

## EDUCATION

- **Harvard School of Engineering and Applied Sciences** Cambridge, MA  
*PhD, Applied Physics* 2016
  - Dissertation: *Integrated metamaterials and nanophotonics in CMOS-compatible materials*
  - Advisor: Eric Mazur
  - Harvard Quantum Optics Fellowship (\$20k)
  - Natural Sciences and Engineering Research Council of Canada (NSERC) Postgraduate Doctoral Scholarship (\$63k)
  - Fonds de recherche du Québec — Nature et technologies (FQRNT) Doctoral Research Scholarship (\$60k — Awarded but declined)
- Master of Science, Applied Physics* 2012
  - FQRNT Masters Research Scholarship (\$40k)
- **McGill University** Montréal, QC  
*Bachelor of Science, Honours Physics* 2009
  - First Class Honours, magna cum laude
  - Thesis: *Fluctuations and Blueshift in Quantum Dot Emission Wavelength*
  - Advisor: Jay L. Nadeau
  - NSERC Undergraduate Student Research Award (\$4.5k)

## EMPLOYMENT

- **Milkshake Technology Inc.** Kingston, ON  
*Senior Optical Engineer* March 2022 – Present
- **Brilliant Nanophotonics Inc.** Ottawa, ON  
*Founder* June 2021 – Present
- **University of Ottawa, Department of Physics** Ottawa, ON  
*Postdoctoral Research Fellow* 2016 – 2022
  - Advisor: Robert W. Boyd
  - OSA Ambassador (2021)
  - NSERC Banting Postdoctoral Fellowship (\$140k)  
 $\oplus$  *Application ranked 4<sup>th</sup> in Canada.*
  - NSERC Postdoctoral Fellowship (\$90k — Awarded but declined)
- **Harvard School of Engineering and Applied Sciences** Cambridge, MA  
*Teaching Fellow* 2011 – 2014
  - Designed project-based learning course
  - Mechanics and Electricity & Magnetism

- **McGill University** Montréal, QC  
*Research Assistant to Professor Jay Nadeau* *Sep. 2008 – Jun. 2010*  
 – Quantum dot fluorescence microscopy and blinking statistics.
- **Concordia University** Montréal, QC  
*Research Assistant to Dr. Nathaniel Lasry* *Sep. 2007 – Jun. 2010*  
 – Peer Instruction: Studying students' understanding and learning process of physics.
- **McGill University** Montréal, QC  
*Research Assistant to Professor Hong Guo* *Summer 2008*  
 – Tight-binding band structure calculations of graphene and chiral carbon nanotubes.

## BOOK CHAPTERS

- **Reshef O.** & Boyd R. W. Nonlinear Optics. *Handbook of Laser Technology & Applications, 2nd Edition* (2021).
- **Reshef O.** & Nadeau J. Introduction to Nanofabrication. *Introduction to Experimental Biophysics, 2nd Edition* (2017).

## PATENTS

- “Space-compressing methods, materials, devices, and systems, and imaging devices and system using same,” filed February 3, 2020. Application No.: 62/969,595. Alhulaymi A. H., Bearne K. M., Boyd R. W., DelMastro M. P., Giner L., Lundeen J. S., **Reshef O.**
- “Direct entangled triplet-photon sources and methods for their design and fabrication,” U.S. Patent No. 9,470,956. 18 Oct. 2016. Evans C. C., Griesse-Nascimento S., Mazur E., Moebius M. G., **Reshef O.**
- “Integrated impedance-matched photonic zero-index metamaterials,” filed February 2, 2015. Application No.: PCT/US2015/014105. Kita S., Li Y., Lončar M., Mazur E., Muñoz P. A., **Reshef O.**, Vulis D. I.

## PUBLICATIONS

1. Choudhary S., Iqbal S., Karimi M., **Reshef O.**, Alam M. Z. & Boyd R. W. Strongly Coupled Plasmon Polaritons in Gold and Epsilon-Near-Zero Bifilms. *ACS Photonics* **10**, 162 – 169 (2023). doi:[10.1021/acsp Photonics.2c01412](https://doi.org/10.1021/acsp Photonics.2c01412)  
 ⊕ *Featured on cover of the issue.*
2. Shastri K., **Reshef O.**, Boyd R. W., Lundeen J. S. & Monticone F. To What Extent Can Space Be Compressed? Bandwidth Limits of Spaceplates. *Optica* **9** 738 – 745 (2022). doi:[10.1364/OPTICA.455680](https://doi.org/10.1364/OPTICA.455680).
3. Gagnon J. R.\*, **Reshef O.\***, Espinosa D. H. G., Alam M. Z., Vulis D. I., Knall E. N., Upham J., Li Y., Dolgaleva K., Mazur E. & Boyd R. W. Relaxed phase-matching constraints in zero-index waveguides. *Phys. Rev. Lett.* **128** 203902 (2022). doi:[10.1103/PhysRevLett.128.203902](https://doi.org/10.1103/PhysRevLett.128.203902).  
 ⊕ *Selected as PRL Editor's Suggestion.*

4. Lim T.-L., Vaddi Y., Saad-Bin-Alam M., Cheng L., Alaei R., Upham J., Huttunen M. J., Dolgaleva K., **Reshef O.** & Boyd R. W. Fourier-engineered plasmonic lattice resonances. *ACS Nano* **16** 5696 – 5703 (2022). doi:[10.1021/acsnano.1c10710](https://doi.org/10.1021/acsnano.1c10710)
5. Bin-Alam M. Saad, **Reshef O.**, Ahmad R. N., Upham J., Huttunen M. J., Dolgaleva K. & Boyd R. W. Cross-polarized surface lattice resonances in a rectangular lattice plasmonic metasurface. *Opt. Lett.* **47** 2197 – 2108 (2022). doi:[10.1364/OL.448813](https://doi.org/10.1364/OL.448813)
6. Pagé J., **Reshef O.**, Boyd R. W. & Lundeen J. S. Designing high-performance propagation-compressing spaceplates using thin-film multilayer stacks. *Opt. Express* **30** 2197 – 2205 (2022). doi:[10.1364/OE.443067](https://doi.org/10.1364/OE.443067)
7. Chaitanya N. A., Butt M. A., **Reshef O.**, Boyd R. W., Banzer P. & De Leon I. Lattice-plasmon-induced asymmetric transmission in two-dimensional chiral arrays. *APL Photonics* **7** 016105 (2022). doi:[10.1063/5.0074849](https://doi.org/10.1063/5.0074849)  
⊕ *Selected as Editor's pick.*
8. Skiles M., Yang E., **Reshef O.**, Muñoz D., Cintron D., Lind M. L., Rush A., Armani A., Faust K. & Kumar M. Conference demographics and footprint changed by virtual platforms. *Nat. Sustain.* (2021). doi:[10.1038/s41893-021-00823-2](https://doi.org/10.1038/s41893-021-00823-2)
9. Feng C. H., Moravec E., Nanut T., Raducha T., **Reshef O.**, Sivakumar C. & Williams L. A. The spectrum of early career physics. *Nat. Rev. Phys.* **3** 772 – 776 (2021). doi:[10.1038/s42254-021-00379-2](https://doi.org/10.1038/s42254-021-00379-2)
10. Pang K., Alam M. Z., Zhou Y., Liu C., **Reshef O.**, Manukyan K., Voegtle M., Pennathur A., Tseng C., Su X., Song H., Zhao Z., Zhang R., Song H., Hu N., Almainan A., Dawlaty J., Boyd R. W., Tur M. & Willner A. Adiabatic frequency conversion using a time-varying epsilon-near-zero metasurface. *Nano Lett.* **21** 5907 – 5913 (2021). doi:[10.1021/acsnanolett.1c00550](https://doi.org/10.1021/acsnanolett.1c00550)
11. Liu C., Alam M. Z., Pang K., Manukyan K., Hendrickson J. R., Smith E. M., Zhou Y., **Reshef O.**, Song H., Zhang R., Song H., Alishahi F., Fallahpour A., Almainan A., Boyd R. W., Tur M. & Willner A. E. Tunable Doppler shift using a time-varying epsilon-near-zero thin film near 1550 nm. *Opt. Lett.* **46** 3444 – 3447 (2021). doi:[10.1364/OL.430106](https://doi.org/10.1364/OL.430106)  
⊕ *Selected as Editor's pick.*
12. **Reshef O.**, DelMastro M. P., Bearne K. M., Alhulaymi A. H., Giner L., Boyd R. W. & Lundeen J. S. An optic to replace space and its application towards ultra-thin imaging systems. *Nat. Commun.* **12** 3512 (2021). doi:[10.1038/s41467-021-23358-8](https://doi.org/10.1038/s41467-021-23358-8)  
⊕ *Among the 25 most downloaded Nat. Commun. articles in physics published in 2021. (more)*
13. Liu C., Alam M. Z., Pang K., Manukyan K., **Reshef O.**, Zhou Y., Choudhary S., Patrow J., Pennathur A., Song H., Zhao Z., Zhang R., Alishahi F., Fallahpour A., Cao Y., Almainan A., Dawlaty J., Tur M., Boyd R. W. & Willner A. Photon acceleration using a time-varying epsilon-near-zero metasurface. *ACS Photonics* **8** 716 – 720 (2021). doi:[10.1021/acsp Photonics.0c01929](https://doi.org/10.1021/acsp Photonics.0c01929)
14. Saad-Bin-Alam M.\*, **Reshef O.\***, Mamchur Y., Alam M. Z., Carlow G., Upham J., Sullivan B., Ménard J.-M., Huttunen M. J., Boyd R. W. & Dolgaleva K. Ultra-high-*Q* resonances in plasmonic metasurfaces. *Nat. Commun.* **12** 974 (2021). doi:[10.1038/s41467-021-21196-2](https://doi.org/10.1038/s41467-021-21196-2)
15. Suresh S., **Reshef O.**, Alam M. Z., Upham J., Karimi M. & Boyd R. W. Enhanced nonlinear optical responses of layered epsilon-near-zero metamaterials at visible frequencies. *ACS Photonics* **8** 125 – 129 (2021). doi:[10.1021/acsp Photonics.0c01178](https://doi.org/10.1021/acsp Photonics.0c01178)  
⊕ *Top cited paper of 2021.*

16. Lobet M.\*, Liberal I.\*, Knall E., Alam M. Z., **Reshef O.**, Boyd R. W., Engheta N. & Mazur E. Fundamental radiative processes in near-zero-index media of various dimensionalities. *ACS Photonics* **7** 1965 – 1970 (2020). doi:[10.1021/acsp Photonics.0c00782](https://doi.org/10.1021/acsp Photonics.0c00782)
17. Gingras L., Jaber A., Maleki A., **Reshef O.**, Dolgaleva K., Boyd R. W., & Ménard J.-M. Ultrafast modulation of the spectral filtering properties of a THz metasurface. *Opt. Express* **28** 20296 – 20304 (2020). doi:[10.1364/OE.395508](https://doi.org/10.1364/OE.395508)
18. **Reshef O.**, Aharonovich I., Armani A., Gigan S., Grange R., Kats M. A. & Sapienza R. How to organize an online conference. *Nat. Rev. Mater.*, **5** 253 – 256 (2020). doi:[10.1038/s41578-020-0194-0](https://doi.org/10.1038/s41578-020-0194-0)
19. Zhou Y.\*, Alam M. Z.\*, Karimi M., Upham J., **Reshef O.**, Liu C., Wilner A. W. & Boyd R. W. Broadband adiabatic frequency conversion through time refraction using an epsilon-near-zero material. *Nat. Commun.*, **11** 2180 (2020). doi:[10.1038/s41467-020-15682-2](https://doi.org/10.1038/s41467-020-15682-2)
20. D’Mello Y., **Reshef O.**, Bernal S., El-fiky E., Wang Y., Jacques M., & Plant D. V. Integration of Sub-wavelength Structures with Silicon Photonic Devices. *IET Optoelectronics*, **14** 125 – 135 (2020). doi:[10.1049/iet-opt.2019.0077](https://doi.org/10.1049/iet-opt.2019.0077)
21. Tsakmakidis K. L., **Reshef O.**, Almpanis E., Zouros G. P., Mohammadi E., Saadat D., Sohrabi F., Fahimi-Kashani N., Etezadi D., Boyd R. W. & Altug H. Ultrabroadband 3D invisibility with fast-light cloaks. *Nat. Commun.*, **10** 4859 (2019). doi:[10.1038/s41467-019-12813-2](https://doi.org/10.1038/s41467-019-12813-2)
22. **Reshef O.**, Saad-Bin-Alam M., Huttunen M. J., Carlow G., Sullivan B., Ménard, J.-M., Dolgaleva K. & Boyd R. W. Multiresonant high-*Q* plasmonic metasurfaces. *Nano Lett.*, **19** 6429 – 6434 (2019). doi:[10.1021/acs.nanolett.9b02638](https://doi.org/10.1021/acs.nanolett.9b02638)
23. **Reshef O.**, De Leon I., Alam M. Z., & Boyd R. W. Nonlinear optical effects in epsilon-near-zero media. *Nat. Rev. Mater.* **4**, 535 – 551 (2019). doi:[10.1038/s41578-019-0120-5](https://doi.org/10.1038/s41578-019-0120-5)
24. Huttunen M. J., **Reshef O.**, Stolt T., Dolgaleva K., Boyd R. W. & Kauranen M. Efficient nonlinear metasurfaces by using multiresonant high-*Q* plasmonic arrays. *J. Opt. Soc. Am. B* **36**, E30 – E35 (2019). doi:[10.1364/JOSAB.36.000E30](https://doi.org/10.1364/JOSAB.36.000E30)
25. Vulis D., **Reshef O.**, Camayd-Muñoz P. & Mazur E. Manipulating the Flow of Light using Dirac-cone Zero-Index Metamaterials. *Rep. Prog. Phys.* **82**, 012001 (2019). doi:[10.1088/1361-6633/aad3e5](https://doi.org/10.1088/1361-6633/aad3e5)
26. Shneidman A.\*, Becker K.\*, Lukas M., Torgerson N., Wang C., **Reshef O.**, Hui P., Paul K., McLellan J. & Lončar M. High quality all-polymer integrated optical resonators by roll-to-roll nanoimprint lithography. *ACS Photonics* **5**, 3225 – 3228 (2018). doi:[10.1021/acsp Photonics.8b00022](https://doi.org/10.1021/acsp Photonics.8b00022)
27. Kang S., Evans C. C., Shukla S., **Reshef O.** & Mazur E. Patterning and reduction of graphene oxide using femtosecond-laser irradiation. *Opt. Laser Technol.* **103**, 340 – 345 (2018). doi:[10.1016/j.optlastec.2018.01.059](https://doi.org/10.1016/j.optlastec.2018.01.059)
28. **Reshef O.\***, Camayd-Muñoz P.\*, Vulis D. I., Li Y., Lončar M. & Mazur E. Direct observation of phase-free propagation in a silicon waveguide. *ACS Photonics* **4**, 2385 – 2389 (2017). doi:[10.1021/acsp Photonics.7b00760](https://doi.org/10.1021/acsp Photonics.7b00760)  
 ⊕ *Featured on cover of the issue.*  
 ⊕ *Selected as Editor’s choice by APS Physics. ([more](#))*
29. **Reshef O.**, Giese E., Alam M. Z., De Leon I., Upham J. & Boyd R. W. Beyond the perturbative description of the nonlinear optical response of low-index materials. *Opt. Lett.* **42**, 3225 – 3228 (2017). doi:[10.1364/OL.42.003225](https://doi.org/10.1364/OL.42.003225)

30. Vulis D. I.\*, Li Y.\*, **Reshef O.\***, Yin M., Camayd-Muñoz P., Lončar M. & Mazur E. Monolithic CMOS-compatible zero-index metamaterials. *Opt. Express* **25**, 12381 – 12399 (2017). doi:[10.1364/OE.25.012381](https://doi.org/10.1364/OE.25.012381)
31. **Reshef O.**, Moebius M. G. & Mazur E. Extracting loss from asymmetric resonances in micro-ring resonators. *J. Opt.* **19**, 065804 (2017). doi:[10.1088/2040-8986/aa7006](https://doi.org/10.1088/2040-8986/aa7006)  
 ⊕ *Featured as the “Paper of the Week,” May 22 – 29, 2017. (more)*
32. Kita S., Li Y., Camayd-Muñoz P., **Reshef O.**, Vulis D. I., Day, R. W., Mazur E., Lieber C. & Lončar M. On-chip all-dielectric fabrication-tolerant zero-index metamaterials. *Opt. Express* **25**, 8326 – 8334 (2017). doi:[10.1364/OE.25.008326](https://doi.org/10.1364/OE.25.008326)
33. Moebius M. G., Herrera F., Griesse-Nascimento S., **Reshef O.**, Evans C. C., Guerreschi G. G., Aspuru-Guzik A. & Mazur E. Efficient photon triplet generation in integrated nanophotonic waveguides. *Opt. Express* **24**, 9932 – 9954 (2016). doi:[10.1364/OE.24.009932](https://doi.org/10.1364/OE.24.009932)
34. Li Y.\*, Kita S.\*, Muñoz P., **Reshef O.**, Vulis D. I., Yin M., Lončar M. & Mazur E. On-chip zero-index metamaterials. *Nature Photon.* **9**, 738 – 742 (2015). doi:[10.1038/nphoton.2015.198](https://doi.org/10.1038/nphoton.2015.198)  
 ⊕ *Featured on cover of the issue.*  
 ⊕ *Highlighted in the Boston Globe, Engadget, Gizmodo, among others. (more)*
35. **Reshef O.**, Shtyrkova K., Moebius M. G., Griesse-Nascimento S., Spector S., Evans C. C., Ippen E. & Mazur E. Polycrystalline anatase titanium dioxide micro-ring resonators with negative thermo-optic coefficient. *J. Opt. Soc. Am. B.* **32**, 2288 – 2293 (2015). doi:[10.1364/JOSAB.32.002288](https://doi.org/10.1364/JOSAB.32.002288)
36. Evans C. C., Shtyrkova K., **Reshef O.**, Moebius M. G., Bradley J. D. B., Griesse-Nascimento S., Ippen E. & Mazur E. Multimode phase-matched third-harmonic generation in sub-micrometer-wide anatase TiO<sub>2</sub> waveguides. *Opt. Express* **23**, 7832 – 7841 (2015). doi:[10.1364/OE.23.007832](https://doi.org/10.1364/OE.23.007832)
37. Evans C. C., Shtyrkova K., Bradley J. D. B., **Reshef O.**, Ippen E. & Mazur E. Spectral broadening in anatase titanium dioxide waveguides at telecommunication and near-visible wavelengths. *Opt. Express* **21**, 18582 – 18591 (2013). doi:[10.1364/OE.21.018582](https://doi.org/10.1364/OE.21.018582)
38. Bradley J. D. B., Evans C. C., Choy J. T., **Reshef O.**, Deotare P. B., Parsy F., Phillips K. C., Lončar M. & Mazur E. Submicrometer-wide amorphous and polycrystalline anatase TiO<sub>2</sub> waveguides for microphotonic devices. *Opt. Express* **20**, 23821 – 23831 (2012). doi:[10.1364/OE.20.023821](https://doi.org/10.1364/OE.20.023821)
39. Lasry N., Rosenfield S., Dedic H., Dahan A. & **Reshef O.** Reply to “Comment on ‘The puzzling reliability of the Force Concept Inventory,’ by N. Lasry, S. Rosenfield, H. Dedic, A. Dahan, and O. Reshef [Am. J. Phys. 79, 909 – 912 (2011)]” *Am. J. Phys.* **80**, 350 (2012). doi:[10.1119/1.3660663](https://doi.org/10.1119/1.3660663)
40. Lasry N., Rosenfield S., Dedic H., Dahan A. & **Reshef O.** The puzzling reliability of the Force Concept Inventory. *Am. J. Phys.* **79**, 909 – 912 (2011). doi:[10.1119/1.3602073](https://doi.org/10.1119/1.3602073)

## TEACHING EXPERIENCE

<b>Teaching Fellow</b>	Mechanics. Harvard University	Fall 2014
<b>Teaching Fellow</b>	Mechanics and Electricity & Magnetism. Harvard University	2012 – 2013
<b>Course Designer</b>	Mechanics and Electricity & Magnetism. Harvard University	2011 – 2012
<b>Substitute Teacher</b>	History, Math, Chemistry. Herzliah High School	Fall 2009
<b>Grading Assistant</b>	Mechanics and Electricity & Magnetism. John Abbott College	2007 – 2009
<b>Peer Tutor</b>	Calculus, Mechanics, Waves, Chemistry. Dawson College.	Fall 2005

## FUNDING

### Co-authored awarded research grants

Application of a space compressing optic to sensors NSERC Idea to Innovation, \$125K	2021 – 2022
Giant Nonlinear Response of ENZ Metastructures DARPA HR001118S0014-NLM-FP-012, \$3M	2018 – 2022
Integrated Photonic Chips for Generating Entangled Photon Triplets NSF PHY-1415236, \$450K	2014 – 2017
Low-Loss, Impedance-Matched Dirac-Cone Metamaterials for Integrated Optics NSF DMR-1360889, \$400K	2014 – 2016
TiO <sub>2</sub> Ultrafast All-Optical Devices NSF ECCS-1201976, \$375K	2012 – 2015

## CONFERENCE PARTICIPATION

1. Novel Optical Materials and Applications. *Committee member*. **OSA Advanced Photonics Congress, Maastricht, NL** July 24 – 28, (2022).
2. Metasurfaces and Metadevices. *Session president*. **OSA Advanced Photonics Congress Montréal, QC** July 29, (2021).
3. Novel Optical Materials and Applications. *Committee member*. **OSA Advanced Photonics Congress, Montréal, QC** July 26 – 29, (2021).
4. **Reshef O.** *Conference co-chair*. **Photonics Online Meetup January Meeting, Worldwide** January 11 – 14, (2021).
5. **Reshef O.** *Conference co-chair*. **Canadian Photonics Online Meetup (canPOM)** December 4, (2020).
6. Nanophotonics. *Session president*. **OSA Advanced Photonics Congress Montréal, QC** July 13, (2020).
7. Novel Optical Materials and Applications. *Committee member*. **OSA Advanced Photonics Congress, Montréal, QC** July 13 – 16, (2020).
8. **Reshef O.** *Operations Lead*. **Photonics Online Meetup June Meeting, Worldwide** June 22 – 25, (2020).
9. **Reshef O.** *Conference co-chair*. **Photonics Online Meetup, Worldwide** January 13, (2020).  
⊕ *Highlighted in Nature Photonics, Nature Reviews Materials, Optics & Photonics News, among others.* ([more](#))
10. Novel Photonic Platforms. *Session president*. **OSA Advanced Photonics Congress, Zurich, SUI** July 5, (2018).

## ORAL PRESENTATIONS

1. **Reshef O.** Inverse-designed space-compressing optics. *Invited talk*. **Photonics West On Demand** February, (2022).



2. **Reshef O.** Spaceplates: space-compressing optics for monolithic imaging systems. *Seminar.* **University of St Andrews, St Andrews, UK** Sept 21, (2021).
3. **Reshef O.** Spaceplates: space-compressing optics for monolithic imaging systems. *Seminar.* **Waller group, University of California, Berkeley, CA** July 23, (2021).
4. **Reshef O.** Spaceplates: space-compressing optics for monolithic imaging systems. *Seminar.* **Capasso group, Harvard University, Cambridge, MA** July 16, (2021).
5. **Reshef O.** Space-compressing optics for monolithic imaging systems. *Invited talk.* **Virtual Complex Nanophotonics Science Camp** July 31, (2021).
6. **Reshef O.** Inverse-designed space-compressing optics. *Invited talk.* **Photonics North, Virtual** May 31, (2021).
7. **Reshef O.** Nonlinear plasmonic metasurfaces using multiresonant surface lattice resonances. *Invited, Webinar.* **OSA Metamaterials Technical Group** November 23, (2020).
8. **Reshef O.** Zero-Index Metamaterials. *Invited, Campfire session.* **OSA Optoelectronics Technical Group** October 27, (2020).
9. **Reshef O.**, Saad-Bin-Alam M., Mamchur Y., Alam M. Z., Carlow G., Upham J., Sullivan B. T., Ménard, J.-M., Huttunen M. J., Dolgaleva K. & Boyd R. W. Ultra-High-Q Resonance in a Plasmonic Metasurface. *Contributed talk.* **OSA Advanced Photonics Congress, Montréal, QC** July 15, (2020).
10. **Reshef O.** Nonlinear plasmonic metasurfaces using multiresonant surface lattice resonances. *Seminar.* **Macquarie University, Sydney, Au** June 17, (2020).
11. **Reshef O.** *Invited, but canceled due to COVID-19 Pandemic.* **CAP Congress, Hamilton, ON** June (2020).
12. **Reshef O.**, Saad-Bin-Alam M., Chaitanya N. A., Stolt T., Hogan R., Karimi M., Alam M. Z., Carlow G., Sullivan B., De Leon I., Ménard, J.-M., Huttunen M. J., Dolgaleva K. & Boyd R. W. Nonlinear plasmonic metasurfaces using multiresonant surface lattice resonances. *Invited talk.* **CLEO: Science and Innovations, San Jose, CA** May 10, (2020).
13. **Reshef O.**, Camayd-Muñoz P., Vulis D., Li Y., Lončar M. & Mazur E. Integrated Zero-Index Metamaterials and Waveguides *Invited talk.* **SPb-POEM, Saint Petersburg, Ru** April 29, (2020).
14. **Reshef O.** Dividing by zero — infinite velocities and unbounded nonlinear optics in low-index media. *Seminar.* **Queen's University at Kingston, Kingston, ON** February 11, (2020).
15. **Reshef O.**, DelMastro M., Bearne K., Alhulaymi A., Giner L., Boyd R. W. & Lundeen J. S. Towards ultra-thin monolithic imaging systems: introduction of an optic that mimics space. *Contributed talk.* **SPIE Photonics West, San Francisco, CA** February 6, (2020).
16. **Reshef O.** *Invited talk but declined.* **Workshop on Complex Materials for Nonlinear Optics, Zurich, SUI** January (2020).
17. **Reshef O.**, Nacke C. H., Upham J. & Boyd R. W. Waveguide-to-waveguide directional coupling beyond a free space wavelength. *Contributed talk.* **Photonics North, Québec, QC** May 22, (2019).

18. **Reshef O.**, Nacke C. H., Upham J. & Boyd R. W. Waveguide-to-waveguide directional coupling beyond a free space wavelength. *Contributed talk*. **CLEO: Science and Innovations, San Jose, CA** May 10, (2019).
19. **Reshef O.** Dividing by zero — infinite velocities and unbounded nonlinear optics in low-index media. *Seminar*. **Polytechnique Montréal, Montréal, QC** October 23, (2018).
20. **Reshef O.**, Camayd-Muñoz P., Vulis D., Li Y., Lončar M. & Mazur E. Integrated Zero-Index Metamaterials and Waveguides. *Invited talk*. **OSA Advanced Photonics Congress, Zurich, SUI** July 5, (2018).
21. **Reshef O.**, Boyd R. W. Epsilon-near-zero and zero-index materials. *Contributed talk*. **McGill University Ultrafast Workshop, Montréal, QC** June 7, (2018).
22. **Reshef O.**, Boyd R. W. Epsilon-near-zero and zero-index materials. *Contributed talk*. **Max Planck Centre Annual Meeting, Ottawa, ON** October 11, (2017).
23. **Reshef O.**, Giese E., Alam A. Z., De Leon I., Upham J., Boyd R. W. Beyond the perturbative description of the nonlinear optical response of low-index materials. *Contributed talk*. **Photonics North, Ottawa, ON** June 8, (2017).
24. **Reshef O.**, Camayd-Muñoz P., Vulis D., Li Y., Lončar M. & Mazur E. Integrated zero-index waveguides. *Contributed talk*. **Photonics North, Ottawa, ON** June 6, (2017).
25. **Reshef O.**, Camayd-Muñoz P., Vulis D., Li Y., Lončar M. & Mazur E. Integrated zero-index waveguides. *Contributed talk*. **CLEO: QELS Applications and Technology, San Jose, CA** May 15, (2017).
26. **Reshef O.**, Giese E., Alam A. Z., De Leon I., Upham J., Boyd R. W. Nonlinear optical response of highly nonlinear low-index materials. *Invited talk*. **PQE, Snowbird, Utah** January 12, (2017).
27. **Reshef O.**, Li Y., Yin M., Christakis L., Vulis D., Camayd-Muñoz P., Kita S., Lončar M. & Mazur E. Phase-Matching in Dirac-Cone-Based Zero-Index Metamaterials. *Contributed talk*. **CLEO: QELS Applications and Technology, San Jose, CA** June 7, (2016).
28. **Reshef O.**, Raymond A. W., Li Y., Muñoz P., Yin M., Vulis D., Christakis L., Kita S., Lončar M. & Mazur E. Nonlinear optics in on-chip zero-index metamaterials. *Seminar*. **Université de Montréal, Montréal, QC** November 23, (2015).
29. **Reshef O.**, Li Y., Muñoz P., Yin M., Vulis D., Christakis L., Kita S., Lončar M. & Mazur E. Nonlinear Phase-Matching in 2D Integrated Zero-Index Metamaterials. *Contributed talk*. **MRS Optical Metamaterials — From New Plasmonic Materials to Metasurface Devices, Boston, MA** December 2, (2015).  
 $\oplus$  *Winner of NKT Photonics Best Student Paper Award.* ([more](#))
30. **Reshef O.**, Shtyrkova K., Moebius M. G., Evans C. C., Griesse-Nascimento S., Ippen E. & Mazur E. Polycrystalline anatase micro-ring resonators at telecommunication wavelengths. *Contributed talk*. **CLEO: Science and Innovations, San Jose, CA** June 9, (2014).
31. **Reshef O.**, Evans C. C., Bradley J. D. B., Griesse-Nascimento S. & Mazur E. Titanium dioxide for nanophotonics. *Invited talk*. **SPIE Optics + Photonics — Nanophotonic Materials X, San Diego, CA** August 29, (2013).
32. **Reshef O.**, Evans C. C., Griesse-Nascimento S., Bradley J. D. B. & Mazur E. Maximizing intensity in TiO<sub>2</sub> waveguides for nonlinear optics. *Poster presentation*. **SPIE Photonics West, San Francisco, CA** February 6, (2013).



33. Evans C. C.\*, **Reshef O.\***, Bradley J. D. B., Choy J. T., Deotare P. B., Lončar M. & Mazur E. TiO<sub>2</sub> nanophotonic waveguides for on-chip nonlinear optical devices. *Contributed talk. SPIE Photonics West, San Francisco, CA* January 23, (2012).
34. **Reshef O.**, Turner M., Carlini L., Nadeau J. Spectral shifts and spectral jumps in quantum dots by colour. *Contributed talk. CAP Congress, Moncton, NB* June 8, (2009)

## PROCEEDING PAPERS

1. DelMastro M. P., **Reshef O.**, Bearne K. K. M., Alhulaymi A. H., Giner L., Boyd R. W. & Lundeen J. S. A Space Compression Optic. In *OSA Frontiers in Optics FM1A.6* Washington, DC (2020)
2. Pagé J., **Reshef O.**, Alhulaymi A. H., Boyd R. W. & Lundeen J. S. Using Inverse Design to Design a Space-Compressing Optic. In *OSA Frontiers in Optics FTh5C.5* Washington, DC (2020)
3. Maleki A., Jaber Ah., Gingras L, **Reshef O.**, Dolgaleva K., Boyd R. W. & Ménard, J.-M. FDTD analysis of a tunable THz plasmonic metasurface. In *OSA Frontiers in Optics FM7E.4* Washington, DC (2020)
4. Mobini E., **Reshef O.**, Boyd R. W. & Dolgaleva K. Zero-Index Medium Based on an AlGaAs Platform. In *OSA APC: Integrated Photonics Research ITu4A.3* Montréal, QC (2020)
5. **Reshef O.**, Saad-Bin-Alam M., Mamchur Y., Alam M. Z., Carlow G., Upham J., Sullivan B. T., Ménard, J.-M., Huttunen M. J., Dolgaleva K. & Boyd R. W. Ultra-High-Q Resonance in a Plasmonic Metasurface. In *OSA APC: Novel Optical Materials and Applications. OSA Advanced Photonics Congress NoW1C.3* Montréal, QC (2020)
6. DelMastro M., **Reshef O.**, Bearne K., Alhulaymi L., Giner L, Boyd R. W. & Lundeen J. A Space Compression Optic. In *OSA APC: Novel Optical Materials and Applications NoW1C.2* Montréal, QC (2020)
7. Jaber A., Gingras L., Maleki A., **Reshef O.**, Dolgaleva K., Boyd R. W. & Ménard J. Ultrafast Optical Control of a Terahertz Metasurface Filter. In *OSA APC: Novel Optical Materials and Applications NoM4C.1* Montréal, QC (2020)
8. Gagnon J., **Reshef O.**, Alam M. Z., Espinosa D., Upham J., Dolgaleva K., Mazur E. & Boyd R. W. Omni-directional phase matching in integrated zero-index media. In *OSA APC: Nonlinear Photonics NpTh2D.2* Montréal, QC (2020)
9. Saad-Bin-Alam M., **Reshef O.**, Mamchur Y., Carlow G., Sullivan B., Ménard J.-M., Huttunen M. J., Dolgaleva K & Boyd R. W. Ultra-High-Q Resonance in a Plasmonic Metasurface. In *CLEO: QELS Fundamental Science FF3E.3* San Jose, CA (2019).
10. Liu C., Alam M. Z., Pang K., Manukyan K., Hendrickson J., Smith E., Zhou Y., **Reshef O.**, Song H., Zhang R., Song H., Alishahi F., Fallahpour A., Almainan A., Boyd R. W., Tur M. & Willner A. Experimental Demonstration of Self-Phase-Modulation Induced Wavelength Shift in an 80-nm thick ITO-ENZ Material in the Telecom c Band. In *CLEO: QELS Fundamental Science FTu3Q.5* San Jose, CA (2020).
11. Pank K., Alam M. Z., Zhou Y., **Reshef O.**, Liu C., Manukyan K., Voegtle M., Pennathur A., Tseng C., Su X., Song H., Zhao Z., Zhang F., Song H., Hu N., Almainman A., Dawlaty J.,

- Boyd R. W., Tur M. & Willner A. Plasmonic Nanoantenna-Enhanced Adiabatic Wavelength Conversion using a Time-varying Epsilon-near-zero-based Metasurface. In *CLEO: QELS Fundamental Science* **FTh4Q.6** San Jose, CA (2020).
12. **Reshef O.**, Saad-Bin-Alam M., Chaitanya N., Stolt T., Hogan R., Karimi M., Alam M. Z., Carlow G., Sullivan B., De Leon I., Ménard J., Huttunen M., Dolgaleva K. & Boyd R. W. Nonlinear plasmonic metasurfaces using multiresonant surface lattice resonances. In *CLEO: Applications and Technology* **JM1G.5** San Jose, CA (2020).
  13. DelMastro M., **Reshef O.**, Bearne K., Alhulaymi L., Giner L, Boyd R. W. & Lundeen J. A Space Compression Optic. In *CLEO: QELS Fundamental Science* **FW4Q.4** San Jose, CA (2020).
  14. Saad-Bin-Alam M., **Reshef O.**, Huttunen M. J., Carlow G., Sullivan B., Ménard J.-M., Boyd R. W. & Dolgaleva K. Hybrid plasmonic high Q-factor resonances in a periodic metasurface. In *Frontiers in Optics* **JW3A.21** Washington, DC (2019).
  15. Suresh S., **Reshef O.**, Alam M. Z., Upham J., Karimi M. & Boyd R. W. Large optical nonlinearity in Epsilon-Near-Zero metamaterials in the visible regime. In *Frontiers in Optics* **JW3A.21** Washington, DC (2019).
  16. Alam M. Z., Zhou Y., Karimi M., Upham J., **Reshef O.**, Liu C., Willner A. & Boyd R. W. Epsilon-near-zero Material for Time Refraction. In *Nonlinear Optics* **NTh3A.4** Waikoloa, HI (2019).
  17. Huttunen M. J., **Reshef O.**, Stolt T., Dolgaleva K., Boyd R. W., & Kauranen M. Efficient Nonlinear Plasmonic Metasurfaces. In *European Quantum Electronics Conference* **paper ef\_1\_5** Munich, Germany (2019).
  18. Huttunen M. J., Stolt T., **Reshef O.**, Kiviniemi A., Czaplicki R., Zang X., Vartiainen I., Butet J., Kuittinen M., Martin O. J. F., Dolgaleva K., Boyd R. W., & Kauranen M. Towards Efficient Nonlinear Plasmonic Metasurfaces. In *2019 21st International Conference on Transparent Optical Networks (ICTON)* **p1-4** Angers, France (2019).
  19. Braverman B., Skerjanc A., **Reshef O.**, Upham J., & Boyd R. W. Spatial Mode Multiplexing with Integrated Optics. In *Rochester Conference on Coherence and Quantum Optics (CQO-11)* **W6A.9** Rochester, NY (2019).
  20. **Reshef O.**, Nacke C. H., Upham J. & Boyd R. W. Waveguide-to-waveguide directional coupling beyond a free space wavelength. In *CLEO: Science and Innovations* **SF1J.6** San Jose, CA (2019).
  21. Saad-Bin-Alam M., **Reshef O.**, Huttunen M. J., Carlow G., Sullivan B., Ménard J.-M., Dolgaleva K. & Boyd R. W. High-Q resonance train in a plasmonic metasurface. In *CLEO: QELS Fundamental Science* **FM3C.4** San Jose, CA (2019).
  22. Liu C., Pang K., Manukyan K., **Reshef O.**, Zhou Y., Patrow J., Pennathur A., Song H., Zhao Z., Zhang R., Alishahi F., Fallahpour A., Cao Y., Almainan A., Dawlaty J. M., Chaitanya N. A., De Leon I., Alam M. Z., Boyd R. W., Tur M. & Willner A. Resonance Splitting and Enhanced Optical Nonlinearities in ITO-based Epsilon-near-zero Metasurface with Cross-shaped Nanoantennas. In *CLEO: QELS Fundamental Science* **FW4B.5** San Jose, CA (2019).
  23. Zhou Y., Karimi M., Upham J., **Reshef O.**, Liu C., Willner A., Alam M. Z. & Boyd R. W. Frequency conversion through time refraction using an epsilon-near-zero material. In *CLEO: QELS Fundamental Science* **FF1B.3** San Jose, CA (2019).

24. **Reshef O.**, Camayd-Muñoz P., Vulis D., Li Y., Lončar M. & Mazur E. Integrated Zero-Index Metamaterials and Waveguides. In *OSA APC: Integrated Photonics Research ITh3J.3* Zurich, SUI (2018).
25. Vulis D., Camayd-Muñoz P., Li Y., **Reshef O.**, Lončar M & Mazur E. Integrated zero-index supercouplers. In *Frontiers in Optics JW3A.108* Washington, DC (2017).
26. Boyd R. W., **Reshef O.**, Giese E., Alam M. Z., Upham J. & De Leon I. Beyond the perturbative description of the nonlinear optical response of highly nonlinear, epsilon-near-zero materials. In *Nonlinear Optics NW1A.2* Waikoloa, HI (2017).
27. **Reshef O.**, Camayd-Muñoz P., Vulis D., Li Y., Lončar M. & Mazur E. Integrated zero-index waveguides. In *CLEO: QELS Fundamental Science FM4G.6* San Jose, CA (2017).
28. Li Y., Camayd-Muñoz P., Vulis D., Saeta P., Peng Y., **Reshef O.**, Mello O. L., Tang H., Lončar M. & Mazur E. Transition metamaterials for local-field enhancement. In *CLEO: QELS Fundamental Science FM3G.6* San Jose, CA (2017).
29. Camayd-Muñoz P., Kita S., Vulis D., **Reshef O.**, Lončar M. & Mazur E. Long-range phase-free propagation in a dielectric metasurface. In *CLEO: Applications and Technology JTU5A.39* San Jose, CA (2017).
30. **Reshef O.**, Li Y., Yin M., Christakis L., Vulis D., Camayd-Muñoz P., Kita S., Lončar M. & Mazur E. Phase-Matching in Dirac-Cone-Based Zero-Index Metamaterials. In *CLEO: Applications and Technology JTU5A.53* San Jose, CA (2016).
31. Vulis D., Li Y., **Reshef O.**, Yin M., Camayd-Muñoz P., Kita S., Lončar M. & Mazur E. CMOS-Compatible Zero-Index Metamaterial. In *CLEO: Science and Innovations — Integrated Silicon Photonics Devices STh3E.8* San Jose, CA (2016).
32. Camayd-Muñoz P., Kita S., Mello O., **Reshef O.**, Vulis D., Li Y., Yin M., Lončar M. & Mazur E. Lossless Integrated Dirac-Cone Metamaterials. In *CLEO: Applications and Technology JW2A.24* San Jose, CA (2016).
33. Vulis D., **Reshef O.**, Muñoz P., Kita S., Li Y., Lončar M & Mazur E. Integrated super-couplers based on zero-index metamaterials. In *META Conference 832 – 833* New York, NY (2015).
34. Li Y., Kita S., Muñoz P., **Reshef O.**, Vulis D., Lončar M. & Mazur E. Integrated impedance-matched photonic Dirac-cone metamaterials. In *META Conference 823 – 824* New York, NY (2015).
35. Muñoz P., **Reshef O.**, England E., McClellan R. & Mazur E. Inverse Transformation Optics with Realistic Material Parameters. In *META Conference 508 – 509* New York, NY (2015).
36. Kita S., Li Y., Muñoz P., **Reshef O.**, Vulis D., Day B., Mazur E., Lieber C. Lončar M. On-chip super-robust all-dielectric zero-index material. In *CLEO: QELS Fundamental Science — Hyperbolic Metamaterial Waveguides FM3C.2* San Jose, CA (2015).
37. Li Y., Kita S., Muñoz P., **Reshef O.**, Vulis D., Lončar M. & Mazur E. Integrated impedance-matched photonic Dirac-cone metamaterials. In *CLEO: QELS Fundamental Science — Topological Photonics II FTu4C.5* San Jose, CA (2015).
38. **Reshef O.**, Shtyrkova K., Moebius M. G., Evans C. C., Griesse-Nascimento S., Ippen E. & Mazur E. Polycrystalline anatase micro-ring resonators at telecommunication wavelengths. In *CLEO: Science and Innovations — Advanced Fabrication Techniques SM1H.7* San Jose, CA (2014).

39. Shtyrkova K., Evans C. C., **Reshef O.**, Bradley J. D. B., Moebius M. G., Mazur E. & Ippen E. Third harmonic generation in polycrystalline anatase titanium dioxide nanowaveguides. In *CLEO: Science and Innovations — Novel Materials for Integrated Nonlinear Optics* **SW3I.6** San Jose, CA (2014).
40. Hu A., Deng G., Courvoisier S., Reshef O., Evans C. C., Mazur E. & Zhou Y. Femtosecond laser induced surface melting and nanojoining for plasmonic circuits. In *Proc. SPIE — Plasmonics: Metallic Nanostructures and Their Optical Properties XI* **880907** San Diego, CA (2013).
41. Jiang L., Evans C. C., **Reshef O.** & Mazur E. Optimizing anatase-TiO<sub>2</sub> deposition for low-loss waveguides. In *Proc. SPIE — Oxide-based Materials and Devices IV* **86261D-8** San Francisco, CA (2013).
42. Evans C. C., Bradley J. D. B., Choy J. T., **Reshef O.**, Deotare P. B., Lončar M. & Mazur E. Submicrometer-width TiO<sub>2</sub> waveguides. In *CLEO: Science and Innovations — Waveguides and Passive Components* **CM3M.6** San Jose, CA (2012).
43. Miller K., Lasry N., **Reshef O.**, Dowd J., Araujo I., Mazur E. Losing it: The influence of losses on individuals' normalized gains. In *AIP Conf. Proc.* **1289** 229 – 232 Portland, OR (2010).

## OTHER SERVICE AND ACTIVITIES

Peer reviewer — *ACS Photonics; Advanced Optical Materials; Annalen der Physik; Applied Physics Letters; APL Photonics; IEEE Antennas and Wireless Propagation Letters; IEEE Journal of Lightwave Technology; IEEE Photonics Journal; IEEE Photonics Technology Letters; JOSA B; Laser & Photonics Reviews; Light: Science & Applications; Nanophotonics; Nature Scientific Reports; Optica; Optics Express; Optics Letters; Optical Materials Express; Photonics Research*. Verified details at [webofscience.com](http://webofscience.com)

Reviewer — Optica scholarships (Soicheck '21; Ambassador '22, '22; Women Scholars 2023; Amplify 2023)  
 Supervisor — uOttawa OSA-SPIE joint student chapter 2020 – 2022  
 Internal reviewer — Banting and Vanier scholarship for University of Ottawa 2018  
 Judge — Canada-Wide Science Fair 2018  
 Judge — Shalheveth Freier Physics Tournament 2009, 2010, 2017  
 Podcast founder and host — *Yet Another Science Show* 2013 – 2015  
 Webmaster of Harvard Photonics — SPIE/OSA student chapter 2011 – 2012, 2014 – 2016  
 Vice President of Harvard Photonics — SPIE/OSA student chapter 2012 – 2014  
 Vice President of Social Activities — McGill Society of Physics Students 2008 – 2009

## OUTREACH

1. Research and professional development topics. *Discussion facilitator*. **Optica Student Member LinkedIn Group** July (2021).
2. Nanophotonics and Q&A. *Colloquium*. **Monarch Park Collegiate Institute, Toronto, ON** January 26, (2021).
3. Choosing a PhD Program panel. *USC Virtual PhD Workshop*. **Online** April 8, (2020).
4. The incredible delayed quantum eraser experiment. *Colloquium*. **Collège Sainte-Anne, Montréal, QC** March 22, (2019).

5. Banting — Tips for a Successful Application. *Invited talk*. **University of Ottawa, Ottawa, ON** June 14, (2018).
6. Herzliah Chai Awards keynote: 5 pieces of advice. *Invited talk*. **Herzliah High School, Montréal, QC** November 20, (2017).
7. Banting — Tips for a Successful Application. *Invited talk*. **University of Ottawa, Ottawa, ON** May 31, (2017).
8. The incredible delayed quantum eraser experiment. *Colloquium*. **Collège Sainte-Anne, Montréal, QC** March 23, (2017).
9. What does a refractive index of zero even mean? *Colloquium*. **Herzliah High School, Montréal, QC** February 19, (2016).
10. Telling your story. *Workshop*. **Samuel Adams Elementary School, East Boston, MA** April 10, (2013).
11. Getting into graduate school: a graduate student's perspective. *Colloquium*. **McGill University, Montréal, QC** September 29, (2011)