

Mikael C. Rechtsman

CONTACT INFORMATION	The Pennsylvania State University Davey Laboratories, Department of Physics University Park, PA 16802 United States	<i>Phone:</i> +1 626 417 2585 <i>E-mail:</i> mcrworld@psu.edu
PERSONAL	Born: March 17, 1980, Toronto, Canada. Languages: English, French. Canadian Citizenship, US Permanent Residency.	
EMPLOYMENT	Professor of Physics and Associate Department Head, The Pennsylvania State University (July 2023-present) QuantAlps Visiting Professor, Néel Institute of CNRS, Grenoble, France (2024-2025) Associate Professor of Physics, The Pennsylvania State University (July 2020-July 2023) Downsbrough Early Career Development Professor of Physics (2018-2021) Visiting Professor, École Centrale de Lyon, Lyon, France (May-June 2019) Assistant Professor of Physics, The Pennsylvania State University (July 2015-June 2020) Azrieli Postdoctoral fellow, Technion - IIT (May, 2010 - June 2015) Postdoctoral fellow, Courant Institute, NYU (September 2008 - May, 2010)	
EDUCATION	Princeton University , <i>Department of Physics</i> Ph.D., Physics, September 2003 - May 2008 Massachusetts Institute of Technology , <i>Major in Physics</i> S.B., Physics, September 2000 - June 2003 McGill University , <i>Physics and Mathematics major</i> September 1999 - May 2000	
RESEARCH INTERESTS	Quantum photonics, nonlinear optics, topological physics, photonic crystals, self-assembly science, microscale 3D printing and fabrication.	
TEACHING EXPERIENCE	Introduction to Mechanics (PHYS 211) (x8), Penn State Physics of Semiconductors and Devices (PHYS524) (x2), Penn State Quantum Physics II (PHYS 411) (x4), Penn State Mathematical Patterns in Nature (x1), Courant Institute Algebra and Calculus (x2), Courant Institute Electromagnetism for Engineers (PHY104) (x2), Princeton University Mechanics for Engineers (PHY103) (x3), Princeton University Computational Physics (PHY209) (x2), Princeton University Introduction to Electricity and Magnetism (8.022) (x2), M.I.T.	

Introduction to Mechanics (8.012) (x2), M.I.T.

HONORS AND
DISTINCTIONS

Faculty Scholar Medal, Penn State University (2024)
Clarivate Analytics Highly Cited Researcher (2021, 2022, 2023, 2024)
ICO Prize of the International Commission for Optics (2018)
Office of Naval Research Young Investigator Award (2018)
Named Downsbrough Early Career Professor at Penn State (2018)
Outstanding Referee by the American Physical Society (2017)
Packard Fellowship (2017)
Kaufman Foundation New Investigator Award (2017)
Kavli fellowship of the National Academy of Sciences (2016)
Sloan Research Fellowship - Alfred P. Sloan Foundation (2016)
Fine Fellowship - Technion (2012)
Azrieli Fellowship (2010)
Courant Postdoctoral Instructorship, Courant Institute, NYU (2008)
Ray Grimm Award for Computational Physics, Princeton University (2007)
National Science and Engineering Research Council (NSERC) foreign fellowship (2005)
Burchard Scholarship in the Humanities, M.I.T. (2003)
Todd Anderson E.S.G. Teaching Award, M.I.T. (2003)
University of Toronto Summer Studentship Award (2000)
J.W.B. McConnell Scholarship, McGill University (full tuition award) (1999)

STUDENT AND
POSTDOCTORAL
ADVISEES

Current group members

John Marchisotto (undergraduate student)
Ashfakh Meethal (current graduate student)
Kyle Linn (current graduate student)
Brian Gould (current graduate student)
Koorosh Sadri (current graduate student)
Abhijit Chaudhari (current graduate student)
Jiachen Wang (current graduate student)
Zeyu Zhang (current graduate student)
Maria Barsukova (current graduate student)
Jonas Karcher (current postdoctoral researcher)
Hengbin Cheng (current postdoctoral researcher)
Johnathon Gales (current postdoctoral researcher)

Former group members

Marius Jürgensen (graduate student, graduated 2024, postdoc at Stanford)
Sachin Vaidya (graduate student, graduated 2023, postdoc at MIT)

Christina Jörg (Lynen postdoctoral fellow, position: Junior Professor, TU-Kaiserslautern)

Megan Goh (undergraduate REU, position: Ph.D. student at Harvard)

Yuezhou Lyu (undergraduate REU, position: graduate student at Northwestern)

Han Yu (undergraduate, position: graduate student at the University of Minnesota)

Jingjing Pan (undergraduate REU, position: graduate student at Yale)

Kyle Linn (undergraduate REU, position: graduate student in my group at Penn State)

Lauren Bittner (undergraduate REU, position: undergraduate student at St. Vincent College)

Alison Weiss (undergraduate REU, position: undergraduate student at Amherst College)

Kanchita Klangboonkrong (undergraduate REU, position: graduate student at Brown University)

Jiho Noh (graduate student, graduated Summer 2020; position: postdoc at University of Illinois)

Jonathan Guglielmon (graduate student, graduated summer 2020; position: Analog Photonics)

Shashank Pandey (postdoctoral researcher; position: Intel)

Matthew Collins (postdoctoral researcher; position: Xanadu - Quantum Computing startup)

Wladimir Benalcazar (former postdoctoral fellow, position: Moore Fellow at Princeton, Assistant Professor at Emory)

Seababrata Mukherjee (former postdoctoral researcher, position: Faculty at Indian Institute of Science, Bangalore)

Alexander Cerjan (former postdoctoral researcher, position: Scientist at Sandia National Labs)

PUBLICATIONS

- [1] Christina Jörg, Marius Jürgensen, Seababrata Mukherjee, and Mikael C. Rechtsman. Optical control of topological end states via soliton formation in a 1D lattice. *Nanophotonics*, 14(6):769–775, 2025.
- [2] Mikael C. Rechtsman and Nathan Goldman. Breaking symmetry in time to protect light: Topological photonics. *Nature Nanotechnology*, pages 1–2, 2025.
- [3] Marius Jürgensen, Jacob Steiner, Gil Refael, and Mikael C. Rechtsman. Multiband Fractional Thouless Pumps. *Physical Review Letters*, 135(16):166601, 2025.
- [4] Mikael C. Rechtsman and Michael I. Weinstein. Pseudomagnetism in Photonics: From Mathematical Theory to Experiment. *SIAM: Collections*, 57(08), 2024.
- [5] S. Vaidya, M. C. Rechtsman, and W. A. Benalcazar. Polarization and weak topology in chern insulators. *Phys. Rev. Lett.*, 132:116602, 2024.
- [6] A. Szameit and M. C. Rechtsman. Discrete nonlinear topological photonics. *Nature Physics*, 20:905–912, 2024.
- [7] J. F. Karcher, S. Gopalakrishnan, and M. C. Rechtsman. Stability of topologically protected slow light against disorder. *Physical Review A*, 109(6):063507, 2024.
- [8] J. F. Karcher, S. Gopalakrishnan, and M. C. Rechtsman. The effect of hyperuniform disorder on band gaps. *arXiv preprint arXiv:2406.11710*, 2024.
- [9] C. Jörg, M. Jürgensen, S. Mukherjee, and M. C. Rechtsman. Optical control of topological end states via soliton formation in a 1d lattice. *Nanophotonics*, (0), 2024.

- [10] A. Ghorashi, S. Vaidya, M. C. Rechtsman, W. A. Benalcazar, M. Soljačić, and T. Christensen. Prevalence of two-dimensional photonic topology. *Physical Review Letters*, 133(5):056602, 2024.
- [11] A. G. Fonseca, S. Vaidya, T. Christensen, M. C. Rechtsman, T. L. Hughes, and M. Soljačić. Weyl points on nonorientable manifolds. *Phys. Rev. Lett.*, 132:266601, Jun 2024.
- [12] M. Barsukova, F. Gris , Z. Zhang, S. Vaidya, J. Guglielmon, M. I. Weinstein, L. He, B. Zhen, R. McEntaffer, and M. C. Rechtsman. Direct observation of landau levels in silicon photonic crystals. *Nature Photonics*, 18:580–585, 2024.
- [13] S. Vaidya, C. J rg, K. Linn, M. Goh, and M. C. Rechtsman. Reentrant delocalization transition in one-dimensional photonic quasicrystals. *Physical Review Research*, 5(3):033170, 2023.
- [14] S. Vaidya, A. Ghorashi, T. Christensen, M. C. Rechtsman, and W. A. Benalcazar. Topological phases of photonic crystals under crystalline symmetries. *Phys. Rev. B*, 108:085116, Aug 2023.
- [15] M. C. Rechtsman. Reciprocal topological photonic crystals allow backscattering. *Nature Photonics*, 17(5):383–384, 2023.
- [16] C. Oliver, S. Mukherjee, M. C. Rechstman, I. Carusotto, and H. M. Price. Artificial gauge fields in the t-z mapping for optical pulses: Spatiotemporal wave packet control and quantum hall physics. *Science Advances*, 9(42):eadj0360, 2023.
- [17] S. Mukherjee and M. C. Rechtsman. Period-doubled floquet solitons. *Optica*, 10(10):1310–1315, 2023.
- [18] M. J rgensen, S. Mukherjee, C. J rg, and M. C. Rechtsman. Quantized fractional thouless pumping of solitons. *Nature Physics*, 19(3):420–426, 2023.
- [19] M. J rgensen and M. C. Rechtsman. Chern number governs soliton motion in nonlinear thouless pumps. *Physical Review Letters*, 128(11):113901, 2022.
- [20] C. J rg, S. Vaidya, J. Noh, A. Cerjan, S. Augustine, G. von Freymann, and M. C. Rechtsman. Observation of quadratic (charge-2) weyl point splitting in near-infrared photonic crystals. *Laser & Photonics Reviews*, 16(1):2100452, 2022.
- [21] W. A. Benalcazar, J. Noh, M. Wang, S. Huang, K. P. Chen, and M. C. Rechtsman. Higher-order topological pumping and its observation in photonic lattices. *Physical Review B*, 105(19):195129, 2022.
- [22] S. Vaidya, W. A. Benalcazar, A. Cerjan, and M. C. Rechtsman. Point-defect-localized bound states in the continuum in photonic crystals and structured fibers. *Physical Review Letters*, 127(2):023605, 2021.
- [23] S. Mukherjee and M. C. Rechtsman. Observation of unidirectional solitonlike edge states in nonlinear floquet topological insulators. *Physical Review X*, 11(4):041057, 2021.
- [24] M. J rgensen, S. Mukherjee, and M. C. Rechtsman. Quantized nonlinear thouless pumping. *Nature*, 596(7870):63–67, 2021.
- [25] J. Guglielmon, M. Rechtsman, and M. Weinstein. Landau levels in strained two-dimensional photonic crystals. *Physical Review A*, 103(1):013505, 2021.
- [26] A. Cerjan, C. J. P. R. Letters, S. Vaidya, S. Augustine, W. A. Benalcazar, C. W. Hsu, G. von Freymann, and M. C. Rechtsman. Observation of bound states in the continuum embedded in symmetry bandgaps. *Science Advances*, 7(52):eabk1117, 2021, <https://www.science.org/doi/pdf/10.1126/sciadv.abk1117>.
- [27] S. Vaidya, J. Noh, A. Cerjan, C. J rg, G. von Freymann, and M. C. Rechtsman. Observation of a charge-2 photonic weyl point in the infrared. *Physical Review Letters [Editor’s Selection]*, 125(25):253902, 2020.

- [28] J. Noh, T. Schuster, T. Iadecola, S. Huang, M. Wang, K. P. Chen, C. Chamon, and M. C. Rechtsman. Braiding photonic topological zero modes. *Nature Physics*, 16(9):989–993, 2020.
- [29] S. Mukherjee and M. C. Rechtsman. Observation of floquet solitons in a topological bandgap. *Science*, 368(6493):856–859, 2020.
- [30] A. Cerjan, M. Wang, S. Huang, K. P. Chen, and M. C. Rechtsman. Thouless pumping in disordered photonic systems. *Light: Science & Applications*, 9(1):1–7, 2020.
- [31] A. Cerjan, M. Jürgensen, W. A. Benalcazar, S. Mukherjee, and M. C. Rechtsman. Observation of a higher-order topological bound state in the continuum. *Physical Review Letters [Editor’s Selection]*, 125(21):213901, 2020.
- [32] T. Ozawa, H. M. Price, A. Amo, N. Goldman, M. Hafezi, L. Lu, M. C. Rechtsman, D. Schuster, J. Simon, O. Zilberberg, and I. Carusotto. Topological photonics. *Rev. Mod. Phys.*, 91:015006, Mar 2019.
- [33] J. L. Marzuola, M. Rechtsman, B. Osting, and M. Bandres. Bulk soliton dynamics in bosonic topological insulators. *arXiv preprint arXiv:1904.10312*, 2019.
- [34] J. Guglielmon and M. C. Rechtsman. Inducing maximal localization with fractal waveguide arrays. *Physical Review A*, 99(6):063807, 2019.
- [35] J. Guglielmon and M. C. Rechtsman. Broadband topological slow light through higher momentum-space winding. *Phys. Rev. Lett.*, 122:153904, Apr 2019.
- [36] A. Cerjan, S. Huang, M. Wang, K. P. Chen, Y. Chong, and M. C. Rechtsman. Experimental realization of a weyl exceptional ring. *Nature Photonics*, 13(9):623–628, 2019.
- [37] A. Cerjan, C. W. Hsu, and M. C. Rechtsman. Bound states in the continuum through environmental design. *Physical Review Letters*, 123(2):023902, 2019.
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- [44] J. Guglielmon, S. Huang, K. P. Chen, and M. C. Rechtsman. Photonic realization of a transition to a strongly driven floquet topological phase. *Physical Review A*, 97(3):031801, 2018.
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- [48] J. Noh, S. Huang, D. Leykam, Y. Chong, K. P. Chen, and M. C. Rechtsman. Experimental observation of optical weyl points and fermi arc-like surface states. *Nature Physics*, 13(6):611–617, 2017.
- [49] J.-X. Zhang, M. C. Rechtsman, and C.-X. Liu. Invited article: Topological crystalline protection in a photonic system. *APL Photonics*, 1(5):050803, 2016.
- [50] H. Zhai, M. Rechtsman, Y.-M. Lu, and K. Yang. Focus on topological physics: from condensed matter to cold atoms and optics. *New Journal of Physics*, 18(8):080201, 2016.
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- [53] D. Leykam, M. Rechtsman, and Y. Chong. Anomalous topological phases and unpaired dirac cones in photonic floquet topological insulators. *Physical Review Letters*, 117(1):013902, 2016.
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- [59] M. C. Rechtsman. Viewpoint: High chern numbers in photonic crystals. *Physics*, 8:122, 2015.
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- [65] D. Guzmán-Silva, C. Mejía-Cortés, M. Bandres, M. Rechtsman, S. Weimann, S. Nolte, M. Segev, A. Szameit, and R. Vicencio. Experimental observation of bulk and edge transport in photonic lieb lattices. *New Journal of Physics*, 16(6):063061, 2014.
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- [86] M. C. Rechtsman, F. H. Stillinger, and S. Torquato. Self-assembly of the simple cubic lattice with an isotropic potential. *Physical Review E*, 74(2):021404, 2006.
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RESEARCH SUPPORT Army Research Office MURI on Multiscale Self-Assembly of Non-Hermitian Devices: Meta-Atoms to Nanomaterials (Co-PI, \$7.5m for six investigators, 2024-2029).

Office of Naval Research on Limitations on disorder and leveraging aperiodicity in topological photonics and beyond (Single-investigator grant, \$754k, 2022-2026).

Air Force Office of Scientific Research MURI on Synthetic Quantum Matter (PI, \$7.5m for six investigators, 2022-2027).

Army Research Office MURI on Hyperuniform Networks (Co-PI, \$6.25m for five investigators, 2022-2027).

Kaufman Foundation New Initiative Grant (\$300k - \$150k for PI Rechtsman, 2020-2023)

Corning, Inc. (\$36k, 2019)

Office of Naval Research MURI on Photonic High-Order Topological Insulators (Co-PI, \$7.5m for 6 investigators, 2020-2025)

Office of Naval Research Young Investigator Award (\$585k, 2018-2022)

Packard Foundation Fellowship (\$875k, 2017-2022)

Kaufman Foundation New Investigator Grant (\$150k, 2017-2019)

Sloan Foundation Fellowship (\$55k, 2016-2018)

Co-PI of NSF project, “OP: Landau levels in photonic graphene” (\$480k - \$185k for co-PI Rechtsman, 2016-2020, with PI Michael Weinstein and co-PI Kevin Chen)

Principal investigator of NSF project, “Nonlinear optics of photonic topological insulators” (\$500k - \$285k for PI Rechtsman, 2015-2019, co-PI Kevin Chen)

PROFESSIONAL
SERVICE

Journal referee for Nature, Nature Photonics, Nature Physics, Nature Communications, NPJ Quantum Materials, Science, Science Advances, Proceedings of the National Academy of Sciences, Physical Review Letters, Physical Review X, Annals of Physics, Optics Letters, Optical Materials, Journal of Optics, Journal of the Optical Society of America B, Physical Review B, and the Journal of Chemical Physics. Named outstanding referee by the American Physical Society.

Guest editor for New Journal of Physics' special edition on Topological Insulator physics.

Served on numerous candidacy and external examination committees (2016-present).

Served on the graduate admissions committee (2015-present), CAMP seminar committee (2016-present), graduate candidacy committee (2021-) and faculty evaluation committee (2018-2019), Penn State.

Co-organizer of international conference on the topic of "Topological Photonics" at the Banff International Research Centre (2017).

Co-organizer of IEEE Summer Topicals Meeting (2018).

Selection committee and faculty participant, 'STEM Graduate Open House' recruitment event for underrepresented groups at Penn State.

Committee member, CLEO session FS5: Nonlinear Optics and Novel Phenomena (2016-present).

Committee member, Metamaterials 2022.

Committee chair, DAMOP section of APS March Meeting.

Program committee, Metamaterials 2022.

Participated in Penn State's NSF REU program by mentoring undergraduate students during summers, with an emphasis on underrepresented groups.

Co-organizer of Office of the Undersecretary of Defense for Research and Engineering workshop on 'Future Directions in Topological Sciences.'

Co-author of a report on the 'Future Directions in Topological Sciences' for the Office of the Undersecretary of Defense for Research and Engineering (with D. Goldhaber-Gordon, N. Mason and N. P. Armitage).

Ad-hoc editorial board member of Physical Review X.

Associated Head of Physics, Penn State. (2023-)

Chair of Faculty Hiring Committee (2023-).

Scientific Advisory Board, ETOPIM13 conference (2022).

CLEO-Europe Subcommittee Member (2024).

Physical Review X, ad-hoc editorial board member (2025).

INVITED TALKS

Royal Society Meeting on New Frontiers in Topological Materials, Cambridge, UK, June 2025 - Quantized nonlinear Thouless pumps (invited)

Laboratoire Kastler-Brossel de l'École Normale Supérieure, Colloquium, Paris, France, June 2025 - Quantized nonlinear Thouless pumps (invited)

Quantum Matter 2025, Grenoble, France, May 2025 - Quantized Nonlinear Thouless Pumping (invited)

Departmental Colloquium, AMOLF, Amsterdam, The Netherlands, May 2025 - Quantum Hall physics for photons (invited)

Theory of Condensed Matter Group Seminar, Cambridge, UK, May 2025 - Quantum Hall physics for photons (invited)

Institut des Nanotechnologies de Lyon, École Centrale de Lyon, Colloquium and Seminar, Lyon, France, April 2025 - Photonic Pseudomagnetism and Landau Levels; Quantized nonlinear Thouless pumps (invited)

QuantAlps Visiting Professorship lecture series, CNRS, Grenoble, France, March 2025 - Floquet Topological Physics (invited)

University of Trento, Physics Department Colloquium, Trento, Italy, February 2025 - Quantum Hall physics with photons (invited)

UK Metamaterials Network Colloquium, Imperial College, London, UK, January 2025 - Quantum Hall physics with photons (invited)

Department Seminar, INSP, Sorbonne University, Paris, France, November 2024 - Quantum Hall physics with photons (invited)

QuantAlps Colloquium, CNRS, Grenoble, France, October 2024 - Quantum Hall physics with photons (invited)

26th Congress of the International Commission for Optics, Cape Town, South Africa, October 2024 - Photonic Pseudomagnetism and Landau Levels (plenary)

The Rothschild Prize Symposium, The National Library of Israel, Jerusalem, September 2024 - Photonic Pseudomagnetism and Landau Levels (keynote)

Localization: Emergent Platforms and Novel Trends, Max Planck Institute for Complex Systems, Dresden, Germany, September 2024 - Quantized Nonlinear Thouless Pumping (invited)

Collective Phenomena Workshop, Konstanz, Germany, August 2024 - Quantized Nonlinear Thouless Pumping (invited)

Weizmann Institute of Science, Condensed Matter Seminar, Rehovot, Israel, June 2024 - Fractional Photonic Thouless Pumping (invited)

Tel Aviv University, Electrical Engineering Seminar, Tel Aviv, Israel, June 2024 - Photonic Pseudomagnetism and Landau Levels (invited)

The Johns Hopkins University, Physics Department Colloquium, Baltimore, Maryland, April

2024 - Photonic Pseudomagnetism and Landau Levels (invited)

American Chemical Society (ACS), New Orleans, Louisiana, March 2024 - Strain-induced photonic pseudomagnetism in colloidal assemblies (invited)

Progress in Quantum Electronics (PQE), Snowbird, Utah, January 2024 - Pseudomagnetism in Photonic Crystals (invited)

Sandia National Labs / CINT, Colloquium, October 2023 - Pseudomagnetism in Photonic Crystals (invited)

ARO-MURI review, Princeton, NJ, September 2023 - Experiments on Photonic Hyperuniform Systems

AFOSR-MURI review, College Park, MD, September 2023 - State of the MURI, RAPSODY in Q

ICIAM Meeting, Tokyo, Japan, August 2023 - Quantized Nonlinear Thouless Pumping (invited)

Photonica 2023, Belgrade, Serbia, August 2023 - Nonlinear Topological Photonics (invited)

Mathematical Aspects of Condensed Matter Physics, Zurich, Switzerland, July 2023 - Nonlinear Topological Photonics (invited)

META Conference, Paris, France, July 2023 - Nonlinear Topological Photonics (keynote)

Technion - Israel Institute of Technology, Electrical Engineering Department Colloquium, Haifa, Israel, June 2023 - Photonic Landau levels and Quantized photonic Thouless pumping (invited)

Topological Photonics 2023, Madrid, Spain, May 2023 - Nonlinear Topological Photonics (keynote)

Caltech, Physics Department Colloquium, May 2023 - Nonlinear Topological Photonics (invited)

Simons Satellite Workshop, New York, NY, October 2022 - Nonlinear Topological Photonics (invited)

Boston University, Physics Department Seminar, October 2022 - Nonlinear Topological Photonics (invited)

NANOP 2022, Paris, France, October 2022 - Nonlinear Topological Photonics (plenary)

Metamaterials 2022, Siena, Italy, September 2022 - Fractionally Quantized Nonlinear Thouless Pumping (invited)

The Pennsylvania State University, Physics Department Colloquium, September 2022 - Quantized Nonlinear Thouless Pumps (invited)

Virtual Science Forum Floquet Summer School, September 2022 - Floquet Topological Photonics (invited)

25th Congress of the International Commission for Optics, September 2022 (plenary, declined due to conflict)

Packard Fellows Meeting, Monterey, CA, September 2022 - Nonlinear Topological Photonics (invited)

AFOSR MURI Kick-off Meeting (held virtually), September 2022 - Photons in SYnthetic, DYnamical, and INteracting Quantum matter (RAPSYDY IN Q)

ARO MURI on Hyperuniform Networks Kickoff Meeting, Princeton, NJ, August 2022 - Topological Photonics (invited)

AFOSR MURI Review Meeting, Arlington, VA, August 2022 - Reimagining Atoms and Photons in SYnthetic, DYnamical, and INteracting Quantum matter (RAPSYDY IN Q) (invited)

Office of the Undersecretary of Defense for Research and Engineering MURI Review Meeting, held virtually, July 2022 - Photonic High Order Topological Insulators (invited)

Technion - Israel Institute of Technology, Physics Department Seminar, June 2022 - Nonlinear Topological Photonics (invited)

University of Michigan, Electrical and Computer Engineering Seminar, April 2022 - Nonlinear Topological Photonics (invited)

Harvard University, Applied Physics Seminar, April 2022 - Nonlinear Topological Photonics (invited)

March Meeting of the American Physical Society, March 2022 - Quantized Nonlinear Thresholdless Pumping (invited)

March Meeting of the American Physical Society, March 2022 - Tutorial on Nonlinear Topological Photonics (invited)

Institute for Optical Science Webinar Series, The Ohio State University, December 2021 - Topological Photonics (invited)

University of Crete, Physics Department Colloquium, October 2021 - Nonlinear Aspects of Topological Photonics (invited)

Metamaterials 2021, New York, NY (held virtually), September 2021 - Nonlinear Topological Photonics (invited)

3D Nano Workshop (Sponsored by the Army Research Office), California Institute of Technology (held virtually), September 2021, Topological Photonics in Three Dimensions (invited)

Metanano Conference, Tbilisi, Georgia (held virtually), September 2021, Nonlinear Topological Photonics (invited)

KITP meeting on Interacting Topological Matter: Atomic, Molecular and Optical Systems, Kavli Institute of Theoretical Physics of UCSB (held virtually), July 2021, Nonlinear Topological Photonics (invited)

Topology Meets Quantum Optics, Centro de Ciencias de Benasque (held virtually), June 2021, Nonlinear Topological Photonics (invited)

Topological Charge and Spin Pumping with Synthetic Quantum Systems, U. of Frankfurt (held virtually), May 2021, Nonlinear Dynamics of Topological Photonic States (invited)

Technical University of Kaiserslautern, Physics Department Colloquium, May 2021, Nonlinear Aspects of Topological Photonics (invited)

University of Cambridge, Theory of Condensed Matter Seminar, March 2021, Nonlinear Topological Photonics (invited)

TopDyn Conference, Mainz, Germany (held virtually), October 2020, Nonlinear aspects of Topological Photonics (invited)

25th General Congress of the International Commission on Optics (ICO-25), Dresden, Germany, August 2020 (invited, postponed)

Topological Phenomena in Atomic and Photonic Systems, Zagreb, Croatia, June 2020 (invited, postponed)

Rank Prize Symposium, Grasmere, England, UK, June 2020 (invited, postponed)

Conference on Lasers and Electro-optics (CLEO), San Jose, CA, May 2020 - Topological Nonlinear Optics (invited)

Conference on Lasers and Electro-optics (CLEO), San Jose, CA, May 2020 (invited) - Topological Nonlinear Optics [group members A. Cerjan, J. Noh, J. Guglielmon, S. Vaidya, S. Mukherjee gave contributed talks]

March Meeting of the American Physical Society, Denver, Colorado, March 2020 (invited, cancelled) - Topological Slow Light and Solitons

Penn State University, Physics Department Colloquium, University Park, PA, November 2019 (invited) - Aspects of Topological photonics

US/Middle East Conference on Photonics, Advanced Science Research Center, CUNY, New York, NY, November 2019 (invited): Topological solitons and slow light

Topological Quantum Matter: From Fantasy To Reality, KITP, Santa Barbara, CA, October 2019 (invited): Topological solitons and slow light

Naval Research Laboratory, Washington, DC, September 2019 (invited): Topological Photonics

Weyl Fermions in Condensed Matter, Natal, Brazil, August 2019 (invited): Realization of Weyl Exceptional Rings [talk given by Alexander Cerjan]

Recent Advances in Topological Photonics, IBS, Daejeon, Korea, June 2019 (invited): Corner modes in higher-order topological insulators [talk given by Jiho Noh]

International Workshop on Topology, National Institute for Materials Science, Tsukuba, Japan, June 2019 (invited): Topological Slow Light and Photonic Weyl Points

NSF/DOE/AFOSR Quantum Science Summer School, University Park, PA, June 2019 (invited): Introduction to Topological Photonics

International Nanophotonics School, AMOLF, Amsterdam, Netherlands, June 2019 (invited): Introduction to Topological Photonics

Synthetic Topological Matter, Max Planck Institute for Complex Matter, Dresden, Germany, May 2019 (invited): Topological Slow Light and Photonic Weyl Points

TopoLyon, ENS Lyon, France, May 2019 (invited): Topological Slow Light and Photonic Weyl Points

SBQMI Workshop on Synthetic Topological Matter, Vancouver, Canada, February 2019 (invited) Topological Slow Light and Optical Weyl Points

Novel Concepts in Photonics Research, Ein Gedi, Israel, February 2019 (invited) Topological Slow Light and Optical Weyl Points

CEA-Grenoble, Physics Department seminar, Grenoble, France, December 2018 (invited) Topological photonics

Nature Conference: Topological Photonics from Concepts to Devices, St. Louis, MO, November 2018 (invited) Observation of optical Weyl points and exceptional rings

Dickinson College, Physics Department colloquium, Carlisle, PA, October 2018 (invited) Topological photonics

Packard Fellows Reunion, San Diego, CA, October 2018 (invited) Topological photonics

Workshop on Quantum Simulations with Atoms and Light, Aarhus, Denmark, August 2018 (invited) Observation of optical Weyl points and exceptional rings

ToCoTronics2018, Wurzburg, Germany, July 2018 (invited) Observation of Optical Weyl Points

IEEE Summer Topicals on Non-Hermitian and Topological Photonics, Waikaloa, Hawaii, July 2018 (invited) Observation of Optical Weyl Points

Workshop on Topological Protection in Messy Matter, Atlanta, GA, May 2018 (invited) Observation of optical Weyl points and other topics in topological photonics

Conference on Lasers and Electro-optics (CLEO), San Jose, CA, May 2018 Weyl exceptional ring in a helical waveguide array [Talk given by Alexander Cerjan]

Conference on Lasers and Electro-optics (CLEO), San Jose, CA, May 2018 Photonic Parity-Time Symmetric Topological Edge States in a Two-Dimensional Lattice [Talk given by Jiho Noh]

University of Pennsylvania, Physics Department seminar, Philadelphia, PA, January 2018 (invited) Topological photonics

École Centrale de Lyon, Institut des Nanotechnologies de Lyon Departmental Seminar, Lyon, France, December 2017 (invited) Topological protection of photons

École Normale Supérieure de Lyon (ENS-Lyon) Physics Department Colloquium, Lyon, France, December 2017 (invited colloquium) Topological protection of photons

Indiana University Physics Department Colloquium, Bloomington, IN, November 2017 (invited colloquium) Topological protection of photons

Topological Dynamics: Quantum and Classical, Newark, NJ, November 2017 (invited) Topological Photonics: Going beyond Edge States

Center for NanoScience Workshop, Venice, Italy, September 2017 (invited) Topological Photonics

DARPA Workshop on Exotic Materials Achieved by Non-Equilibrium Activation, Arlington, VA, August 2017 (invited) Topological Photonics: Past Results, Future Ideas

EP2DS-22 / MSS-18, University Park, PA, August 2017 (invited) Observation of Photonic Topological Valley Transport [Talk given by graduate student, Jiho Noh]

Panel participant on The Future of Photonics, Technion Israel Institute of Technology, Haifa, Israel, June 2017

Conference on Lasers and Electro-optics (CLEO-Europe), Munich, Germany, June 2017 (invited) Optical Weyl points and Fermi arc-like surface states

Conference on Lasers and Electro-optics (CLEO), San Jose, CA, May 2017 (invited) Optical Weyl points and Fermi arc-like surface states

Workshop on Mathematical and Physical Aspects of Topologically Protected States, Columbia University, New York, NY, May 2017 (invited) Topological photonics in two and three dimensions

Raytheon-BBN Corporation Seminar, Cambridge, MA, April 2017 (invited) Photonic topological insulators

Emerging Optical Materials Workshop, Boston Chapter of the IEEE Photonics Society, MIT Lincoln Laboratory, Lexington, MA, April 2017 (invited) Photonic topological insulators

Emerging Topics in Optics, Institute for Mathematics and its Applications, Minneapolis, Minnesota, April 2017 (invited) Topological photonics in two and three dimensions

New York University Physics Department Colloquium, New York, NY, March 2017 (invited colloquium) Photonic topological phenomena in two and three dimensions

March Meeting of the American Physical Society, New Orleans, Louisiana, March 2017 (invited) - Photonic topological phenomena in two and three dimensions

Topological Metamaterials and Beyond, Aspen Center for Physics, Aspen, CO, January 2017 (invited) - Experimental Observation of Optical Weyl Points

City College of the City University of New York - ASRC Seminar, New York, NY, November 2016 (invited) - Photonic topological phenomena in two and three dimensions

Mathematical and Physical Models of Nonlinear Optics, Institute for Mathematics and its Applications, Minneapolis, Minnesota, November 2016 (invited) - Experimental Observa-

tion of Optical Weyl Points

University of Chicago Physics Department Seminar, Chicago, Illinois, November 2016 (invited) - Photonic topological materials in two and three dimensions

Physics of Light-Matter Interactions and Excited State Dynamics, Northrop Grumman NG Next, Los Angeles, California, October 2016 (invited) - Experimental Observation of Optical Weyl Points

Frontiers in Optics, Rochester, New York, October 2016 (invited) - Topological protection of zero modes in a time-reversal invariant photonic topological insulator

Progress in Electromagnetic Research Symposium, Shanghai, China, August 2016 (invited) - Protecting entanglement in a photonic topological insulator

Progress in Electromagnetic Research Symposium, Shanghai, China, August 2016 (invited) - Zero modes in a two-dimensional photonic topological insulator

Beyond Standard Quantum Gases 2016, Qinhuangdao, China, August 2016 (invited) - Photonic topological insulators

Conference on Synthetic Topological Quantum Matter, Beijing, China, August 2016 (invited) - Zero modes in a two-dimensional photonic topological insulator

International Workshop on Non-Hermitian Photonics in Complex Media: PT-symmetry and beyond, Heraklion, Crete, Greece, June 2016 (invited) - Zero modes in a two-dimensional photonic topological insulator

Conference on Lasers and Electro-optics (CLEO), San Jose, CA, June 2016 - Dirac physics via Photonic Boron Nitride

Conference on Lasers and Electro-optics (CLEO), San Jose, CA, June 2016 - Majorana zero modes in a two-dimensional photonic topological insulator [Talk given by Jiho Noh]

Max Planck Institute of Quantum Optics Departmental Colloquium, Garching, Germany, May 2016 (invited colloquium) - Aspects of topological photonics

Workshop on Topological Matter at $\hbar = 0$ - Lorentz center, University of Leiden, Netherlands, May 2016 (invited) - Exotic states in topological photonics

State University of New York - Stony Brook AMO seminar, Stony Brook, NY, May 2016 (invited) - Aspects of topological photonics

‘Topolight’ conference, Trento, Italy, April 2016 (invited) - Exotic states in topological photonics

Kavli Frontiers of Science Meeting: Alexander von Humboldt Foundation/US National Academy of Sciences German-American Symposium, Potsdam, Germany, March 2016 (invited) - Protecting transport with topological insulators

University at Buffalo Electrical Engineering Seminar, Buffalo, NY, March 2016 (invited) - Aspects of topological photonics

Case Western Reserve University condensed matter seminar, Cleveland, OH, February 2016

(invited) - Aspects of topological photonics

University of Maryland Condensed Matter Physics Colloquium, College Park, MD, February 2016 (invited) - Aspects of topological photonics

Quantum Simulation with Cold Atoms and Photons, Solvay, Belgium, February 2016 (invited) - Exotic states of photonic topological insulators

PQE conference: Progress in Quantum Electronics, Snowbird, Utah, January 2016 (invited) - Exotic states of photonic topological insulators

META conference: Metamaterials, Photonic Crystals, Plasmonics, August 2015 (keynote talk) - Topological Anderson Insulators

Quantum Correlated Matter and Chaos, Dresden, Germany, June 2015 (invited) - Aspects of photonic topological insulators

Workshop on Quantum Science and Technology, Ascona, Switzerland, June 2015 (invited) - Aspects of photonic topological insulators

École Centrale Lyon Physics Department seminar, Lyon, France, June 2015 (invited) - Aspects of photonic topological insulators

CLEO conference 2015, San Jose, CA, May 2015 - Topological protection of path entanglement in a photonic quantum walk

Materials Research Society Meeting, San Francisco, California, April 2015 (invited) - Disordered photonic graphene to topological insulators

“Topolight” Photonics Winter School, Fai Della Paganella, Italy, March 2015 (invited) - Photonic topological insulators in propagating geometries

APS March meeting, San Antonio, Texas, March 2015 (invited) - Aspects of photonic topological insulators.

SPIE Photonics West, San Francisco, California, February 2015 (invited) - Photonic Topological Anderson Insulators

University of Vienna Physics Department Colloquium, Vienna, Austria, January 2015 (invited) - Artificial gauge fields in optics: topological protection and pseudomagnetism

Physics of Quantum Electronics, Snowbird, Utah, January 2015 (invited) - Photonic Floquet topological insulators

University of Stuttgart Physics Department Colloquium, Stuttgart, Germany, November 2014 (invited) - Artificial gauge fields in optics: topological protection and pseudomagnetism

Quantum Correlations Out of Equilibrium conference, ETH, Zurich, Switzerland, November 2014 (invited) - Aspects of photonic topological insulators (Hermitian to non-Hermitian)

IPS IEEE conference, La Jolla, CA, October 2014 (invited) - Aspects of photonic topological insulators

National Technical University of Singapore, Physics department seminar, Singapore, July

2014

CLEO conference 2014, San Jose, CA, June 2014 - Measuring topological invariants in optical systems from bulk quantities

Photonics North 2014, Montreal, Canada, May 2014 (invited) - Aspects of photonic topological insulators

SPIE Photonics Europe, Brussels, Belgium, April 2014 (invited) - Photonic topological insulators

University of Cambridge, Department of Physics, Cavendish Laboratory seminar, Cambridge, UK, April 2014.

University of Michigan, Electrical and Computer Engineering seminar, Ann Arbor, MI, April 2014

University of Illinois at Urbana-Champaign, Electrical and Computer Engineering seminar, Urbana, IL, April 2014

Purdue University, Electrical and Computer Engineering seminar, West Lafayette, IN, April 2014

OSA Incubator Meeting on Topological Order with Photons, Washington, DC, April 2014 (invited) - Aspects of photonic Floquet topological insulators

Massachusetts Institute of Technology, Electrical Engineering and Computer Science special seminar, Cambridge, MA, March 2014

University of Wisconsin at Madison, Department of Physics seminar, Madison, WI, March 2014

Georgia Institute of Technology, Department of Physics colloquium, Atlanta, GA, March 2014

Brown University, Department of Physics colloquium, Providence, RI, February 2014

The Pennsylvania State University, Department of Physics seminar, State College, PA, February 2014

California Institute of Technology, Department of Applied Physics and Materials Science seminar, Pasadena, CA, February 2014

University of Washington - Seattle, Department of Physics colloquium, Seattle, WA, February 2014

Emory University, Department of Physics colloquium, Atlanta, GA, February 2014

Princeton University, Electrical Engineering departmental seminar, Princeton, NJ, January 2014

The Pennsylvania State University, condensed matter seminar series, State College, PA, September 2013 (invited) - Fictitious fields in photonics

University of British Columbia, condensed matter seminar, Vancouver, BC, September 2013
- Photonic Floquet topological insulators

SPIE Active Photonic Materials V, San Diego, CA, August 2013: *Photonic Floquet topological insulators*

Synthetic Gauge Fields conference, Trento, Italy (BEC Center), July 2013: *Artificial gauge fields in photonics*

Nonlinear Schrödinger equation: theory and applications, Heraklion, Crete, May 2013: *Photonic Floquet topological insulators*

Workshop on Quantum Simulations on the occasion of the award of the Wolf prize to Peter Zoller and Ignacio Cirac, Haifa, Israel, May 2013: *Photonic Floquet topological insulators*

ISF / Batsheva workshop on light-matter interaction, Ein Gedi, Israel, April 2013: *Photonic Floquet topological insulators*

Cornell University, Department of Applied and Engineering Physics, departmental seminar, Ithaca, NY, March 2013: *Fictitious fields in photonics and their applications*

University of California, San Diego, Department of Electrical and Computer Engineering, departmental seminar, San Diego, CA, March 2013: *Fictitious fields in photonics and their applications*

Meeting on Topological Phenomena in Quantum Dynamics and Disordered Systems, Banff, February 2013: *Photonic Floquet topological insulators*

Crystal and Graphene Science Symposium, Boston, September 2012: *Strain-induced magnetism and novel edge states in optical graphene*

SIAM conference on nonlinear waves, San Jose, June 2012: *Strain-induced Landau levels in photonic crystal slabs: linear and nonlinear properties*

Conference on Lasers and Electro Optics (CLEO), San Jose, May, 2012: *Strain-induced Band Gap and Effective Magnetic Field in Photonic Crystals*

Yale University Applied Physics Department seminar, New Haven, February 2012: *Disorder-enhanced transport in photonics quasicrystals*

University of Quebec (INRS Varennes) colloquium, October 2011: *Disorder-enhanced transport in photonic quasicrystals and band gaps in amorphous photonic lattices*

University of Toronto, ECTI Lectureship, October 2011: *Disorder-enhanced transport in photonic quasicrystals and band gaps in amorphous photonic lattices*

University of North Carolina, Chapel Hill, applied mathematics colloquium, September 2011: *Nonlinear optics of microstructures: recent results and open problems*

Information Photonics 2011, Ottawa, May, 2011: *Magnetic field effects and solitons in strained photonic graphene*

IMACS Conference on Nonlinear Evolution Equations and Wave Phenomena, Athens, GA, April, 2011: *Disorder-enhanced transport in photonic quasicrystals: Anderson localization*

and delocalization

SIAM Conference on Nonlinear Waves and Coherent Structures, Philadelphia, August, 2010: *Band gaps in amorphous photonic lattices*

Conference on Lasers and Electro Optics (CLEO), San Jose, May, 2010: *Band gaps in amorphous photonic lattices*

Dartmouth University Applied Math Seminar, November, 2009: *Upper bounds on photonic bandgaps*

Applied mathematics colloquium, Columbia University, April 2009: *Upper bounds on photonic bandgaps*

Wave propagation seminar, New Jersey Institute of Technology, April 2009: *Upper bounds on photonic bandgaps*

Soft matter seminar series, NYU Center for Soft Matter Research, March 2009: *Upper bounds on photonic bandgaps*

Applied math days workshop, Rensselaer Polytechnic Institute, November 2008: *Optimizing photonic quasicrystals*

Solid state physics seminar, Brooklyn College, November 2008: *Optimizing photonic quasicrystals*

Applied Mathematics Seminar, Courant Institute, September 2008: *A few inverse problems in statistical mechanics and photonics*

Princeton Center for Theoretical Science, June 2008: *Upper bounds on photonic bandgaps*

“Dynarum” (DARPA collaboration on robust uncertainty management) Kickoff Meeting, January, 2007, Caltech, Pasadena, CA: *Inverse Problems and Optimization Techniques for Designed Materials*

REFERENCES

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