).
14) H. Shamkhi, K. Baryshnikova, Sayanskiy, A., Kapitanova, P., Terekhov, P., **Karabchevsky**, Belov, P., and Shalin, A. (2019, September). Extraordinary transparent metasurfaces composed of transverse scatterers. In 2019 Thirteenth International Congress on Artificial Materials for Novel Wave Phenomena (Metamaterials) (pp. X-381). IEEE.
15) D. R. Dadadzhanov, T. A. Vartanyan and A. **Karabchevsky**, 'Studying the effect of the substrate in metal-enhanced chemiluminescence', SPIE-OPTO, Quantum Dots and Nanostructures: Growth, Characterization, and Modeling XVII, (2020).

16) D. R. Dadadzhanov, T. A. Vartanyan and A. **Karabchevsky**, 'Surface-enhanced near-infrared absorption (SENIRA) of C-H and N-H groups with gold nanoarray', SPIE-OPTO, Quantum Sensing and Nano Electronics and Photonics XVII, (2020).

(d) Refereed articles and refereed letters in scientific journals

1)Abdulhalim[PI], I., **Karabchevsky**[S], **A.**, Patzig[S], C., Rauschenbach[PI], B., Fuhrmann[PI], B., Eltzov[S], E., Marks[PI], R. S., Xu[S], J., Zhang[S], F. and Lakhtakia[PI], A. 2009. Surface enhanced fluorescence from metal sculptured thin films with application to biosensing in water. Appl. Phys. Lett. 94: 063106. (73(GS), 61(ISI) citations; IF 3.521; 4/39; Q1).

2)Shalabney[S], A., Lakhtakia[PI], A., Abdulhalim[PI], I., Lahav[S], A., Patzig[S], C., Hazek[S], I., **Karabchevky**[S], **A.**, Rauschenbach[PI], B., Zhang[S], F., Xu[S], J. 2009. Surface plasmon resonance from metallic columnar thin films', Photonic. and Nanostruct., 7:176-185 (34(GS), 34(SI) citations; IF 1.8; 179/645; Q1).

3)**Karabchevsky**[S], **A.**, Krasnykov[S], O., Abdulhalim[PI], I., Hadad[C], B., Goldner[C], A., Auslender[C], M. and Hava[C], S. 2009. 'Metal grating on a substrate nanostructure for sensor applications. Photonic. and Nanostruct., 7:170-175 (29(GS), 28(ISI) citations; IF 1.8; 0. 179/645; Q1).

4)**Karabchevsky**[S], **A.**, Krasnykov[S], O., Auslender[C], M., Goldner[C], A., Hadad[C], B. and Abdulhalim[PI], I. 2009. Theoretical and experimental investigation of enhanced transmission through periodic metal nanoslits for sensing in water environment. Plasmonics, 4: 281-292 (49(GS), 40(ISI) citations; IF 1.8; 95/232; Q1).

5)Krasnykov[S], O., **Karabchevsky**[S], **A.**, Shalabney[S], A., Auslender[C], M. and Abdulhalim[PI], I. 2011. Sensor with increased sensitivity based on enhanced optical transmission in the infrared. Opt. Commun., 28: 1435-1438. (21(GS), 20(ISI) citations; IF 1.887; 202/645; Q2).

6)**Karabchevsky**[S], **A.**, Karabchevsky[S], S., Abdulhalim[PI], I. 2011. Fast Surface Plasmon Resonance imaging sensor using Radon Transform. Sensor. Actuat. B-Chem., 155: 361-365. (27(GS), 24(ISI) citations; IF 6.393; 1/102; Q1).

7)**Karabchevsky**[S], **A.**, Karabchevsky[S], S., Abdulhalim[PI], I. 2011. Nano-precision algorithm for Surface Plasmon Resonance determination from images with poor contrast. J. Nanophoton. 5: 051813-051813-12. (25(GS), 13(ISI) citations; IF 1.652; 37/86; Q2).

8)**Karabchevsky**[S], **A.**, Auslender[C], M. and Abdulhalim[PI], I. 2011. Dual surface plasmon excitation at the interfaces of periodic thin metallic nanostructures. J. of Nanophoton. 5: 051821-051821-9. (16(GS), 12(ISI) citations; IF 1.17; 101/210; Q2).

9)**Karabchevsky**[S], **A.**, Khare[S], C., Patzig[S], C., Abdulhalim[PI], I., Rauschenbach[PI], B. 2012. Microspot sensing based on surface enhanced fluorescence from nano sculptured metallic thin films, J. of Nanophoton, 6:061508-1-061508-12. (21(GS), 18(ISI) citations; IF 1.17; 101/210; Q2).

10) **Karabchevsky**[S], **A.**, Tsapovsky[S], L., Marks[PI], R. and Abdulhalim[PI], I. 2013. Study of Immobilization Procedure on Silver Nanolayers and Detection of Estrone with Diverged Beam Surface Plasmon Resonance (SPR) Imaging. Biosensors, 3:157-170. (16(GS) citations; 15(ISI), IF 2.83; 22/102; Q1).

11) **Karabchevsky**[PD], **A.**, Wilkinson[PI], J. S. and Zervas[C], M. N., 2015. Transmittance and surface intensity in 3D composite plasmonic waveguides. Opt. Express, 23:14407-4423. (12(GS), 12(ISI) citations; IF 3.561; 17/159; Q1).

12) **Karabchevsky**[PI], **A.** and Kavokin[C], A. V. 2016. Giant absorption of light by molecular vibrations on a chip. Sci. Reports, 6:1-7. (18(GS), 14(ISI) citations; IF 4.63; 4/77; Q1).

13) **Karabchevsky**[PI], A., Mosayyebi[S], A and Kavokin[C], A. V. 2016 Tuning chemiluminescence flow by plasmonic nanoparticles, Light: Science and Applica1tions, (49(GS), 43(ISI) citations; IF 14.098; 2/210; Q1).

14) Terekhov[S], P. D., Baryshnikova[S], K.V., Shalin[PI], A. S., **Karabchevsky, A**[PI]. and Evlyukhin[C], A. B., 2017, 'Resonant forward scattering of light by high-refractive-index dielectric nanoparticles with toroidal dipole contribution', Opt. Lett, 42:4 835-838, (41(GS), 31(ISI) citations; IF 3.866; 16/159; Q1).

15) Katiyi[S], A., **Karabchevsky**[PI], A., 2017. Figure of merit of all-dielectric waveguide structures for absorption overtone spectroscopy. Journal of Lightwave Technology, 35:14, 2902 – 2908, (14(GS), 9(ISI) citations; IF 3.87; 14/159; Q1).

16) Terekhov[S], P. D., Baryshnikova[S], K.V., A. S., **Karabchevsky**[PI]**, A**, Shalin[PI], A. S. and Evlyukhin[C], A. B., 2017, 'Multipolar response of non-spherical silicon nanoparticles in the visible and near-infrared spectral ranges', Phys. Rev. B, 96:035443, 1-7, (58(GS), 41(ISI) citations; IF 3.836; 133/1196 in physics; Q1).

17) Galutin[S], Y., Falek[S], E. and **Karabchevsky**[PI], **A.**, 2017, 'Invisibility Cloaking Scheme by Evanescent Fields Distortion on Composite Plasmonic Waveguides with Si Nano-Spacer'. DOI: 10.1038/s41598-017-10578-6, Nature Sci. Rep, (11(GS), 6(ISI) citations; IF 4.63; 4/77; Q1).

18) *Ospanova[S], A., **Karabchevsky[PI]**, A., Basharin[PI], A. A., 2018, 'Metamaterial Engineered Transparency due to nullifying of multipole moments', *43(3), 503-506, Opt. Letters*, (5(GS), 3(ISI) citations; IF 3.866; 16/159; Q1).

19) *Ang[S], A.S., **Karabchevsky[PI]**, **A.**, Minin[C], I.V., Minin[C], O.V., Sukhov[C], S.V., Shalin[**PI**], A.S., 2018, "Photonic Hook' based optomechanical nanoparticle manipulator', Nature Sci. Rep, (14(GS), 8(ISI) citations; IF 4.63; 4/77; Q1).

20) *Katiyi[S], A. and **Karabchevsky[PI]**, **A.**, 2018 'Si Nanostrip Rib-Waveguide for On-Chip Broadband Molecular Overtone Spectroscopy in Near-Infrared', ACS Sensors, 3(3) 618-623 (9(GS), 4(ISI) citations; IF 6.944; 4/84; Q1).

21) ***Karabchevsky[PI]**, **A.**, Katiyi[S], A., Abdul Khudus[C], M.I.M. and Kavokin[C], A.V., 2018, 'Tuning the near-infrared absorption of aromatic amines with photonic microfibers sculptured gold nanoparticles', ACS Photonics, DOI: 10.1021/acsphotonics.8b00025 (6(GS), 2(ISI) citations; IF 6.88; 21/642; Q1).

22) *Novitsky[C], A., Kovrov[C], A., **Karabchevsky[PI]**, **A.**, Shalin[PI], A.S., 2018, 'A Photonic nanojet as tunable and polarization sensitive optical tweezer', Annalen der Physik, (4(GS), 3(ISI) citations; IF 3.039; 21/642; Q1).

23) *Novitsky[C], D., **Karabchevsky[PI]**, **A.**, Lavrinenko[C], A., Shalin[C], A.S., Novitsky[PI], D., 2018, 'PT-symmetry breaking in multilayers with resonant loss and gain locks light propagation direction', Phys. Rev. B 98(12) (9(GS), 5(ISI) citations; IF 3.836; 133/1196 in physics; Q1).

24) *Ivinskaya[C], A., Kostina[C]. N., Proskurin[C], A., Petrov[C], M.I., Bogdanov[C], A.A., Sukhov[C], S., Krasavin[C], A.V., **Karabchevsky[PI]**, **A.**, Shalin[C], A.S., Ginzburg[PI], P., 2018, 'Optomechanical Manipulation with Hyperbolic Metasurfaces', ACS Photonics, (11(GS), 6(ISI) citations; IF 6.88; 21/642; Q1)

25) *Terekhov[S], P.D., Baryshnikova[S], K.V., E., Babicheva[PD], V., Shalin[C], A.S., **Karabchevsky[PI]**, A., Evlyukhin[C], A.B., 2019, 'Multipole analysis of dielectric metasurfaces composed of nonspherical nanoparticles and lattice invisibility effect', Physical Review B 99, 045424. (20(GS), 9(ISI) citations; IF 3.836; 133/1196 in physics; Q1)

26) *Terekhov[S], P.D., Greenberg[S], Y., Hsing[S], Fu, Y., Baryshnikova[PD], K.V., E., Evlyukhin[C], A.B., Shalin[C], A.S., **Karabchevsky[PI]**, A., 2019, 'Enhanced absorption in all-dielectric metasurfaces due to magnetic dipole excitation.', Scientific Reports, 9:3438, (5(GS), 4(ISI) citations; IF 4.63; 4/77; Q1).

27) *Terekhov[S], P.D., Shamkhi[S], H., Gurvitz[S], E., Baryshnikova[PD], K.V., E., Evlyukhin[C], A.B., Shalin[C], A.S., **Karabchevsky[PI]**, A., 2019, 'Broadband forward scattering from dielectric cubic nanoantenna in lossless media', Optics Express, 27(8), 10924-10935. (7(GS), 5(ISI) citations; IF 3.561; 17/159; Q1).

28) *Terekhov[S], Evlyukhin[C], A.B., Shalin[C], A.S., **Karabchevsky[PI]**, A., 2019, 'Polarization-dependent asymmetric light scattering by silicon nanopyramids and their multipoles resonances', Journal of Applied Physics, 125, 173108. (3(GS), 1(ISI) citations; IF 2.328; 59/148; Q2).

29) *Greenberg[S], Y, **Karabchevsky[PI]**, A., 2019, 'Spatial eigenmodes conversion with metasurfaces engraved on silicon ridge waveguides', 58(52) 21-25, Applied Optics. (0(GS), 0(ISI) citations; IF 1.791; 47/95; Q2).

30) *Shamkhi[S], .H.K., Baryshnikova[PD], K.V., Sayanskiy[S], A., Kapitanova[C], P., Terekhov[S], P.D., **Karabchevsky[PI]**, A., Evlyukhin[C], A.B., Belov[C], P., Kivshar[C], Y., Shalin[PI], A.S., 2019, 'Transverse scattering and generalized Kerker effects in all-dielectric Mie-resonant meta-optics', Phys Rev Letters, 122(19) 1-6. (14(GS), 3(ISI) citations; IF 9.227; 6/81; Q1).

31) *Dadadzhanov[S], D. R., Vartanyan[C], T. A., **Karabchevsky[PI]**, A., 2019, 'Differential extinction of Vibrational Molecular Overtone Transitions with Gold Nanorods and Non-Trivial Surface Enhanced Near-IR Absorption (SENIRA)', Optics Express. (1(GS), 0(ISI) citations; IF 3.561; 17/159; Q1).

32) *Minin[PI], I. V., Minin[C], O. V., Cao[S], Y., Liu[S], Z., Geints[C], Y. E. and **Karabchevsky[PI]**, A., 2019, 'Optical vacuum cleaner by optomechanical manipulation of nanoparticles using nanostructured mesoscale dielectric cuboid', Scientific Reports, 9:1-8, (1(GS), 0(ISI) citations; IF 4.63; 4/77; Q1).

33) *Borovkova[PD], O. V., Ignatyeva[PD], D.O., Sekatskii[C], S.K., **Karabchevsky[PI]**, A. and Belotelov[PI], V. I., 2019, 'High-Q surface electromagnetic wave resonance excitation in magneto-photonic crystals for super-sensitive detection of weak light absorption in near-IR', Photonics Research, *Accepted*. (0(GS), 0(ISI) citations; IF 5.522; 9/95; Q1).

• Lectures and Presentations at Meetings and Invited Seminars

(b) Presentation of papers at conferences/meetings (oral or poster)

1) Abdulhalim, **A. Karabchevsky**, C. Patzig, B. Rauschenbach, B. Fuhrmann,'Comparative study of enhanced fluorescence from nano sculptured thin films', SPIE Optics and Photonics, San Diego 2008, Proc. SPIE, Vol. 7041, 70410G (2008). *Oral*.
2) **Karabchevsky**, O. Krasnykov, M. Auslender, B. Hadad, A. Goldner, A., E. Eltzov, R. Marks, and I. Abdulhalim, Nano-scale metallic grating based structures for sensor applications', The 1st Mediterranean Conference on Nano-Photonics, (MediNano-1), Istanbul Turkey, 6-8 October 2008. *Poster*.
3) Abdulhalim, **A. Karabchevsky**, C. Patzig, B. Rauschenbach, B. Fuhrmann, E. Eltzov, R. Marks, J. Xu, F. Zhang, A. Lakhtakia, Towards the biosensing applications of sculptured thin films', The 1st Mediterranean Conference on Nano-Photonics, (MediNano-1), Istanbul Turkey, 6-8 October 2008. *Invited Oral*.
4) M. Auslender, **A. Karabchevsky**, O. Krasnykov, B. Hadad, A. Goldner, and Abdulhalim, 'Nano-scale metallic grating based structures for sensor applications', The 1st Mediterranean Conference on Nano-Photonics, (MediNano-1), Istanbul Turkey, 6-8 October 2008. *Invited Oral*.
5) **Karabchevsky**, I. Abdulhalim, C. Patzig, B. Rauschenbach, B. Fuhrmann, J. Xu, F. Zhang, A. Lakhtakia, 'Nanophotonic structures to control water quality', The 12th meeting on Optical Engineering and Science, Israel Tel Aviv, 23-24 March 2009. *Poster*.
6) **Karabchevsky**, C. Khare, C. Patzig, I. Abdulhalim, B. Rauschenbach, 'Metallic columnar nano-structured thin films for surface enhanced fluorescence and biosensing in water', FluoroFest09 Fluorescence Workshop, Prague Czech Republic, 3-6 May 2009. *Poster*.
7) **Karabchevsky**, C. Khare, C. Patzig, I. Abdulhalim, B. Rauschenbach,'Metallic columnar nano-structured thin films for surface enhanced fluorescence and biosensing in water', FluoroFest09 Fluorescence Workshop, Prague Czech Republic, 3-6 May 2009. *Oral*.
8) **Karabchevsky**, I. Abdulhalim, 'Enhanced Optical Transmission due to Double LSPR Excitation at Metal Grating Interfaces and its Advantage in Sensing', The 2nd Mediterranean Conference on Nano-Photonics, (MediNano-2), Athens Greece, 26-27 Oct 2009. *Oral*.
9) Shalabney, **A. Karabchevky**, C. Khare, C. Patzig, B. Rauschenbach, A. Lakhtakia, and I. Abdulhalim, 'Optimization of Sculptured Thin Films for Optical Signals Enhancement for Biosensing', The 2nd Mediterranean Conference on Nano-Photonics, (MediNano-2), Athens Greece, 26-27 Oct 2009. *Oral*.

10) **Karabchevsky**, S. Karabchevsky, I. Abdulhalim, 'Fast Surface Plasmon Resonance Imaging Sensor', The 3rd Mediterranean Conference on Nano-Photonics, (MediNano-3), Belgrade Serbia, 18-19 Oct 2010. *Oral*.
11) **Karabchevsky**, M. Auslender, I. Abdulhalim, 'Localized versus Extended Surface Plasmon Resonances excited in Nano-gratings with Nano-scale Thick-ness', NanoIsrael 2010, Tel-Aviv Israel, Nov 8-9 2010. *Poster*.
12) **Karabchevsky**, L. Tsapovsky, R. Marks, I. Abdulhalim, 'Endocrine Disruptor Nanolayer Detection using Surface Plasmon Resonance Imaging', NanoIsrael 2010, Tel-Aviv Israel, 8-9 Nov 2010. **This oral presentation was recognized with the First place in The 2nd International Nanotechnology Student Poster Award**. *Poster*.
13) **Karabchevsky**, L. Tsapovsky, R. Marks, I. Abdulhalim, 'Fast Surface Plasmon Resonance Imaging Sensor using Radon Transform and its Application in Biosensing', OASIS 2011, Tel-Aviv Israel 9-10 March 2010. *Poster*.
14) **Karabchevsky**, L. Tsapovsky, R. Marks, I. Abdulhalim, 'Metallic Nano-Sculptured Thin Films as Fluorescence Sensors for Biochemical Receptors Immobilized on Surfaces', OASIS 2011, Tel-Aviv Israel, 9-10 March 2011. *Poster*.
15) **Karabchevsky**, L. Tsapovsky, R. S. Marks, I. Abdulhalim, 'Optical immunosensor for endocrine disruptor nanolayer detection by surface plasmon resonance imaging', SPIE Optics and Photonics, San Diego USA, 2011. *Poster*.
16) **Karabchevsky**, C. Patzig, B. Rauschenbach, I. Abdulhalim, 'Microspot surface enhanced fluorescence from sculptured thin films for control of antibody immobilization', SPIE Optics and Photonics, San Diego 2011, USA. **This oral presentation was recognized with a Best SPIE Publishing Student Lecture Award**. *Oral*.
17) **Karabchevsky**, P. Hua, J. S. Wilkinson, 'Simple evanescent field sensor for NIR spectroscopy', 6th Mediterranean Conference on Nano-Photonics (MediNano6) Lyon France 30-31 Oct 2013. *Oral*.
18) Mosayyebi, **A. Karabchevsky**, J. S. Wilkinson, 'Nanoparticle-enhanced chemiluminescence in microflow injection analysis', 6th Mediterranean Conference on Nano-Photonics (MediNano-6) Lyon France 30-31 Oct 2013. *Poster*.
19) J. T. G. Butement, H. C. Hunt, D. J. Rowe, **A. Karabchevsky**, P. Hua, G. S.Murugan, O. Clark, C. Holmes, L. G. Carpenter, J. C. Gates, P. G. R. Smith,J. E. Chad, J. S. Wilkinson, 'A microflow cytometer for microsphere-based immunoassays using integrated optics and inertial particle focusing' Biosensors 14, Melbourne 27-30 May 2014. *Poster*.
20) **Karabchevsky**, M. N. Zervas, J. S. Wilkinson, 'Orthonormal complex hybrid guided mode coupling over a discontinuity in a plasmonic waveguide', XXII International Workshop on Optical Wave Waveguide Theory and Numerical Modelling (OWTNM 2014) Institute Fresnel, Nice 27-28 Jun 2014. *Oral*.
21) **Karabchevsky**, G. Buscemi, MIM. Abdul Khudus, P. G. Lagoudakis, M. N. Zervas and J. S. Wilkinson, 'Broadband near-infrared spectroscopy of organic molecules on compact photonic devices', 5th International Topical Meeting on Nanophotonics and Metamaterials (NANOMETA '15), Seefeld, Austria 5-8 Jan 2015. *Poster*.
22) **Karabchevsky**, 'Controlling absorption of light by molecules with integrated optics based systems', Impact on Energy, Environment, Health and Water, Ben-Gurion University of the Negev, Israel, 27 May - 1 Jun 2015. *Invited Oral*.
23) **Karabchevsky**, 'Disordered photonics: strong scattering and enhanced absorption in disordered molecular layers of primary amines', "Light in Science", International Conference, Ben-Gurion University of the Negev, Israel, 9 - 10 Jun 2015. *Oral*.
24) **Karabchevsky**, A. Mosayyebi, A. V. Kavokin, 'Glowing microfluidics', NanoIsrael Conference, Tel-Aviv University, Israel, 22 - 34 Feb 2016. *Poster*.

25) **Karabchevsky**[PI], 'Fano-resonance line shape of near-guided surface plasmon polariton coupling to molecular vibrational overtones', Mediterranean Institute of Fundamental Physics, Rome, Italy 22 - 26 Mar 2016. *Oral*.
26) **Karabchevsky**[PI], Y. Gorodetski[C], 'Plasmonic rac-and-pinion gear with chiral metasurfaces', SPIE Photonics Europe, Belgium, 3 - 7 Apr 2016. *Oral*.
27) **Karabchevsky**[PI], A. Shalabney[C], 'Strong interaction of molecular vibrational overtones with near-guided surface plasmon polariton', SPIE Photonics Europe, Belgium, 3 - 7 Apr 2016. *Oral*.
28) **Karabchevsky**[PI], A., Kavokin A. V., 'Enhanced molecular overtone absorption by light-on-a-chip', Meta16, Malaga Spain, 25-28 July 2016. *Oral.*
29) Katiyi, A., **Karabchevsky**[PI], A., 'Nano-tapers: squeezing light in a dielectric nano-guide for overtone spectroscopy', MetaNano, Anapa, Russia 5 - 9 Sep 2016. *Invited Talk.*
30) **Karabchevsky**[PI], A., 'Nanophotonics on a Chip: From Fundamentals to Emerging Applications', IVS 34th Annual Conference, Beer-Sheva, Israel 19 Sep 2016. *Invited Talk.* (oral)
31) **Karabchevsky**[PI], A., 'Glowing microfluidics without external light source', 34th Israeli Conference of Mechanical Engineering, Haifa, Israel 22-23 Nov 2016. *Invited Talk.* (oral)
32) Katiyi, A., Hadad, B., **Karabchevsky**[PI], A., 'Silicon Waveguides for Broadband overtone spectroscopy of N-Methylamine and Aniline in near-infrared, OASIS6, Tel Aviv, Israel 27-28 Feb 2017. (poster)
33) Galutin, Y., **Karabchevsky**[PI], A., 'Study of evanescent fields distortion perturbed by nanoparticle with metasurfaces on ridge waveguides', OASIS6, Tel Aviv, Israel 27-28 Feb 2017. (poster)
34) **Karabchevsky**[PI], A., 'Overtone spectroscopy with reconfigurable microfibers', OASIS6, Tel Aviv, Israel 27-28 Feb 2017. (oral)
35) **Karabchevsky**[PI], A., 'Near-infrared spectroscopy of aromatic amines on reconfigurable microfibers: unexpected enhancement of overtone absorption', Progress In Electromagnetics Research Symposium (PIERS), St Petersburg, Russia 22-25 May 2017. *Invited* (oral)
36) Terekhov, P. D., Baryshnikova, K.V., Shalin, A. S., **Karabchevsky**[PI], A. and Evlyukhin, A. B., 'Toroidal dipole associated resonant forward scattering of light by silicon nanoparticles', Progress In Electromagnetics Research Symposium (PIERS), St Petersburg, Russia 22-25 May 2017 (oral)
37) Galutin, Y., Falek, E., **Karabchevsky**[PI], A., 'Invisibility cloak scheme with composite plasmonic waveguides and metsurface overlayers', Progress In Electromagnetics Research Symposium (PIERS), St Petersburg, Russia 22-25 May 2017. (oral)
38) Terekhov, P.D., Baryshnikova, K.V., Artemyev, Y.A., Shalin, A.S., **Karabchevsky**[PI], **A**., Evlyukhin, A.B. 'Multipole optical response of silicon nanoparticles of different shape', Days on Diffraction 2017, St Petersburg, Russia ,19–23 June 2017 (oral).
39) Artemyev, Y.A., Shalin, A.S., Karabchevsky, A., 'Random all-dielectric anti-reflective metasurfaces on the waveguide facet ', SPIE OPTO 2018, San Francisco, California United States, 27 January - 1 February 2018. (oral).
40) Terekhov, P.D., Baryshnikova, K.V., Evlyukhin, A.B., Shalin, A.S., Karabchevsky, A.,'Excitation of high-order multipoles in Si metasurface', SPIE OPTO 2018, San Francisco, California United States, 27 January - 1 February 2018. (oral).
41) Terekhov, P.D., Baryshnikova, K.V., Artemyev, Y.A., Shalin, A.S., Karabchevsky, A., Evlyukhin, A.B., 'Optical multipole resonances of non-spherical silicon

nanoparticles and the influence of illumination direction', SPIE OPTO 2018, San Francisco, California United States, 27 January - 1 February 2018. (oral).

42) Artemyev, Y.A., Shalin, A.S., Karabchevsky, A., 'Multipole excitations in all-dielectric metamolecules and in organic molecules', SPIE OPTO 2018, San Francisco, California United States, 27 January - 1 February 2018. (oral).
43) Galutin, Y., Karabchevsky, A., 'Optical Response of Waveguide with Spatially Varying Anisotrpoic Scatterers'. When Light Meets Matter, Weizmann Institute of Science, Rehovot, Israel, January 14-15, 2018. Poster.
44) Samyshkin, V., Galutin, Y., Kutrovskaya, S., Kucherik, A., **Karabchevsky**, **A.**, 'Carbyne Based Metasurfaces Stabilized with Metallic Nanoparticles'. When Light Meets Matter, Weizmann Institute of Science, Rehovot, Israel, January 14-15, 2018. (Poster).
45) Vlolsky, N., Basharin, A. A., **Karabchevsky**, **A.**, 'Toroidal dipole excitation in nanoantennas embedded in different media', When Light Meets Matter, Weizmann Institute of Science, Rehovot, Israel, January 14-15, 2018. (Poster).
46) Dadadzhanov, DR, Vartanyan, T.A, **Karabchevsky**, **A.**, 'Quality factor of plasmonic nanoparticles for efficient emission of chemiluminescence', When Light Meets Matter, Weizmann Institute of Science, Rehovot, Israel, January 14-15, 2018. Poster.
47) Ang A.S., Minin I.V., Minin, V.M., Sukhov S.V., Shalin, A. S., **Karabchevsky**, **A.**, 'Photonic Hook as Nanoparticle Manipulator', When Light Meets Matter, Weizmann Institute of Science, Rehovot, Israel, January 14-15, 2018. Poster.
48) Katiyi, A., Galutin, Y., Hadad, B., **Karabchevsky, A.**, 'Deflected Talbot effect on nanostrip waveguides with inclusions' When Light Meets Matter, Weizmann Institute of Science, Rehovot, Israel, January 14-15, 2018. (Poster).
49) **Karabchevsky**, **A.**, Artemyev, Y.A., Volsky, N., Basharin, A.A, Shalin A.S., 'Shaping Light with an Inclusion: Contribution of Multipoles in Scattering Effect on Waveguide'. META Conference, Round-Trip Marsielle Cruise, 2018. (*Invited*)
50) Samyshkin, V., Galutin, Y., Kutrovskaya, S., Kucherik, A., **Karabchevsky**, **A.**, 'Carbyne Based Metasurfaces Stabilized with Metallic Nanoparticles'. META Conference, Round-Trip Marsielle Cruise, 2018. (oral)
51) **Karabchevsky**, **A.**, Galutin, Y., 'Anti-Reflective All-Dielectric Metasurfaces Engraved on an Optical Waveguide Facet'. META Conference, Round-Trip Marsielle Cruise, 2018. (oral)
52) Ang A.S., Minin I.V., Minin, V.M., Sukhov S.V., Shalin, A. S., **Karabchevsky**, **A.**, 'Low-contrast photonic hook manipulator for cellular differentiation'. META Conference, Round-Trip Marsielle Cruise, 2018. (*Invited*)
53) Katiyi, A, **Karabchevsky**, **A.**, 'Si Nanostrip Optical Waveguide for Molecular Overtone Spectroscopy'. META Conference, Round-Trip Marsielle Cruise, 2018. (*Invited*)
54) Dadadzhanov D.R., Vartanyan T.A., **A. Karabchevsky A.**, 'Light creation without pump: tuning plasmonic resonance for surface-enhanced chemiluminescence'. SPIE Optics and Photonics, NANOOP18, 2018, *(poster)*
55) Dadadzhanov D.R., Vartanyan T.A., A. **Karabchevsky A.**, 'Vibrational overtones spectroscopy enabled by plasmonic nanoantennas'. SPIE Optics and Photonics, San Diego, California United States, 19 August 2018 to 23 August 2018, (poster)
56) Dadadzhanov D.R., Vartanyan T.A., **Karabchevsky A.**, 'Luminol Chemiluminescence Enhancement in the Presence of Colloidal Plasmonic Nanoparticles'. PCNSPA 2018 - Photonic Colloidal Nanostructures: Synthesis, Properties, and Applications Saint Petersburg, June 4-8, 2018 (*poster)*
57) **Karabchevsky**, **A.**, 'Overtone spectroscopy on a chip: Overview of fundamentals and important applications', SPIE Photonics West 2019, (*Invited Talk)*

58) Terekhov, P.D., Baryshnikova, K.V., Babicheva, V. E., Shalin, A.S., **Karabchevsky**, **A.**, Evlyukhin, A.B. 'Transmission and reflection features of all-dielectrics metasurfaces with electric and magnetic resonances', SPIE Photonics West 2019 *Talk*.
59) Terekhov, P.D., Evlyukhin, A.B., Shalin, A.S., **Karabchevsky, A.**, 'High-refractive-index nanoparticles embedded in media: Multipole evolution and broadband forward scattering enhancement', SPIE Photonics West 2019 *Invited Talk*.
60) **Karabchevsky**, A., 'Light manipulation in silicon at nanoscale for efficient light absorption in energy harvesting devices', 22nd Sede Boqer Symposium on Solar Electricity Production, 24-25 Sep 2019. *Invited Talk*.
61) Terekhov, P. D., Shamkhi, H. K., Baryshnikova, K. V., Belov, P., Kivshar, Y., Babicheva, V., Sayanskiy, A., Kapitanova, P., Evlyukhin A. B. and **Karabchevsky**, A., 'Metasurface invisibility and Generalized Kerker-effect applications for dielectric nanophotonics', Nanophotonics and Micro/Nano Optics International Conference 2019, Munich, Germany, 4-6 Sep 2019. *Talk*.
62) **Karabchevsky**, A. and Hazan, A. 'All-optical switch with hybrid plasmonic molecular systems: sensing or switching?', Nonlinear metamaterials and photonic crystals 2019 Kfar Blum. *Talk*.
63) **Karabchevsky**, A. and Hazan, A., 'Metamaterials-based probing weak quantum absorber in coupled three-resonator system with guided wave surface plasmons: sensing or all-optical switching?', Meta19, Lisbon, Portugal, 23-26 Jul 2019. *Talk*.
64) Shamkhi, H. K., Baryshnikova, K. V., Sayanskiy, A., Kapitanova, P., Terekhov, P. D., **Karabchevsky**, A., Evlyukhin, A. B., Belov, P., Kivshar Y. and Shalin, A. S. 'Invisible metasurfaces based on high-order Kerker and anapole effects', Meta19, Lisbon, Portugal, 23-26 Jul 2019. *Talk*.
65) **Karabchevsky**, A. 'Overtone spectroscopy on a chip: Overview of fundamentals and important applications', SPIE Photonics West 2019, San Diego, California, USA, 5-7 Feb 2019. *Invited Talk*.
66) Terekhov, P. D., Baryshnikova, K. V., Babicheva, V. E., Shalin, A. S., **Karabchevsky** A. and Evlyukhin, A. B. 'Transmission and reflection features of all-dielectrics metasurfaces with electric and magnetic resonances', SPIE Photonics West 2019, San Diego, California, USA, 5-7 Feb 2019. *Talk*.
67) **Karabchevsky**, A. 'All-Optical Monitoring of Cancer Treatment Efficiency with Overtone Absorption Spectroscopy on Microfibers', OASIS7, Tel-Aviv, Israel, 1-2 Apr 2019. *Invited Talk*.
68) **Karabchevsky**, A. 'Light manipulation in silicon at nanoscale for efficient light absorption in energy harvesting devices', 22nd Sede Boqer Symposium on Solar Electricity Production, 24-25 Sep 2019. *Invited Talk*.
69) **Karabchevsky**, A. 'All-optical switch with hybrid plasmonic molecular systems: sensing or switching?', Nonlinear MetaMaterials and Photonic Crystals, Sep 2019. *Talk*
70) A. Karabchevsky, Y. Keren and I. V. Minin, 'Tuning the nanojet based on Babinet principle', Photonics and Plasmonics at the Mesoscale, Strasbourg, France, 29 Mar - 2 Apr 2020. *Invited Talk*

(d) Seminar presentations at universities and institutions

1. **A. Karabchevsky**, 'Waveguiding molecular signatures on waveguides', Hall University UK, 26 Nov 2014. *Invited*
2. **A. Karabchevsky**, 'Evanescent Spectroscopy - Theory and Experiment', Zepler Institute Southampton University UK, 7 Jul 2014. *Invited*

3. **A. Karabchevsky**, 'Towards Surface Enhanced IR Absorption (SEIRA) Spectroscopy on Waveguides', Nanophotonics and Metamaterials (NanoMeta) Seminar, Southampton University UK, 26 Jan 2015. *Guest speaker*
4. **A. Karabchevsky**, 'Molecules, Glass and Light', Electric and Computer Engineering, Technion IL, 5 May 2015. *Guest speaker*
5. **A. Karabchevsky**, 'Molecules, Glass and Light', Electrootpical Engineering, BIU IL, 13 July 2015. *Guest speaker*
6. **A. Karabchevsky**, 'Molecules, Glass and Light', Weizmann Institute of Science IL, 17 September 2015. *Guest speaker*
7. **A. Karabchevsky**, 'Integrated Photonic Devices', Applied Physics seminar, Hebrew University of Jerusalem IL, 21 October 2015. *Guest speaker*
8. **A. Karabchevsky**, 'Tuning the chemiluminescence of a luminol flow using integrated nanophotonic system', Biomedical Engineering, BGU IL, 18 May 2016. *Guest speaker*
9. **A. Karabchevsky**, 'Integrated Photonics for Molecular Science and Emerging Applications', The School of Chemistry, TAU IL, 10 November 2016. *Guest speaker*
10. **A. Karabchevsky**, 'Molecules, Glass and Light', Biotechnology Engineering, BGU, 12 Nov 2017. *Guest speaker*
11. **A. Karabchevsky**, 'Light-on-Chip', School of Electrical Engineering, Tel-Aviv University, TAU IL, 24 May 2018. *Guest speaker*
12. **A. Karabchevsky**, 'Light is fun: hooray let's play!', Outreach lecture for pupils, Lehavim school IL, 27 July 2018. *Guest speaker*
13. **A. Karabchevsky**, 'Manipulate with Light? So, hay, why pay!', SCD company, IL, 1 August 2018. *Guest speaker*
14. **A. Karabchevsky**, 'Novel concepts for fiber optics', Photonics Center at Soreq, IL, 6 August 2019. *Guest speaker*
15. **A. Karabchevsky**, 'Light Management in Engineered Efficient, Stable and Light-Scalable Systems', Moscow State University, Russian Federation, 19 September 2019. *Guest speaker*
16. **A. Karabchevsky**, 'Disorder mediated absorption in organic molecules', Russian Quantum Center (RQC), Russian Federation, 19 September 2019. *Guest speaker*

• **Patents**

1. **Alina Karabchevsky**, Moshe Elkabets, 'Cancer Treatment Monitor due to the Scattering-Induced Absorption', No 62/879.473, ApplDate: 28/07/2019 USA.
2. **Alina Karabchevsky**, Iospeh Gurewich, 'Structure for a waveguide facet', 11-17362/797,381, ApplDate: 28/01/2019 USA.
3. **Alina Karabchevsky**, 'Fabrication of thin and stiff carbon wires by electric field applied on linear carbon chains', No 62/727,010, ApplDate:05/09/2018, USA.
4. **Alina Karabchevsky**, 'System and Method for Creating an Invisible Cloak', No 11-155PCT/IL2018/051043, ApplDate: 17/09/2018 PCT.
5. **Alina Karabchevsky**, Boris Zabezhinsky, 'Guided Wave Device for Light Manipulation on Fibers', No 62/785,247, ApplDate: 20/12/2018 USA.
6. **Alina Karabchevsky**, Boris Zabezhinsky, 'Glass Melting Vessel for Manufacturing of Optical Fiber', No 62/768,919, ApplDate: 18/11/2018 USA.
7. **Alina Karabchevsky**, 'Method and device for near-infrared spectroscopy', No 11-14316/312,698, ApplDate: 25/06/2017 USA.
8. **Alina Karabchevsky**, 'Method and device for near-infrared spectroscopy', No 11-143PCT/IL2017/050703, ApplDate: 25/06/2017 PCT.
9. **Alina Karabchevsky**, 'Method and device for chemiluminescence-based analysis', No 11-142US16/312,821, ApplDate: 25/06/2017 USA.

10. **Alina Karabchevsky**, 'Method and device for chemiluminescence-based analysis', No 11-142PCT/IL2017/050701, ApplDate: 25/06/2017 PCT.

• **Research Grants**:
2019, Visiting Scientist Grant, **A. Karabchevsky**[PI], 3k$, 'Novel 2D material for optoelectronic applications.
2019-2021, GIF, **A. Karabchevsky**[PI] and S. Höfling, 'Quantum Photonics – Controlling emission of single-photon sources on a chip', 122k$, No funding. – received 3k$ encouragement grant from R&D.
2019-2021, BSF, **A. Karabchevsky**[PI], A. Kildishev[PI] and I Brener[PI], 'Hybrid Complexes Assembled from Molecules and Nano-Scale Plasmonic Films', 55k$, No funding. – received 3k$ encouragement grant from R&D.
2017-2019, KAMIN, **A. Karabchevsky**[PI], 'Random antireflective metasurfaces', 252k$.
2016-2018, MAFAT, **A. Karabchevsky**[PI], **'**Cloaking on a chip', 90k$.
2017-2018, Ben-Gurion University, **A. Karabchevsky**[PI], 'Broadband spectroscopy', 115k$.
2017-2018, Ben-Gurion University, **A. Karabchevsky**[PI] and M. Elkabetz[PI] **'**Integration of nano-photonic devices to study the efficiency of cancer treatment', 30k$.
2016, British Embassy, **A. Karabchevsky**[PI], 'UK-IL Science and Innovation Photonics Research Delegation', £80k