Francesco Monticone

Assistant Professor of Electrical and Computer Engineering (Tenure-Track)

Office Address:
School of Electrical and Computer Engineering
Cornell University
Phillips Hall – Room 312
Ithaca, NY 14853-5401, U.S.A.

Office phone: +1(607)255-9471
E-mail: francesco.monticone@cornell.edu
Website: monticone.ece.cornell.edu
Google Scholar: scholar.google.com
LinkedIn: linkedin.com/in/francescomonticone
Skype: francesco.monticone

Education

Sept 2011 - Dec 2016 — **PhD degree** in Electrical and Computer Engineering.
The University of Texas at Austin, Austin, TX
- Advisor: Prof. Andrea Alù.
- PhD Dissertation: *Scattering Engineering at the Extreme with Metamaterials, Metasurfaces and Nanostructures*, Dec. 2016.

2009 - 2011 — **Master of Science degree** (*Laurea Specialistica* degree) in Electronics Engineering.
Politecnico di Torino, Torino, Italy
- Summa cum laude and honors (110/110 e lode).

2005 - 2009 — **Bachelor of Science degree** (*Laurea* degree) in Electronics Engineering.
Politecnico di Torino, Torino, Italy

Professional Experience

Jan 2017 - present — **Assistant Professor (tenure-track)**

Cornell University, Ithaca, NY
School of Electrical and Computer Engineering

I lead a research group that investigates – theoretically, computationally, and experimentally – innovative and extreme aspects of wave interaction with engineered (meta)materials and metasurfaces, topological and nonreciprocal materials, and nano-structures. I teach undergraduate and graduate courses on intermediate and advanced electrodynamics, metamaterials, and theoretical nanophotonics.

2019 - present — **Chief Scientific Officer**

Heat Inverse, LLC, Ithaca, NY

I am currently serving as Chief Scientific Officer of Heat Inverse, a startup company based in Ithaca, NY, USA, working on thermal photonics and scalable passive radiative cooling technologies.

Sept 2011 - Dec 2016 — **Graduate Research Assistant**

The University of Texas at Austin, Austin, TX
Metamaterials and Plasmonics Research Laboratory

- Advisor: Prof. Andrea Alù
- Research topics: Scattering engineering at the extreme with metamaterials and plasmonics; fundamental physical bounds in electromagnetism and photonics; active, nonlinear, nonlocal, and multi-physics metamaterial- and metasurface-based devices; wave-based analog computing and image processing with metasurfaces; RF antennas, and microwave circuits and components.

Francesco Monticone

Sept 2015 - Dec 2015 **Visiting Student Researcher**

AMOLF Institute, Amsterdam, The Netherlands
Resonant Nanophotonics Group

- Supervisors: Prof. Andrea Alù, Prof. Femius Koenderink.
- Research topics: Light trapping within the radiation continuum; embedded eigenstates based on epsilon-near-zero media; circuit models for nano-antennas.

July 2010 - Oct 2010 **Visiting Student Researcher**

Macquarie University, Sydney, Australia
Centre for Electromagnetic and Antenna Engineering (CELANE)

- Supervisors: Prof. Mario Orefice, Prof. Ladislau Matekovits and Prof. Karu Esselle.
- Research topics: Electromagnetic band-gap materials; Cloaking devices working in the microwave/millimeter-wave range.

2009 - 2011 **Research Assistant**

Politecnico di Torino, Torino, Italy
Applied Electromagnetics Group

- Supervisors: Prof. Mario Orefice, Prof. Ladislau Matekovits.
- Research topics: Electromagnetic band-gap materials and high-impedance metasurfaces.

Honors and Awards

2021 **News & Views article in Nature Photonics written about our Optica paper [Optica 8, 563-569 (2021)]**. News & Views articles "focus on papers of exceptional significance" published in the recent literature.

2020 **Michael Tien '72 Sustained Excellence and Innovation in Engineering Education Award.** This is the highest award for teaching in the College of Engineering at Cornell University.

2020 **Invited to write a Commentary Article in the journal Nature Photonics (also featured on the journal cover):** F. Monticone, "A Truly One-Way Lane for Surface Plasmon-Polaritons," Nature Photonics, vol. 14, pp. 461-465, July 2020.

2019 **Leopold B. Felsen Award for Excellence in Electrodynamics**
Awarded by the European Association on Antennas and Propagation (EurAAP). This career award is issued, by nomination only, to an early stage researcher under 40 years of age to keep the memory and scientific legacy of Prof. Leopold B. Felsen alive, as well as to foster academic excellence in the electromagnetics community, by giving recognition to outstanding fundamental contributions from early stage researchers in electrodynamics.

2018 **AFOSR Young Investigator Program Award (YIP)**
US Air Force Office of Scientific Research (AFOSR).

2017 **Inaugural Margarida Jacome Dissertation Award**
Awarded by the University of Texas at Austin, Department of Electrical and Computer Engineering.

2017 **Elected Full Member of URSI**
International Union of Radio Science (URSI), Commission B (Fields and Waves). Membership is by nomination only. "Member nominees should have evidence of scientific maturity and leadership in their work".

2017 **Raj Mittra Travel Grant Award**
Awarded by the IEEE Antennas and Propagation Society. The award committee "selects an awardee based primarily upon the candidate's potential or demonstrated aptitude for research".

2017 - present **Several awards received by my PhD students at Cornell University**:

Zeki Hayran – **2021 IEEE Photonics Society Graduate Student Scholarship**.
Zeki Hayran – **2021 SPIE Optics and Photonics Education Scholarship**.
Kunal Shastri – **Finalist of the Student Paper Competition** of Metamaterials'2021, September 20 - 25, 2021.
Zeki Hayran – **Second Prize at the 2021 OSA Early Career Best Poster Competition** at the Waves in Time Varying Media Conference, 2021.
Kunal Shastri – **2021 Outstanding Teaching Assistant Award** from the School of Electrical and Computer Engineering at Cornell University.
Zeki Hayran – **Third Prize at the Student Paper Competition** of Metamaterials'2020, September 28 - October 3, 2020.
Kunal Shastri – **Finalist of the Student Paper Competition** of SPIE Optics + Photonics 2019, San Diego, California, USA, August 11-15, 2019.
Aobo Chen – **Honorable Mention at the Student Paper Competition** of the 2019 IEEE International Symposium on Antennas and Propagation, Atlanta, GA, USA, July 7-12, 2019, with the paper: A. Chen, and F. Monticone, "Ultra-compact wave-based solvers for fractional-calculus equations".
Aobo Chen – **Finalist of the Student Paper Competition** of the 2017 IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting. San Diego, California, USA, July 9-14, 2017.

2016 **WNCG Student Leadership Award**
"Each year, WNCG faculty nominate one outstanding student to receive the WNCG Student Leadership Award. The award is presented to a student based on their cumulative contributions to the center, including their representation of WNCG to the greater community, their mentorship of fellow students, their research visibility and recognition from external organizations".

2015 **IEEE Photonics Society Graduate Student Fellowship**
"The IEEE Photonics Society established the Graduate Student Fellowship Program to provide Graduate Fellowships to outstanding Society student members pursuing graduate education within the Society field of interest (electro-optics, lasers, photonics, optics, or closely related fields)".

2015 **FGSA Travel Award for Excellence in Graduate Research**
Awarded by the American Physical Society. "The FGSA Travel Award recognizes graduate students who have made noteworthy progress in their academic careers. This includes both graduate students who demonstrate great potential as well as those with considerable accomplishments in their field".

2015 **Honorable Mention**
Student Paper Competition of the 2015 IEEE International Symposium on Antennas and Propagation and North American Radio Science Meeting, Vancouver, Canada, July 19-25,

2015, with the paper: F. Monticone, C. Valagiannopoulos, and A. Alù, "Aberration-Free Planar Focusing based on Parity-Time Symmetric Nonlocal Metamaterials".

2015 **USNC-URSI Travel Fellowship Grant Award**
"For technical merit", to support the participation to the 2015 North American Radio Science Meeting in Vancouver, Canada, July 19-25, 2015.

2014 **H.L. Bruce Endowed Graduate Student Fellowship**
Awarded by the Graduate School of The University of Texas at Austin.

2013 - Present **Physical Review Letters "Editors' choice"**
For the papers: F. Monticone, and A. Alù, "Embedded Photonic Eigenvalues in 3D Nanostructures"; F. Monticone, N. Mohammadi Estakhri, and A. Alù, "Full Control of Nanoscale Optical Transmission with a Composite Metascreen"; F. Monticone, C. Argyropoulos, and A. Alù, "Multi-Layered Plasmonic Covers for Comblike Scattering Response and Optical Tagging".

2014 **Honorable Mention**
Student Paper Competition of the 2014 IEEE AP-S International Symposium on Antennas and Propagation, Memphis, Tennessee, USA, July 6-11, 2014, with the paper: F. Monticone, V. Galdi, N. Engheta, and A. Alù, " 'Computing Metasurfaces' to Perform Mathematical Operations".

2013 **IEEE Antennas and Propagation Society Doctoral Research Award**
Awarded by the IEEE Antennas and Propagation Society (AP-S) for my project proposal entitled "Molding the Scattering Response with Metamaterials and Plasmonics".

2013 **Best Student Paper Award (1st prize)**
Metamaterials 2013 Student Paper Competition, with the paper: F. Monticone and A. Alù, "On the Physical Bounds of Cloaking and Invisibility".

2013 **Incubic/Milton Chang Travel Award**
Awarded by the Optical Society of America (OSA).

2013 **Honorable Mention**
Student Paper Competition of the 2013 IEEE AP-S International Symposium on Antennas and Propagation, Orlando, Florida, USA, July 7-12, 2013, with the paper: F. Monticone, Xiaoqin Li, and A. Alù, "Strong Optical Magnetism and Fano Resonances in Asymmetric Plasmonic Metamolecules".

2013 **USNC-URSI Travel Fellowship Grant Award**
"For technical merit", to support the participation to the 2013 USNC-URSI National Radio Science Meeting in Boulder, CO, USA.

Professional Activities

Invited talks, lectures, and seminars

[1] **"New Frontiers for Light Manipulation,"** University of California–Davis, guest-speaker seminar series, Davis, CA, April 15, 2022. (*invited talk*)

[2] **"Emerging Directions in Flat Optics,"** webinar series of the Optical Material Studies Technical Group, Online, March 1, 2022. (*invited webinar*)

[3] **"Nonlocal Flat Optics,"** SPIE Photonics West, San Francisco, CA, January 22-27, 2022. (*invited talk*)

[4] **"New Frontiers for Light Manipulation,"** SPIE Chapter at the University of Rochester, guest-speaker seminar series, Rochester, NY, November 4, 2021. (*invited talk*)

[5] **"Scattering by Finite Objects: Theory, Extreme Effects, and Fundamental Bounds,"** EUPROMETA Doctoral School 2021, Online, September 24, 2021. (*invited lecture*)

[6] **"Classical and Quantum Chrono-Metamaterials,"** Metamaterials'2021, Online, September 20-25, 2021. (*invited talk*)

[7] **"New Frontiers for Metasurfaces: From Ultra-Broadband Metalenses to Nonlocal Meta-Optics,"** Optical Design and Fabrication Congress 2021 – Flat Optics: Components to Systems, Online, June 27 - July 1, 2021. (*invited talk*)

[8] **"Emerging Directions in Local and Nonlocal Flat Optics,"** CLEO/Europe – EQEC 2021, Online, June 20-24 2021. (*invited talk*)

[9] **"Emerging Directions in Local and Nonlocal Flat Optics,"** Frontiers in Plasmonics and Nano-Photonics - NANOPLASM 2020+1, Online, June 11-17, 2021. (*invited keynote talk*)

[10] **"New Frontiers in Nonreciprocity: Broadband Nonreciprocal Effects, Giant Nonlinear Processes, and Drift-Biased Nonreciprocal Media,"** 2021 SIAM Conference on Mathematical Aspects of Materials Science, Online, May 17-28, 2021. (*invited talk*)

[11] **"Non-Hermitian Chrono-Metamaterials and Spectral Causality,"** Conference on Laser and Electro-Optics (CLEO), Online, May 11-13, 2021. (*invited talk*)

[12] **"Unidirectional Plasmonics: Broadband Field Hot-Spots, Giant Nonlinear Effects, and Nonreciprocal Thermal Radiation,"** SPIE Photonics West, Online, March 6-11, 2021. (*invited talk*)

[13] **"New Frontiers for Metasurfaces: From Ultra-Broadband Metalenses to Nonlocal Meta-Optics,"** SPIE Photonics West, Online, March 6-11, 2021. (*invited talk*)

[14] **"New Frontiers for Electromagnetic Wave Manipulation Using Metamaterials, Metasurfaces and Nanostructures,"** 2020 IEEE Rochester Section Joint Chapters Meeting, Online, October 27, 2020. (*invited talk*)

[15] **"Focusing on Bandwidth: Fundamental Limits to Broadband Metalensing and Scattering Engineering,"** Metamaterials'2020, Online, September 28 - October 3, 2020. (*invited talk*)

[16] **"Beyond Conventional Physical Bounds with Spacetime Metamaterials,"** SPIE Optics and Photonics 2020, Online, August 23-27, 2020. (*invited talk*)

[17] **"Focusing on Bandwidth: Fundamental Limits to Broadband Metalensing and Scattering Engineering,"** SPIE Optics and Photonics 2020, Online, August 23-27, 2020. (*invited talk*)

[18] **"New Frontiers for Metasurfaces: From Ultra-Broadband Metalenses to Nonlocal Meta-Optics,"** Nanophotonics guest-speaker webinar series at Corning Inc., Online, August 14, 2020. (*invited webinar*)

[19] **"Controlling Light with Metasurfaces: New Frontiers and Fundamental Limits,"** Plasmonica 2020 - International Workshop on Plasmonics, Online, April 30, 2020. (*invited talk*)

[20] **"New Frontiers for Light Manipulation Using Metamaterials, Metasurfaces, and Nanostructures,"** Physics of Optical Materials symposium, Corning Museum of Glass, Corning NY, November 8, 2019. (*invited talk*)

[21] **"New Frontiers for Light Manipulation Using Metamaterials, Metasurfaces, and Nanostructures,"** Physics of Optical Materials symposium, Corning Museum of Glass, Corning NY, November 8, 2019. (*invited talk*)

[22] **"Topology, locality, and passivity in nonreciprocal electromagnetic media,"** 2019 BIRS Workshop: "Herglotz-Nevanlinna Theory Applied to Passive, Causal and Active Systems", Banff International Research Station for Mathematical Innovation and Discovery (BIRS), Banff, Alberta, Canada, October 6-11, 2019. (*invited talk*)

[23] **"Do Truly Unidirectional and Topological Surface Plasmon-Polaritons Exist?"** Metamaterials'2019, Rome, Italy, September 16-21, 2019. (*invited talk*)

[24] **"Scattering Engineering at the Extreme with Complex Media,"** SPIE Optics and Photonics 2019, San Diego, CA, USA, August 11-15, 2019. (*invited talk*)

[25] **"Topological electromagnetics in complex scenarios: Non-reciprocal, non-Hermitian, non-linear, and non-local material structures,"** 2019 IEEE International Symposium on Antennas and Propagation (AP-S/URSI 2019), Atlanta, GA, USA, July 7-12, 2019. (*invited talk*)

[26] **"Electromagnetic "beasts" and where to find them: Analyzing extreme effects and singularities in meta-structures,"** 41st Progress In Electromagnetics Research Symposium (PIERS 2019), Rome, Italy, June 17-20, 2019. (*invited talk*)

[27] **"Nonreciprocity-Induced Quantum Optical Torque,"** 41st Progress In Electromagnetics Research Symposium (PIERS 2019), Rome, Italy, June 17-20, 2019. (*invited talk*)

[28] **"Robust Topological Scattering and Radiating Structures,"** 41st Progress In Electromagnetics Research Symposium (PIERS 2019), Rome, Italy, June 17-20, 2019. (*invited talk*)

[29] **"Manipulating Surface Waves and Nanoscale Forces/Torques with Nonreciprocal Platforms,"** URSI International Symposium on Electromagnetic Theory (EMTS 2019), San Diego, CA, USA, May 27-31, 2019. (*invited talk*)

[30] **"New Frontiers for Electromagnetic Wave Manipulation,"** Physics Colloquium at the University of North Texas, Denton, TX, USA, February 12, 2019. (*invited seminar*)

[31] **"Trapping light in plain sight: Topological embedded eigenstates in dielectric metasurfaces,"** SPIE Photonics West, San Francisco, CA, USA, February 3-7, 2019. (*invited talk*)

[32] **"Do truly unidirectional (and topological) surface plasmon-polaritons exist?"** 49th Winter Colloquium on the Physics of Quantum Electronics (PQE 2019), Snowbird, UT, USA, January 10, 2019. (*invited talk*)

[33] **"Strongly Nonreciprocal Platforms: Truly Unidirectional Surface Waves and Nonreciprocity-Induced Optical Torque,"** 7th International Topical Meeting on Nanophotonics and Metamaterials (NANOMETA 2019), Seefeld in Tirol, Austria, January 3-6, 2019. (*invited talk*)

[34] **"Fascinating Wave Phenomena in Topological Matter: Topologically-Protected Embedded Eigenstates, Leaky Modes, and Exceptional Points,"** 2018 MRS Fall Meeting, Boston, Massachusetts, USA, November 25-30, 2018. (*invited talk*)

[35] **"Advanced Material Platforms for Electromagnetic Wave Manipulation,"** NCMN Seminar, Nebraska Center for Materials and Nanoscience (NCMN), University of Nebraska-Lincoln, Lincoln, NE, USA, November 14, 2018. (*invited seminar*)

[36] **"Non-Reciprocal Wave Propagation Devices by Fermionic Emulation and Exceptional Point Physics,"** NSF EFRI-2DARE & NewLAW Grantees Meeting 2018, San Diego, CA, USA, October 17-19, 2018. (*invited talk*)

[37] **"Topologically-Protected Embedded Eigenstates, Leaky Modes, and Jordan Modes,"** Metamaterials, Metadevices, and Metasystems 2018, SPIE Nanoscience + Engineering, San Diego, CA, USA, August 19-23, 2018. (*invited talk*)

[38] **"Physical Bounds on Metamaterial Structures and Extreme Electromagnetic Effects,"** 2018 SIAM Conference on Mathematical Aspects of Materials Science (MS18), Portland, Oregon, USA, July 9-13, 2018. (*invited talk*)

[39] **"New Frontiers for Topologically-Protected and Nonreciprocal Wave Manipulation,"** IEEE EDS/SSCS New York Chapter Mini-Colloquium on New Modes of Light and Acoustic Wave Propagation (NewLAW), Columbia University, New York, USA, June 14, 2018. (*invited talk*)

[40] **"New Frontiers in Plasmonics: Embedded Eigenstates and Topological Effects,"** 2nd URSI Atlantic Radio Science Conference (URSI AT-RASC), Gran Canaria, Spain, May 28 - June 1, 2018. (*invited talk*)

[41] **"Scattering engineering at the extreme: Anomalies, singularities, and physical bounds in passive and active meta-structures,"** EUPROMETA - 35th Doctoral School on Metamaterials, Roma Tre University, Rome, Italy, December 19, 2017. (*invited lecture*)

[42] **"Molding light with metamaterials, metasurfaces, and nanostructures,"** Cornell OSA Chapter Seminar, September 22, 2017. (*invited seminar*)

[43] **"Scattering Engineering at the Extreme: Physical Bounds, Anomalies and Singularities in Passive and Active Metamaterial Structures,"** International Conference on Electromagnetics in Advanced Applications (ICEAA'17), Verona, Italy, September 11-15, 2017. (*invited talk*)

[44] **"Parity-time symmetric nonlocal metasurfaces: Focusing and imaging through balanced loss and gain,"** The 47th Winter Colloquium on the Physics of Quantum Electronics (PQE), Snowbird, Utah, USA, January 8-13, 2017. (*invited talk*)

Before joining Cornell University:

[45] **"Exotic Wave Interactions with Metamaterials, Metasurfaces and Nanostructures,"** Cornell University, Department of Electrical and Computer Engineering, April 2016. (*invited seminar*)

[46] **"Exotic Wave Interactions with Metamaterials, Metasurfaces and Nanostructures,"** University of North Caroline at Charlotte, Department of Electrical and Computer Engineering, March 2016. (*invited seminar*)

[47] **"Scattering Engineering at the Extreme and Exotic Wave Interactions with Metamaterials and Metasurfaces,"** University of Washington at Seattle, Department of Electrical and Computer Engineering, March 2016. (*invited seminar*)

[48] **"Scattering Engineering at the Extreme and Exotic Wave Interactions with Metamaterials and Metasurfaces,"** University of Rochester, Institute of Optics, March 2016. (*invited seminar*)

[49] **"Extraordinary Light Trapping in Plasmonic and Metamaterial Structures,"** SPIE Photonics Europe, Brussels, Belgium, April 4, 2016. (*invited talk*)

[50] **"Scattering Engineering at the Extreme with Metamaterials and Plasmonics,"** Nanophotonics Colloquium, FOM Institute AMOLF, Amsterdam, The Netherlands, December 9, 2015. (*invited seminar*)

[51] **"Realization and Operation of Modular 3-D Optical Nanocircuits,"** 2015 IEEE International Symposium on Antennas and Propagation and North American Radio Science Meeting, Vancouver, Canada, July 19-25, 2015. (*invited talk*)

[52] **"Cloaking devices,"** Faculty of Science, Macquarie University, Sydney, Australia, October 8, 2010. (*invited seminar*)

Reviewing Activities

- **Active peer reviewer** for the journals *Nature*, *Science*, *Optica*, *Nature Photonics*, *Nature Communications*, *Physical Review Letters*, *Physical Review X*, *Physical Review Applied*, *Physical Review A*, *Physical Review B*, *ACS Photonics*, *ACS Nano*, *Nano Letters*, *Optics Express*, *Optical Material Express*, *Optics Letters*, *Applied Optics*, *Journal of Optics*, *Applied Physics Letters*, *Scientific Reports*, *Journal of Applied Physics*, *Mechanics of Materials*, *IEEE Antennas and Wireless Propagation Letters*, *IEEE Journal on Multiscale and Multiphysics Computational Techniques*, *IEEE Transactions on Antennas and Propagation* and several international conferences.
- **NSF Reviewer and Panelist**. National Science Foundation, Directorate of Engineering.
- **Reviewer** of grant proposals, for US Department of Defense (DoD) funding agencies.

Consulting and interactions with industrial organizations

- Serving as **Chief Scientific Officer** of Heat Inverse, LLC, a startup company based in Ithaca, NY, USA.
- Collaborating with **Corning Inc., Optical Physics Research group**.

Memberships

Professional Societies

- Member, Institute of Electrical and Electronics Engineers (**IEEE**) (2009 - present).
- Member, IEEE Antennas and Propagation Society (**IEEE AP-S**) (2012 - present).
- Member, IEEE Photonics Society (**IEEE IPS**) (2013 - present).
- Member, American Physical Society (**APS**) (2011 - present).
- Member, Optical Society of America (**OSA**) (2013 - present).
- Member, Virtual Institute for Artificial Electromagnetic Materials and Metamaterials (2015 - present).
- Member, **SPIE** - The International Society for Optics and Photonics (2018 - present).
- Full Member, International Union of Radio Science (**URSI**), Commission B (Fields and Waves) (2017 - present).

Graduate Fields

- Cornell University, Electrical and Computer Engineering (2017 - present).

Service Activities

Professional Service and Leadership

- **Organizer of the special session "Novel Phenomena in Time-Variant Photonics,"** (together with Prof. John Pendry and Prof. Maxim Shcherbakov) at the 2021 Conference on Lasers & Electro-optics – CLEO'2022.
- **Associate Editor for the IEEE Transactions on Antennas and Propagation** (2020 - present).
- **Organizer of the special session "Fundamental Performance Limits in Photonics,"** (together with Prof. David Miller and Prof. Owen Miller) at the International Congress on Engineered Material Platforms for Novel Wave Phenomena – Metamaterials'2021.
- **Guest Editor - Focus Issue on "Active Metamaterials and Metasurfaces"** in New Journal of Physics (2020-2021).
- **Member of the technical program committee** (2020-2021). International Congress on Engineered Material Platforms for Novel Wave Phenomena - Metamaterials'2020-2021.
- **Organizer of the special session "Topological Electromagnetics,"** at the 2019 IEEE International Symposium on Antennas and Propagation and USNC-URSI National Radio Science Meeting.
- **Chair of awards committee** (2018 - 2019). International Congress on Engineered Material Platforms for Novel Wave Phenomena - Metamaterials'2019.
- **Member of the steering committee** (2017 - Present). International Congress on Engineered Material Platforms for Novel Wave Phenomena - Metamaterials' congress series.
- **Sponsors and exhibitors organizer** (2015, 2016, 2017). International Congress on Engineered Material Platforms for Novel Wave Phenomena - Metamaterials' congress series.
- **Session chair** at international conferences: *IEEE International Symposium on Antennas and Propagation and USNC-URSI National Radio Science Meeting, MRS (Materials Research Society) Fall Meeting, SPIE Photonics West, SPIE Optics + Photonics, Metamaterials, etc.*
- **Executive committee member** (2017 - 2020) for the Optical Material Studies Technical Group (Optical Society of America).

Cornell Committees and Responsibilities

- **Member of Cornell ECE's Curriculum & Standards committee** (2021 - present).
- **Member of Cornell ECE's policy committee** (2020 - present).
- **Chair of qualifying examination committee** – Qual Exam on Electromagnetics & Optics (2018, 2019, 2020, 2021); Qual Exam on Solid State / Quantum (2017).
- **Member of faculty search committee (microsystems search)** – School of Electrical and Computer Engineering (2018-2019).
- **Faculty advisor** for 20+ undergraduate students in the College of Engineering and the School of Electrical and Computer Engineering (2017 - Present).
- **Member of the graduate special committee** (dissertation committee) of several PhD students in the School of Electrical and Computer Engineering and the School of Applied and Engineering Physics.

List of courses taught at Cornell University

Fall 2021	**ECE 3030**: Electromagnetic Fields and Waves.
Spring 2021	**ECE 5970**: Molding Light Flow: Advanced Electrodynamics of Complex Media. (online)
Fall 2020	**ECE 3030**: Electromagnetic Fields and Waves. (online)
Spring 2020	**ECE 5970**: Molding Light Flow: Advanced Electrodynamics of Complex Media.

Fall 2019	**ECE 3030**: Electromagnetic Fields and Waves.
Spring 2019	**ECE 5970**: Molding Light Flow: Advanced Electrodynamics of Complex Media.
Fall 2018	**ECE 4380 / AEP 4450**: Electromagnetic and Optical Metamaterials.
Spring 2018	**ECE 5970**: Molding Light Flow: Advanced Electrodynamics of Complex Media. New course developed by Dr. Monticone
Fall 2017	**ECE 4380 / AEP 4450**: Electromagnetic and Optical Metamaterials. New course developed by Dr. Monticone
Fall 2017	**ENGRG 1050**: Engineering Seminar.
Spring 2017	Teaching relief.

Publications

Summary

- **70+** papers, published or under review, in peer-reviewed journals, including Science, Proceedings of the IEEE, Nature Photonics, Nature Nanotechnology, Nature Communications, Optica, Physical Review X, and Physical Review Letters.
- **100+** conference papers and abstracts.
- **50+** invited talks, lectures, and seminars.
- **2** book chapters, and **1** book in preparation.
- **h-index: 33 (5500+ citations)**
- **Google Scholar Profile:** https://scholar.google.com/citations?user=IrARKxQAAAAJ&hl=en&oi=ao

Peer-Reviewed Journal Papers

[1] Z. Hayran, and F. Monticone, **"Overcoming Conventional Design Trade-offs and Limitations with Time-Varying Electromagnetic Systems,"** under review.

[2] O. Reshef, R. W. Boyd, F. Monticone, and J. S. Lundeen, **"Optical spaceplates: An optic that compresses space,"** under review.

[3] W. Tait*, R. P. Thedford*, F. Yu*, K. Shastri, F. Monticone, and U. Wiesner, **"The Promise of Soft Matter Enabled Quantum Materials,"** under review.

[4] S. A. H. Gangaraj, and F. Monticone, **"Drifting Electrons: Nonreciprocal Plasmonics and Thermal Photonics,"** under review.

[5] K. Shastri, and F. Monticone, **"Fundamental tradeoff between absorptivity and omni-directionality in thin metasurface-based absorbers and emitters,"** under review.

[6] F. B. Arango, F. Alpeggiani, D. Conteduca, A. Opheij, A. Chen, T. Krauss, A. Alù, F. Monticone*, and L. Kuipers*, **"Cloaked Near-Field Probe for Non-Invasive Near-Field Optical Microscopy,"** under review. * Co-corresponding authors.

[7] H. Shim, F. Monticone, and O. D. Miller, **"Fundamental limits to the refractive index of transparent optical materials,"** in press, Advanced Materials, 2021. doi: 10.1002/adma.202103946

[8] Z. Hayran, A. Chen, and F. Monticone, **"Spectral Causality and the Scattering of Waves,"** Optica, vol. 8, no. 8, pp. 1040-1049, July 2021. [News Highlights have appeared on the Cornell Chronicle, Phys.org, Science Daily, N+1, Kopalnia Wiedzy, Nanowerk, Photonics Media, among others] doi: 10.1364/OPTICA.423089

[9] M. Moccia, G. Castaldi, F. Monticone*, and V. Galdi*, **"Exceptional Points in Flat Optics: A Non-Hermitian Line-Wave Scenario,"** Phys. Rev. Applied, vol. 15, p. 064067, June 2021. * Co-corresponding authors.
doi: 10.1103/PhysRevApplied.15.064067

[10] A. Chen, and F. Monticone, **"Dielectric Nonlocal Metasurfaces for Fully Solid-State Ultrathin Optical Systems,"** ACS Photonics, vol. 8, no. 5, pp. 1439-1447, May 2021.
doi: 10.1021/acsphotonics.1c00189

[11] M. I. Abdelrahman*, Z. Hayran*, A. Chen, and F. Monticone, **"Physical Limitations on Broadband Invisibility Based on Fast-Light Media,"** Nature Communications, vol. 12, p. 3041, May 2021.
doi: 10.1038/s41467-021-22972-w

[12] K. Shastri, M. I. Abdelrahman, and F. Monticone, **"Nonreciprocal and topological plasmonics,"** Photonics, vol. 8, no. 4, p. 133, April 2021. (*invited review paper*) [Selected as "Editor's Choice"]
doi: 10.3390/photonics8040133

[13] J. B. Khurgin, Y. Sebbag, E. Edrei, R. Zektzer, K. Shastri, U. Levy, and F. Monticone, **"Emulating Exceptional-Point Encirclements Using Imperfect (Leaky) Photonic Components,"** Optica, vol. 8, no. 4, pp. 563-569, April 2021. [A News and Views article highlighting our findings was published in Nature Photonics: S. Kim, and G. Bahl, "Exceptional behaviour without exceptional effort," Nat. Photon. News and Views, July 15, 2021.]
doi: 10.1364/OPTICA.412981

[14] Z. Hayran, and F. Monticone, **"Capturing Broadband Light in a Compact Bound State in the Continuum,"** ACS Photonics, vol. 8, no. 3, pp. 813-823, March 2021.
doi: 10.1021/acsphotonics.0c01696

[15] M. I. Abdelrahman, and F. Monticone, **"Broadband and Giant Nonreciprocity at the Subwavelength Scale in Magneto-Plasmonic Materials,"** Physical Review B, vol. 102, no. 15, p. 155420, Oct. 2020.
doi: 10.1103/PhysRevB.102.155420

[16] S. A. H. Gangaraj, B. Jin, C. Argyropoulos, and F. Monticone, **"Broadband Field Enhancement and Giant Nonlinear Effects in Terminated Unidirectional Plasmonic Waveguides,"** Physical Review Applied, vol. 14, no. 5, p. 054061, Nov. 2020.
doi: 10.1103/PhysRevApplied.14.054061

[17] A. Sheverdin, F. Monticone, and C. Valagiannopoulos, **"Photonic Inverse Design with Neural Networks: The Case of Invisibility in the Visible,"** Physical Review Applied, vol. 14, no. 2, p. 024054, Aug. 2020
doi: 10.1103/PhysRevApplied.14.024054

[18] A. M. Holmes, S. Pakniyat, S. A. Hassani Gangaraj, F. Monticone, M. Weinert, and G. W. Hanson, **"Exchange Splitting and Exchange-Induced Nonreciprocal Photonic Behavior of Graphene in CrI3-Graphene van der Waals Heterostructures,"** Physical Review B, vol. 102, no. 7, p. 075435, Aug. 2020.
doi: 10.1103/PhysRevB.102.075435

[19] F. Monticone, **"A Truly One-Way Lane for Surface Plasmon-Polaritons,"** Nature Photonics, vol. 14, pp. 461-465, July 2020. (*invited Commentary Article*) [Featured on the journal cover; Highlighted on Cornell Engineering News]
doi: 10.1038/s41566-020-0662-5

[20] F. Presutti, and F. Monticone, **"Focusing on Bandwidth: Achromatic Metalens Limits,"** Optica, vol. 7, no. 6, pp. 624-631, June 2020. [Highlighted on Cornell Engineering News]
doi: 10.1364/OPTICA.389404

[21] K. Shastri, and F. Monticone, **"Dissipation-Induced Topological Transitions in Weyl Semi-Metals,"** Physical Review Research, vol. 2, no. 3, p.033065, July 2020.
doi: 10.1103/PhysRevResearch.2.033065

[22] S. A. H. Gangaraj, and F. Monticone, **"Physical Violations of the Bulk-Edge Correspondence in Topological Electromagnetics,"** Physical Review Letters, vol. 124, no. 15, p. 153901, April 2020.
doi: 10.1103/PhysRevLett.124.153901

[23] S. A. H. Gangaraj, C. Valagiannopoulos, and F. Monticone, **"Topological Scattering Resonances at Ultra-Low Frequencies,"** Physical Review Research, vol. 2, no. 2, p. 023180, May 2020.
doi: 10.1103/PhysRevResearch.2.023180

[24] S. Pakniyat, A. M. Holmes, G. W. Hanson, S. A. Hassani Gangaraj, M. Antezza, M. G. Silveirinha, S. Jam and F. Monticone, **"Non-Reciprocal, Robust Surface Plasmon Polaritons on Gyrotropic Interfaces,"** IEEE Transaction on Antenna and Propagation, vol. 68, no. 5, May 2020.
doi: 10.1109/TAP.2020.2969725

[25] A. Chen, and F. Monticone, **"Active Scattering-Cancellation Cloaking: Broadband Invisibility and Stability Constraints,"** IEEE Transactions on Antennas and Propagation, vol. 68, no. 3, March 2020. (*invited special issue paper*)
doi: 10.1109/TAP.2019.2948528

[26] F. Monticone, D. Sounas, A. Krasnok, and A. Alù, **"Can a Nonradiating Mode Be Externally Excited? Nonscattering States vs. Embedded Eigenstates,"** ACS Photonics, vol. 6, no. 12, pp. 3108-3114, Dec. 2019.
doi: 10.1021/acsphotonics.9b01104

[27] A. Krasnok, D. Baranov, H. Li, M.-A. Miri, F. Monticone, and A. Alù, **"Anomalies in Light Scattering"** Adv. Opt. Photonics, vol. 11, no. 4, p. 892, Dec. 2019.
doi: 10.1364/AOP.11.000892

[28] S. A. H. Gangaraj, and F. Monticone, **"Do Truly Unidirectional Surface Plasmon-Polaritons Exist?"** Optica, vol. 6, no. 9, Sept 2019.
doi: 10.1364/OPTICA.6.001158

[29] G. W. Hanson, S. A. H. Gangaraj, M. G. Silveirinha, M. Antezza, and F. Monticone, **"Non-Markovian transient Casimir-Polder force and population dynamics on excited- and ground-state atoms: Weak- and strong-coupling regimes in generally nonreciprocal environments,"** Phys. Rev. A, vol. 99, p. 042508, Apr. 2019.
doi: 10.1103/PhysRevA.99.042508

[30] S. A. Hassani Gangaraj, G. W. Hanson, M. G. Silveirinha, K. Shastri, M. Antezza, and F. Monticone, **"Unidirectional and diffractionless surface plasmon polaritons on three-dimensional nonreciprocal plasmonic platforms,"** Phys. Rev. B, vol. 99, no. 24, p. 245414, Jun. 2019.
doi: 10.1103/PhysRevB.99.245414

[31] Z. Hayran, S. A. H. Gangaraj, and F. Monticone, **"Topologically protected broadband rerouting of propagating waves around complex objects,"** Nanophotonics, vol. 8, no. 8, pp. 1371-1378, May 2019. (*invited special issue paper*)
doi: 10.1515/nanoph-2019-0075

[32] S. A. H. Gangaraj, and F. Monticone, **"Coupled Topological Surface Modes in Gyrotropic Structures: Green's Function Analysis,"** IEEE Antennas and Wireless Propagation Letters, vol. 17, no. 11, pp. 1993-1997, Nov. 2018. (*invited paper*)
doi: 10.1109/LAWP.2018.2859796

[33] C. Valagiannopoulos, S. A. H. Gangaraj, and F. Monticone, **"Zeeman gyrotropic scatterers,** Nanomater. Nanotechnol., vol. 8, Oct. 2018. (*invited paper*)
doi: 10.1177/1847980418808087

[34] S. A. H. Gangaraj, M. G. Silveirinha, G. W. Hanson, M. Antezza, and F. Monticone, **"Optical torque on a two-level system near a strongly nonreciprocal medium,"** Phys. Rev. B, vol. 98, no. 12, p. 125146, Sep. 2018.
doi: 10.1103/PhysRevB.98.125146

[35] S. A. H. Gangaraj, and F. Monticone, **"Topological Waveguiding near an Exceptional Point: Defect-Immune, Slow-Light, and Loss-Immune Propagation,"** Phys. Rev. Lett., vol. 121, no. 9, p. 093901, Aug. 2018.
doi: 10.1103/PhysRevLett.121.093901

[36] H. Doeleman, F. Monticone, W. den Hollander, A. Alù, and A. F. Koenderink, **"Experimental observation of a polarization vortex at an optical bound state in the continuum,"** Nat. Photonics, vol. 12, pp. 397-401, 2018.
doi: 10.1038/s41566-018-0177-5

[37] F. Monticone, H. M. Doeleman, W. Den Hollander, F. Koenderink, and A. Alù, **"Trapping Light in Plain Sight: Embedded Photonics Eigenstates in Zero-Index Metamaterials,"** Laser Photon. Rev., vol. 12, no. 5, p. 1700220, Apr. 2018.
doi: 10.1002/lpor.201700220

[38] S. A. H. Gangaraj, and F. Monticone, **"Topologically-Protected One-Way Leaky Waves in Nonreciprocal Plasmonic Structures,"** J. Phys. Condens. Matter, vol. 30, no. 10, 2018 (*invited paper*).
doi: 10.1088/1361-648X/aaab24

[39] S. A. H. Gangaraj, and F. Monticone, **"Molding light with metasurfaces: From far-field to near-field interactions,"** Nanophotonics, vol. 7, no. 6, pp. 1025-1040, 2018 (*invited review paper*).
doi: 10.1515/nanoph-2017-0126

[40] F. Monticone, C. Argyropoulos, and A. Alù, **"Optical Antennas: Controlling Electromagnetic Scattering, Radiation, and Emission at the Nanoscale,"** IEEE Antennas and Propagation Magazine, Special Issue on Optical Antennas, Vol. 59, No. 6, pp. 43-61, October 18, 2017 (*invited review paper*).
doi: 10.1109/MAP.2017.2752721

[41] F. Monticone, and A. Alù, **"Bound States within the Radiation Continuum in Diffraction Gratings and the Role of Leaky Modes,"** New Journal of Physics, Vol. 19, 093011 (8 pages), September 14, 2017.
doi: 10.1088/1367-2630/aa849f

[42] S. Savoia, C. A. Valagiannopoulos, F. Monticone, G. Castaldi, V. Galdi, and A. Alù, **"Magnified Imaging Based on Non-Hermitian Nonlocal Cylindrical Metasurfaces,"** Physical Review B, Vol. 95, No. 11, 115114 (13 pages), March 8, 2017.
doi: 10.1103/PhysRevB.95.115114

[43] K. Chen, Y. Feng, F. Monticone, J. Zhao, B. Zhu, T. Jiang, L. Zhang, Y. Kim, X. Ding, S. Zhang, A. Alù, and C.-W. Qiu, **"A Reconfigurable Active Huygens' Metalens,"** Advanced Materials, Vol. 29, No. 17, 1606422 (7 pages), May 3, 2017.
doi: 10.1002/adma.201606422

[44] F. Monticone, and A. Alù, **"Metamaterial, Plasmonic and Nanophotonic Devices,"** Reports on Progress in Physics, Vol. 80, No. 3, 036401 (37 pages), February 6, 2017 (*invited review paper*).
doi: 10.1088/1361-6633/aa518f

[45] F. Monticone, D. Sounas, and A. Alù, **"Fundamental Limitations on Passive Cloaking, and Beyond,"** FERMAT, Vol. 19, No. 4 (2 pages), Jan.-Feb. 2017.
available here

Before joining Cornell University:

[46] F. Monticone, C. A. Valagiannopoulos, and A. Alù, **"Parity-Time Symmetric Nonlocal Metasurfaces: All-Angle Negative Refraction and Volumetric Imaging,"** Physical Review X, Vol. 6, 041018 (13 pages), October 25, 2016.
doi: 10.1103/PhysRevX.6.041018

[47] F. Monticone, and A. Alù, **"Invisibility Exposed: Physical Bounds on Passive Cloaking,"** Optica, Vol. 3, No. 7, pp. 718-724, July 5, 2016. [UT Austin press release. News highlights have appeared on Huffington Post, Optics and Photonics News, VICE - Motherboard, Science Alert, Business Insider, UT ECE News, Physics.org, among others]
doi: 10.1364/OPTICA.3.000718

[48] C. Valagiannopoulos,* F. Monticone,* and A. Alù, **"PT-Symmetric Planar Devices for Field Transformation and Imaging,"** Journal of Optics, Special Issue on Transformation Optics, Vol. 18, No. 4, 044028 (11pages), April 1, 2016, (*invited paper*). * Joint first authorship.
doi: 10.1088/2040-8978/18/4/044028

[49] F. Qin*, L. Ding*, L. Zhang*, F. Monticone*, C. C. Chum, J. Deng, S. Mei, Y. Li, J. Teng, M. Hong, S. Zhang, A. Alù, and C. W. Qiu, **"Complementary Bilayer Metasurface to Efficiently Manipulate Light,"** Science Advances, Vol. 2, No. 1, e1501168 (8 pages), January 1, 2016. * Joint first authorship.
doi: 10.1126/sciadv.1501168

[50] R. Fleury*, F. Monticone*, and A. Alù, **"Invisibility and Cloaking: Origins, Present, and Future Perspectives„"** Physical Review Applied, Vol. 4, No. 3, 037001 (20 pages), September 1, 2015, (*invited review paper*). * Joint first authorship.
doi: 10.1103/PhysRevApplied.4.037001

[51] B. Hopkins, D. S. Filonov, A. E. Miroshnichenko, F. Monticone, A. Alù, and Y. S. Kivshar, **"Interplay of magnetic responses in all-dielectric oligomers and magnetic Fano resonances,"** ACS Photonics, Vol. 2, No. 6, pp. 724-729, June 1, 2015.
doi: 10.1021/acsphotonics.5b00082

[52] F. Monticone, and A. Alù, **"Leaky-Wave Theory, Techniques and Applications: From Microwaves to Visible Frequencies,"** Proceedings of the IEEE, Vol. 103, No. 5, pp. 793-821, May 26, 2015, (*invited paper*). [The paper was featured on the cover. A prolog by J. Esch, introducing our paper, also appeared on the same issue]
doi: 10.1109/JPROC.2015.2399419

[53] X. Ding*, F. Monticone*, K. Zhang, L. Zhang, D. Gao, S. N. Burokur, A. de Lustrac, Q. Wu, C. W. Qiu, and A. Alù, **"Ultrathin Pancharatnam-Berry Metasurface with Maximal Cross-Polarization Efficiency,"** Advanced Materials, Vol. 27, No. 7, pp. 1195-1200, February 18, 2015. * Joint first authorship.
doi: 10.1002/adma.201405047

[54] A. Silva, F. Monticone, G. Castaldi, V. Galdi, A. Alù, and N. Engheta, **"Doing Math with Light,"** Optics and Photonics News, Year in Optics 2014, Vol. 25, No. 12, p. 52, December 1, 2014.
available at: Optics and Photonics News

[55] F. Monticone, and A. Alù, **"Trapping Light in Plain Sight: Embedded Eigenstates in Open 3D Nanostructures,"** Forum for Electromagnetic Research Methods and Application Technologies (FERMAT), Vol. 6, No. 1, November 3, 2014.
available at: FERMAT - News and Views

[56] F. Monticone, and A. Alù, **"The Quest for Optical Magnetism: From Split-Ring Resonators to Plasmonic Nanoparticles and Nanoclusters,"** Journal of Materials Chemistry C, Vol. 2, No. 43, pp. 9059-9072, October 16, 2014, (*invited feature article*).
doi: 10.1039/C4TC01406E

[57] F. Monticone, and A. Alù, **"Physical Bounds on Electromagnetic Invisibility and the Potential of Superconducting Cloaks,"** Photonics and Nanostructures - Fundamentals and Applications, Special Issue for Metamaterials 2013, Vol. 12, No. 4, 330-339, August 2014, (*invited paper*).
doi: 10.1016/j.photonics.2014.05.008

[58] F. Monticone, and A. Alù, **"Embedded Photonic Eigenvalues in 3D Nanostructures,"** Physical Review Letters, Vol. 112, No. 21, 213903 (5 pages), May 29, 2014. [This paper was selected as PRL Editor's Suggestion]
doi: 10.1103/PhysRevLett.112.213903.

[59] J. Shi*, F. Monticone*, S. Elias*, Y. Wu, D. Ratchford, X. Li, and A. Alù, **"Modular Assembly of Optical Nanocircuits,"** Nature Communications, Vol. 5, No. 3896, May 29, 2014. * Joint first authorship.
doi: 10.1038/ncomms4896.

[60] C. Argyropoulos, F. Monticone, N. Mohammadi Estakhri, and A. Alù, **"Tunable Plasmonic and Hyperbolic Metamaterials,"** International Journal of Antennas and Propagation, Special Issue on 'Reconfigurable Electromagnetics through Metamaterials', Vol. 2014, 532634 (11 pages), April 6, 2014, (*invited paper*).
doi: 10.1155/2014/532634.

[61] F. Monticone, and A. Alù, **"Metamaterials and Plasmonics: From Nanoparticles to Nanoantenna Arrays, Metasurfaces and Metamaterials,"** Chinese Physics B, Vol. 23, No. 4, 047809 (12 pages), March 20, 2014, (*invited review paper*). [This paper was the most downloaded Chinese Physics B paper in 2014]
doi: 10.1088/1674-1056/23/4/047809.

[62] A. Silva*, F. Monticone*, G. Castaldi, V. Galdi, A. Alù, and N. Engheta, **"Performing Mathematical Operations with Metamaterials,"** Science, Vol. 343. No. 6167, pp. 160-163, January 10, 2014. [A Perspective from A. Sihvola appeared on the same issue, pp. 144-145; News highlights have appeared on Phys.org, Nanowerk, AzoNano, Laser Focus World, Tech Times, The Alcalde, La Repubblica, New Scientist, Live Science, ANSA, Penn Current, UT News, among others] * Joint first authorship.
doi: 10.1126/science.1242818

[63] F. Monticone, and A. Alù, **"Metamaterial-Enhanced Nanophotonics,"** Optics and Photonics News, Year in Optics 2013, Vol. 24, No. 12, p. 35, November 26, 2013.
doi: 10.1364/OPN.24.12.000035.

[64] F. Monticone, and A. Alù, **"Do Cloaked Objects Really Scatter Less?,"** Physical Review X, Special Issue on Metamaterials, Vol. 3, No. 4, 041005 (10 pages), October 21, 2013, (*invited paper*). [Press coverage by BBC, NBC News, Physics World, Live Science, Gizmag, Mashable, The Horn, The Alcalde, Bio News Texas, National Journal, Time Magazine, among others]
doi: 10.1103/PhysRevX.3.041005

[65] C. Argyropoulos, F. Monticone, G. D'Aguanno, and A. Alù, **"Plasmonic Nanoparticles and Metasurfaces to Realize Fano Spectra at Ultraviolet Wavelengths,"** Applied Physics Letters, Vol. 103, No. 14, 143113 (4 pages), October 1, 2013.
doi: 10.1063/1.4823575.

[66] C. Argyropoulos, N. Mohammadi Estakhri, F. Monticone, and A. Alù, **"Negative Refraction, Gain and Nonlinear Effects in Hyperbolic Metamaterials,"** Optics Express, Focus Issue on Hyperbolic Metamaterials: Fundamentals and Applications, Vol. 21, No. 12, pp. 15037-15047, June 17, 2013, (*invited paper*).
doi: 10.1364/OE.21.015037.

[67] F. Monticone, N. Mohammadi Estakhri, and A. Alù, **"Full Control of Nanoscale Optical Transmission with a Composite Metascreen,"** Physical Review Letters, Vol. 110, No. 20, 203903 (5 pages), May 14, 2013. [This paper was selected as PRL Editor's suggestion; Press coverage by Phys.org].
doi: 10.1103/PhysRevLett.110.203903.

[68] F. Monticone, C. Argyropoulos, and A. Alù, **"Multi-Layered Plasmonic Covers for Comblike Scattering Response and Optical Tagging,"** Physical Review Letters, Vol. 110, No. 11, 113901 (5 pages), March 12, 2013. [This paper was selected as PRL Editor's suggestion].
doi: 10.1103/PhysRevLett.110.113901.

[69] F. Shafiei*, F. Monticone*, K. Q. Le, X. X. Liu, T. Hartsfield, A. Alù, and X. Li, **"A Subwavelength Plasmonic Metamolecule Exhibiting Magnetic-Based Optical Fano Resonance,"** Nature Nanotechnology, Vol. 8, pp. 95-99, January 27, 2013. [The paper was featured on the cover. A News and Views by P. Nordlander highlighting our findings also appeared in the same issue]. * Joint first authorship.
doi: 10.1038/nnano.2012.249.

[70] F. Monticone, C. Argyropoulos, and A. Alù, **"Layered Plasmonic Cloaks to Tailor the Optical Scattering at the Nanoscale,"** Scientific Reports, Special Issue for E-MRS 2012, Vol. 2, No. 912, December 3, 2012, (*invited paper*).
doi: 10.1038/srep00912.

[71] C. Argyropoulos, P. Y. Chen, F. Monticone, G. D'Aguanno, and A. Alù, **"Nonlinear Plasmonic Cloaks to Realize Giant All-Optical Scattering Switching,"** Physical Review Letters, Vol. 108, No. 26, 263905 (5 pages), June 27, 2012.
doi: 10.1103/PhysRevLett.108.263905.

[72] P. Y. Chen, F. Monticone, and A. Alù, **"Suppressing the Electromagnetic Scattering with an Helical Mantle Cloak,"** IEEE Antennas and Wireless Propagation Letters, Special Cluster on Metamaterials, Vol. 10, pp. 1598-1601, December 9, 2011, (*invited paper*).
doi: 10.1109/LAWP.2011.2179001.

Francesco Monticone

Books and Book Chapters

[1] G. Shvets, F. Monticone, and A. Alù, **"Metamaterials and Metasurfaces for Scientists and Engineers,"** in preparation.

[2] F. Monticone, and A. Alù, **"Scattering at the Extreme with Metamaterials and Plasmonics,"** in World Scientific Handbook of Metamaterials and Plasmonics, S. Maier, ed., Vol. 1, Ch. 7, pp. 295-335, Dec. 2017.
doi: 10.1142/9789813228696_0007

[3] P. Y. Chen, F. Monticone, C. Argyropoulos, and A. Alù, **"Plasmonic Optical Nanoantennas,"** in Modern Plasmonics, A. Maradudin, J. R. Sambles, W. L. Barnes, eds., Elsevier, Ch. 4, pp. 109-136, 2014.

Conference Papers and Abstracts

[1] F. Monticone, **"Nonlocal Flat Optics,"** SPIE Photonics West, San Francisco, CA, January 22-27, 2022. (*invited*)

[2] K. Shastri, and F. Monticone, **"Bandwidth Limits for Local and Nonlocal Flat Optics,"** Metamaterials'2021, Online, September 20-25, 2021. [Finalist of the Student Paper Competition]

[3] S. A. H. Gangaraj, B. Jin, C. Argyropoulos, and F. Monticone, **"Drift-Induced Nonreciprocal Hotspots And Enhanced Nonlinear Effects In Graphene,"** Metamaterials'2021, Online, September 20-25, 2021.

[4] Z. Hayran, and F. Monticone, **"Controlling the Spectral Flow of Light in Non-Hermitian Photonic Time Crystals,"** Metamaterials'2021, Online, September 20-25, 2021.

[5] H. Shim, F. Monticone, and O. D. Miller, **"Fundamental Limits To The Refractive Index Of Transparent Optical Materials,"** Metamaterials'2021, Online, September 20-25, 2021.

[6] F. Monticone, **"Classical and Quantum Chrono-Metamaterials,"** Metamaterials'2021, Online, September 20-25, 2021. (*invited*)

[7] S. A. H. Gangaraj, B. Jin, C. Argyropoulos, and F. Monticone, **"Nonreciprocity-Enhanced Nonlinear Wave-Matter Interactions,"** URSI GASS, Rome, Italy, Aug. 28 - Sep. 4, 2021. (*invited*)

[8] F. Monticone, **"New Frontiers for Metasurfaces: From Ultra-Broadband Metalenses to Nonlocal Meta-Optics,"** Optical Design and Fabrication Congress 2021 – Flat Optics: Components to Systems, Online, June 27 - July 1, 2021. (*invited*)

[9] F. Monticone, **"Emerging Directions in Local and Nonlocal Flat Optics,"** CLEO/Europe – EQEC 2021, Online, June 20-24 2021. (*invited*)

[10] F. Monticone, **"Emerging Directions in Local and Nonlocal Flat Optics,"** Frontiers in Plasmonics and Nano-Photonics - NANOPLASM 2020+1, Online, June 11-17, 2021. (*invited keynote talk*)

[11] F. Monticone, **"New Frontiers in Nonreciprocity: Broadband Nonreciprocal Effects, Giant Nonlinear Processes, and Drift-Biased Nonreciprocal Media,"** 2021 SIAM Conference on Mathematical Aspects of Materials Science, Online, May 17-28, 2021. (*invited*)

[12] F. Monticone, **"Non-Hermitian Chrono-Metamaterials and Spectral Causality,"** Conference on Laser and Electro-Optics (CLEO), Online, May 11-13, 2021. (*invited*)

[13] K. Shastri, and F. Monticone, **"Existence of a Fundamental Tradeoff Between Absorptivity and Omnidirectionality in Metasurfaces,"** Conference on Laser and Electro-Optics (CLEO), Online, May 11-13, 2021.

[14] F. Monticone, **"Unidirectional Plasmonics: Broadband Field Hot-Spots, Giant Nonlinear Effects, and Nonreciprocal Thermal Radiation,"** SPIE Photonics West, Online, March 6-11, 2021. (*invited*)

[15] F. Monticone, **"New Frontiers for Metasurfaces: From Ultra-Broadband Metalenses to Nonlocal Meta-Optics,"** SPIE Photonics West, Online, March 6-11, 2021. (*invited*)

[16] S. A. H. Gangaraj, and F. Monticone, **"Drifting Electrons: Nonreciprocal Plasmonics and Thermal Photonics,"** National radio science meeting, URSI, Boulder, CO, USA, Jan. 4-9, 2021. (*invited*)

[17] F. Monticone, **"Focusing on Bandwidth: Fundamental Limits to Broadband Metalensing and Scattering Engineering,"** Metamaterials'2020, Online, September 28 - October 3, 2020. (*invited*)

[18] S. A. H. Gangaraj, B. Jin, C. Argyropoulos, and F. Monticone, **'Broadband Enhanced Nonlinear Harmonic Generation in Terminated Unidirectional Plasmonic Waveguides,"** Metamaterials'2020, Online, September 28 - October 3, 2020.

[19] K. Shastri, and F. Monticone, **"Omnidirectional, Frequency Selective Metasurface Absorber based on Quasi-Bound States in the Continuum,"** Metamaterials'2020, Online, September 28 - October 3, 2020.

[20] A. Chen, and F. Monticone, **"Broadband Absorption Limits for Ultrathin Solar Cells,"** Metamaterials'2020, Online, September 28 - October 3, 2020.

[21] M. I. Abdelrahman, and F. Monticone, **"Towards Broadband and Compact Giant Nonreciprocity at THz Frequencies,"** Metamaterials'2020, Online, September 28 - October 3, 2020.

[22] Z. Hayran, and F. Monticone, **"Temporally Modulated Non-Hermitian Optical Systems Based on Epsilon-Near-Zero Media,"** Metamaterials'2020, Online, September 28 - October 3, 2020. [Finalist of the Student Paper Competition]

[23] S. Maji, S. Sinha, B. Regensburger, F. Monticone and K. Afridi **"Reduced-Fringing-Field Multi-MHz Capacitive Wireless Power Transfer System Utilizing a Metasurface-based Coupler,"** IEEE Workshop on Control and Modeling for Power Electronics (IEEE COMPEL 2020), Online, November 9-12, 2020.

[24] F. Monticone, and Z. Hayran, **"Beyond Conventional Physical Bounds with Spacetime Metamaterials,"** SPIE Optics and Photonics 2020, Online, August 23-27, 2020. (*invited*)

[25] F. Monticone, **"Focusing on Bandwidth: Fundamental Limits to Broadband Metalensing and Scattering Engineering,"** SPIE Optics and Photonics 2020, Online, August 23-27, 2020. (*invited*)

[26] S. A. H. Gangaraj, and F. Monticone, **"Violations of the Bulk-Edge Correspondence in Topological Electromagnetics,"** 2020 IEEE International Symposium on Antennas and Propagation (AP-S/URSI 2020), Online, July 5-10, 2020.

[27] A. M. Holmes, M. Weinert, S. A. H. Gangaraj, F. Monticone, and G. W. Hanson, **"Enormous Exchange Field Magnetic Bias, Faraday Rotation, and SPPs on Graphene in Proximity to the 2D Magnet CrI3,"** 2020 IEEE International Symposium on Antennas and Propagation (AP-S/URSI 2020), Online, July 5-10, 2020.

[28] S. A. H. Gangaraj, and F. Monticone, **"Violations of the Bulk-Edge Correspondence for Uniform Topological Photonic Materials,"** Conference on Laser and Electro-Optics (CLEO), Online, May 10-15, 2020.

[29] K. Shastri, and F. Monticone, **"Dissipation of Topological Charge in Plasmonic Weyl Semimetals,"** Conference on Laser and Electro-Optics (CLEO), Online, May 10-15, 2020.

[30] F. Presutti, and F. Monticone, **"Focusing on Bandwidth: Achromatic Metalens Limits,"** Conference on Laser and Electro-Optics (CLEO), Online, May 10-15, 2020.

[31] F. Monticone, **"Topology, locality, and passivity in nonreciprocal electromagnetic media,"** 2019 BIRS Workshop: "Herglotz-Nevanlinna Theory Applied to Passive, Causal and Active Systems", Banff International Research Station for Mathematical Innovation and Discovery (BIRS), Banff, Alberta, Canada, October 6-11, 2019. (*invited*)

[32] F. Monticone, **"Do Truly Unidirectional and Topological Surface Plasmon-Polaritons Exist?"** Metamaterials'2019, Rome, Italy, September 16-21, 2019. (*invited*)

[33] F. Monticone, **"Scattering Engineering at the Extreme with Complex Media,"** SPIE Optics and Photonics 2019, San Diego, CA, USA, August 11-15, 2019. (*invited*)

[34] K. Shastri, and F. Monticone, **"Robust Surface-Wave Propagation and Leaky Wave Radiation based on Three Dimensional Topological Plasmonic Materials,"** SPIE Optics and Photonics 2019, San Diego, CA, USA, August 11-15, 2019. [Finalist of the Student Paper Competition]

[35] F. Monticone, **"Topological electromagnetics in complex scenarios: Non-reciprocal, non-Hermitian, non-linear, and non-local material structures,"** 2019 IEEE International Symposium on Antennas and Propagation (AP-S/URSI 2019), Atlanta, GA, USA, July 7-12, 2019. (*invited*)

[36] S. A. H. Gangaraj, and F. Monticone, **"Manipulating surface waves and nanoscale torques with nonreciprocal platforms"**, 2019 IEEE International Symposium on Antennas and Propagation (AP-S/URSI 2019), Atlanta, GA, USA, July 7-12, 2019.

[37] A. Chen, and F. Monticone, **"On Broadband Active Cloaking,"** 2019 IEEE International Symposium on Antennas and Propagation (AP-S/URSI 2019), Atlanta, GA, USA, July 7-12, 2019.

[38] A. Chen, and F. Monticone, **"Ultra-compact wave-based solvers for fractional-calculus equations,"** 2019 IEEE International Symposium on Antennas and Propagation (AP-S/URSI 2019), Atlanta, GA, USA, July 7-12, 2019. [Honorable Mention - Student Paper Competition]

[39] F. Monticone, **"Electromagnetic "beasts" and where to find them: Analyzing extreme effects and singularities in meta-structures,"** 41st Progress In Electromagnetics Research Symposium (PIERS 2019), Rome, Italy, June 17-20, 2019. (*invited*)

[40] F. Monticone, **"Nonreciprocity-Induced Quantum Optical Torque,"** 41st Progress In Electromagnetics Research Symposium (PIERS 2019), Rome, Italy, June 17-20, 2019. (*invited*)

[41] F. Monticone, **"Robust Topological Scattering and Radiating Structures,"** 41st Progress In Electromagnetics Research Symposium (PIERS 2019), Rome, Italy, June 17-20, 2019. (*invited*)

[42] F. Monticone, **"Manipulating Surface Waves and Nanoscale Forces/Torques with Nonreciprocal Platforms,"** URSI International Symposium on Electromagnetic Theory (EMTS 2019), San Diego, CA, USA, May 27-31, 2019. (*invited*)

[43] S. A. H. Gangaraj, and F. Monticone, **"On the Effect of Dissipation and Nonlocality on Unidirectional and Topological Surface Plasmon-Polaritons"**, International Applied Computational Electromagnetics Society Symposium (ACES), Miami, FL, April 14-18, 2019. (*invited*)

[44] K. Shastri, and F. Monticone, **"Weyl exceptional rings in a dissipative magnetically-biased plasma,"** APS March Meeting 2019, Boston, MA, USA, March 4-8, 2019.

[45] F. Monticone, **"Trapping light in plain sight: Topological embedded eigenstates in dielectric metasurfaces,"** SPIE Photonics West, San Francisco, CA, USA, February 3-7, 2019. (*invited*)

[46] S. A. H. Gangaraj, and F. Monticone, **"Shape-independent ultra subwavelength topological superscatterers"**, URSI National Radio Science Meeting, Boulder, CO, January 9-12, 2019.

[47] F. Monticone, **"Do truly unidirectional (and topological) surface plasmon-polaritons exist?"** 49th Winter Colloquium on the Physics of Quantum Electronics (PQE 2019), Snowbird, UT, USA, January 10, 2019. (*invited*)

[48] F. Monticone, **"Strongly Nonreciprocal Platforms: Truly Unidirectional Surface Waves and Nonreciprocity-Induced Optical Torque,"** 7th International Topical Meeting on Nanophotonics and Metamaterials (NANOMETA 2019), Seefeld in Tirol, Austria, January 3-6, 2019. (*invited*)

[49] F. Monticone, **"Fascinating Wave Phenomena in Topological Matter: Topologically-Protected Embedded Eigenstates, Leaky Modes, and Exceptional Points,"** 2018 MRS Fall Meeting, Boston, Massachusetts, USA, November 25-30, 2018, (invited).

[50] F. Monticone, **"Topologically-Protected Embedded Eigenstates, Leaky Modes, and Jordan Modes,"** Metamaterials, Metadevices, and Metasystems 2018, SPIE Nanoscience + Engineering, San Diego, CA, USA, August 19-23, 2018, *(invited).*

[51] H. Doeleman, F. Monticone, W. den Hollander, A. Alù, and A. F. Koenderink, **"Experimental observation of a polarization vortex at a bound state in the continuum,"** Active Photonic Platforms X, SPIE Nanoscience + Engineering, San Diego, CA, USA, August 19-23, 2018.

[52] S. A. H. Gangaraj, and F. Monticone, **"Topologically-protected leaky-wave structures,"** 2018 IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting, Boston, Massachusetts, USA, July 8-13, 2018.

[53] S. A. H. Gangaraj, and F. Monticone, **"Modal interactions and degeneracies in coupled photonic topological insulators with loss and gain,"** 2018 IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting, Boston, Massachusetts, USA, July 8-13, 2018.

[54] S. A. H. Gangaraj, F. Monticone, M. G. Silveirinha, G. W. Hanson, and M. Antezza **"Spontaneous lateral atomic recoil force and torque close to a photonic topological material,"** 2018 Progress In Electromagnetics Research Symposium, Toyama, Japan, August 1-4, 2018.

[55] F. Monticone, **"Physical Bounds on Metamaterial Structures and Extreme Electromagnetic Effects,"** 2018 SIAM Conference on Mathematical Aspects of Materials Science (MS18), Portland, Oregon, USA, July 9-13, 2018 (invited).

[56] F. Monticone, **"New Frontiers in Plasmonics: Embedded Eigenstates and Topological Effects,"** 2nd URSI Atlantic Radio Science Conference (URSI AT-RASC), Gran Canaria, Spain, May 28 - June 1, 2018 (invited).

[57] S. A. H. Gangaraj, and F. Monticone, **"Topologically-protected leaky-wave structures,"** National Radio Science Meeting, Boulder, CO, January 4-7, 2018 (invited).

[58] M. G. Silveirinha, A. Hassani, G. W. Hanson, M. Antezza, and F. Monticone, **"Photonic topological insulator - Creation of a spontaneous lateral atomic recoil force,"** National Radio Science Meeting, Boulder, CO, January 4-7, 2018.

[59] F. Monticone, **"Scattering Engineering at the Extreme: Physical Bounds, Anomalies and Singularities in Passive and Active Metamaterial Structures,"** International Conference on Electromagnetics in Advanced Applications (ICEAA'17), Verona, Italy, September 11-15, 2017 (invited).

[60] A. Alù, D. L. Sounas, A. Krasnok, and F. Monticone, **"Embedded Eigenstates and Coherent Virtual Absorption in Metamaterial Structures,"** 32nd International Union of Radio Science General Assembly and Scientific Symposium, Montreal, Canada, August 19-26, 2017.

[61] A. Krasnok, F. Monticone, and A. Alù, **"Embedded Eigenstates and Virtual Absorption Using Metamaterials,"** SPIE Optics and Photonics, San Diego, CA, August 6-10, 2017.

[62] A. Chen, A. Alù, and F. Monticone, **"Invisible Near-Field Probes at Infrared Frequencies based on Impedance Engineering at the Nanoscale,"** IEEE AP-S Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting, San Diego, CA, July 9-14, 2017. [selected for the final of the Student Paper Competition]

[63] F. Monticone, and A. Alù, **"On Invisible Bodies, Nonradiating Sources, and Embedded Eigenstates,"** IEEE AP-S Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting, San Diego, CA, July 9-14, 2017.

[64] A. Alù, F. Monticone, and A. Krasnok, **"Embedded Eigenstates and Virtual Absorption Using Metamaterials,"** 9th International Conference on Materials for Advanced Technologies (ICMAT 2017), Singapore, June 18-23, 2017.

[65] F. Monticone, and A. Alù, **"Trapping Light in Plain Sight: Embedded Photonic Eigenstates Using Metamaterials,"** 6th International Topical Meeting on Nanophotonics and Metamaterials (NanoMeta), Seefeld, Austria, January 4-9, 2017.

[66] F. Monticone, and A. Alù, **"Parity-Time Symmetric Nonlocal Metasurfaces: Focusing and Imaging Through Balanced Loss and Gain,"** 47th Winter Colloquium on the Physics of Quantum Electronics (PQE), Snowbird, UT, January 8-13, 2017, *(invited)*.

Before joining Cornell University:

[67] F. Monticone, and A. Alù, **"Foster's Reactance Theorem Implications for Scattering and Cloaking,"** in Proceedings of the 2016 IEEE International Symposium on Antennas and Propagation and USNC-URSI National Radio Science Meeting, Fajardo, Puerto Rico, June 26-July 1, 2016.

[68] F. Monticone, and A. Alù, **"Boosting the Directivity of Optical Nanoantennas,"** in Proceedings of the 2016 IEEE International Symposium on Antennas and Propagation and USNC-URSI National Radio Science Meeting, Fajardo, Puerto Rico, June 26-July 1, 2016, (invited).

[69] F. Monticone, and A. Alù, **"Scattering and Radiation Singularities in Epsilon-Near-Zero Structures,** in Proceedings of the 2016 IEEE International Symposium on Antennas and Propagation and USNC-URSI National Radio Science Meeting, Fajardo, Puerto Rico, June 26-July 1, 2016.

[70] F. Monticone, and A. Alù, **"Trapping Light in Plain Sight,"** Nanoscale Quantum Optics 2015, Amsterdam, The Netherlands, October 23, 2015.

[71] F. Monticone, and A. Alù, **"Leaky Waves, Wood's Anomalies and Extraordinary Optical Trapping,"** 9th International Congress on Advanced Electromagnetic Materials in Microwaves and Optics - Metamaterials 2015, Oxford, UK, September 7-10, 2015.

[72] F. Monticone, C. Valagiannopoulos, S. Savoia, R. Fleury and A. Alù, **"PT-Symmetric Metamaterial Systems for Aberration-Free Imaging and Wave Manipulation,"** 9th International Congress on Advanced Electromagnetic Materials in Microwaves and Optics - Metamaterials 2015, Oxford, UK, September 7-10, 2015.

[73] F. Monticone, and A. Alù, **"Embedded Photonic Eigenstates: Towards Ideal Light Localization and Confinement in Open Nanostructures,"** OSI 2015 - The International Conference on Optics of Surfaces and Interfaces, Austin, Texas, USA, June 28 - July 3, 2015.

[74] F. Monticone, N. Mohammadi Estakhri, and A. Alù, **"Linear and Nonlinear Optical Nano-Antennas,"** 2015 IEEE International Symposium on Antennas and Propagation and North American Radio Science Meeting, Vancouver, Canada, July 19-25, 2015, (*invited*).

[75] F. Monticone, C. Argyropoulos, and A. Alù, **"MIMO Optical Wireless at the Nanoscale,"** 2015 IEEE International Symposium on Antennas and Propagation and North American Radio Science Meeting, Vancouver, Canada, July 19-25, 2015.

[76] F. Monticone, and A. Alù, **"Embedded Scattering Eigenstates: Light Trapping in 2D and 3D Systems,"** 2015 IEEE International Symposium on Antennas and Propagation and North American Radio Science Meeting, Vancouver, Canada, July 19-25, 2015.

[77] F. Monticone, C. Valagiannopoulos, and A. Alù, **"Aberration-Free Planar Focusing based on Parity-Time Symmetric Nonlocal Metamaterials,"** 2015 IEEE International Symposium on Antennas and Propagation and North American Radio Science Meeting, Vancouver, Canada, July 19-25, 2015.

[78] F. Monticone, C. Valagiannopoulos, S. Savoia, R. Fleury and A. Alù, **"Parity-Time Symmetric Nonlocal Metamaterials for Focusing and Image Processing,"** 2015 APS March Meeting, San Antonio, Texas, USA, March 2-6, 2015.

[79] F. Monticone, and A. Alù, **"Scattering Engineering: From Broadband Cloaking and Resonance Effects, to Embedded Scattering Eigenvalues in 3D Nanostructures,"** 8th International Congress on Advanced Electromagnetic Materials in Microwaves and Optics - Metamaterials 2014, Copenhagen, Denmark, August 25-30, 2014.

[80] C. Della Giovampaola, B. Edwards, A. Silva, F. Monticone, G. Castaldi, V. Galdi, A. Alù, N. Engheta **"Recent Progress in Metamaterials That Perform Mathematical Operations,"** 8th International Congress on Advanced Electromagnetic Materials in Microwaves and Optics - Metamaterials 2014, Copenhagen, Denmark, August 25-30, 2014.

[81] F. Monticone, V. Galdi, N. Engheta, and A. Alù, **" 'Computing Metasurfaces' to Perform Mathematical Operations,"** 2014 IEEE International Symposium on Antennas and Propagation and USNC-URSI National Radio Science Meeting, Memphis, Tennessee, USA, July 6-12, 2014.

[82] C. Della Giovampaola, B. Edwards, A. Silva, F. Monticone, G. Castaldi, V. Galdi, A. Alù, and N. Engheta, **"Waveguide-based Metamaterials as a Platform for Mathematical Operations,"** 2014 IEEE International Symposium on Antennas and Propagation and USNC-URSI National Radio Science Meeting, Memphis, Tennessee, USA, July 6-12, 2014.

[83] A. Silva, F. Monticone, G. Castaldi, V. Galdi, A. Alù, and N. Engheta, **"Meta-material-Based Analog Computing,"** Third Mediterranean Photonics Conference, Trani, Italy, May 7-9, 2014.

[84] F. Shafiei, F. Monticone, K. Le, X. Liu, T. Hartsfield, A. Alù, X. Li, **"Plasmonic Magnetic Nanostructure,"** 2014 APS March Meeting, Denver, CO, March 3-7, 2014.

[85] J. Shi, S. Elias, F. Monticone, Y. Wu, D. Ratchford, X. Li, and A. Alù, **"Assembling Three-Dimensional Optical Stereo-Nanocircuits,"** 2014 APS March Meeting, Denver, CO, March 3-7, 2014.

[86] F. Monticone, X. Li, and A. Alù, **"Boosting Optical Magnetism with Symmetry Breaking in a Subwavelength Plasmonic Metamolecule,"** Frontiers in Optics 2013, Orlando, FL, USA, October 6-10, 2013.

[87] F. Monticone, and A. Alù, **"Controlling the Nanoscale Optical Transmission with Single and Stacked Metasurfaces,"** Frontiers in Optics 2013, Orlando, FL, USA, October 6-10, 2013.

[88] F. Monticone, and A. Alù, **"On the Physical Bounds of Cloaking and Invisibility,"** 7th International Congress on Advanced Electromagnetic Materials in Microwaves and Optics - Metamaterials 2013, Bordeaux, France, September 16-21, 2013. [**best student paper award**].

[89] A. Silva, F. Monticone, G. Castaldi, V. Galdi, A. Alù, and N. Engheta, **"Mathematical Manipulation with Metamaterials,"** 7th International Congress on Advanced Electromagnetic Materials in Microwaves and Optics - Metamaterials 2013, Bordeaux, France, September 16-21, 2013.

[90] F. Monticone, X. Li, and A. Alù, **"Strong Optical Magnetism and Fano Resonances in Asymmetric Plasmonic Metamolecules,"** 2013 IEEE International Symposium on Antennas and Propagation, Lake Buena Vista, FL, July 7-12, 2013.

[91] F. Monticone, R. Fleury, and A. Alù, **"Physical Bounds and Limitations of Cloaking and Invisibility Using Passive Metamaterials,"** USNC-URSI National Radio Science Meeting, Lake Buena Vista, FL, July 7-12, 2013.

[92] A. Silva, F. Monticone, G. Castaldi, V. Galdi, A. Alù, and N. Engheta, **"Metastructures for Signal Manipulation,"** USNC-URSI National Radio Science Meeting, Lake Buena Vista, FL, July 7-12, 2013.

[93] F. Monticone, and A. Alù, **"Molding the Optical Transmission with a Meta-Transmit-array,"** USNC-URSI National Radio Science Meeting, Lake Buena Vista, FL, July 7-12, 2013.

[94] F. Shafiei, F. Monticone, K. Le, X. Liu, T. Hartsfield, A. Alù, and X. Li, **"Subwavelength Plasmonic Metamolecule Exhibiting Magnetic-Based Optical Fano Re-sonance,"** CLEO 2013, San Jose, CA, USA, June 9-14, 2013.

[95] A. Alù, and F. Monticone, **"Physical Bounds, Potential and Limitations of Metamaterial Cloaks,"** 2013 SIAM Conference on Mathematical Aspects of Materials Science, Philadelphia, PA, June 8-12, 2013, (*invited*).

[96] A. Silva, F. Monticone, G. Castaldi, V. Galdi, A. Alù, and N. Engheta, **"Metamaterial Analog Computing,"** 2013 SIAM Conference on Mathematical Aspects of Materials Science, Philadelphia, PA, June 8-12, 2013, (*invited*).

[97] F. Shafiei, F. Monticone, K. Q. Le, X. X. Liu, T. Hartsfield, A. Alù, and X. Li, **"A Subwavelength Magnetic Metamolecule,"** 2013 American Physical Society March Meeting, Baltimore, MA, March 18-22, 2013

[98] F. Monticone, and A. Alù, **"Fundamental Passivity and Causality Bounds on Metamaterial Cloaking,"** URSI-USNC National Radio Science Meeting, Boulder, CO, January 9-12, 2013.

[99] F. Monticone, and A. Alù, **"Manipulating the Nanoscale Optical Transmission with a Meta-Transmitarray,"** NanoMeta 2013, Seefeld, Tirol, Austria, January 3-6, 2013.

[100] A. Alù, F. Monticone, and Romain Fleury, **"Fundamental Physical Bounds on Metamaterial Cloaking,"** NanoMeta 2013, Seefeld, Tirol, Austria, January 3-6, 2013, (*invited*).

[101] A. Alù, C. Argyropoulos, P. Y. Chen, F. Monticone, N. Mohammadi, Y. Zhao, **"Nanoantenna Arrays to Tailor Absorption, Polarization and Nonlinear Effects,"** NanoMeta 2013, Seefeld, Tirol, Austria, January 3-6, 2013.

[102] F. Monticone, and A. Alù, **"Multi-Layered Plasmonic Cloaks to Engineer the Scattering Signature of Resonant Nanoparticles,"** in Proceedings of the 2012 IEEE International Symposium on Antennas and Propagation, Chicago, IL, USA, July 8-14, 2012.

[103] A. Alves, G. Castaldi, V. Galdi, F. Monticone, A. Alù, and N. Engheta, **"Signal-Processing Metamaterials and Non-Local Transformation Optics,"** Gordon Research Conference on Plasmonics: Light Matter Interaction at the Nanoscale, Colby College, ME, USA, June 10-15, 2012.

[104] F. Monticone, and A. Alù, **"Multi-Layered Plasmonic Cloaks to Engineer the Scattering Signature of Resonant Nanoparticles,"** Gordon Research Conference on Plasmonics: Light Matter Interaction at the Nanoscale, Colby College, ME, USA, June 10-15, 2012.

[105] A. Alù, F. Monticone, and C. Argyropoulos, **"Multilayered Plasmonic Cloaks to Engineer Scattering, Absorption and Emission Spectra of Nanoparticles for Sensing and Energy Applications,"** in Proceedings of the European Materials Research Society Spring Meeting 2012, Strasbourg, France, May 14-18, 2012, (*invited*).

[106] C. Argyropoulos, F. Monticone, and A. Alù, **"Plasmonic Composite Nanoparticles to Engineer the Optical Scattering Spectra,"** in Proceeding of CLEO 2012, San Jose, CA, USA, May 6-11, 2012.

[107] L. Matekovits, F. Monticone, M. Orefice, K.P. Esselle, and G.Vecchi, **"Avoiding conductor width discontinuities at the cell borders in width-modulated microstrip line periodic structures,"** in Proceedings of the International Conference on Electromagnetics in Advanced Applications, ICEAA'2010, Sydney, Australia, September 20-24, 2010.

[108] F. Monticone, L. Matekovits, and M. Orefice, **"Design parameter space for width-modulated microstrip line based periodic unit cell,"** in Proceedings of the 39th European Microwave Conference, Rome, Italy, September 28 - October 3, 2009.

Thesis and Dissertations

[1] F. Monticone, **"Scattering Engineering at the Extreme with Metamaterials, Metasurfaces and Nanostructures,"** PhD Dissertation, The University of Texas at Austin, Oct. 2016. [Winner of the Inaugural Margarida Jacome Dissertation Award. Awarded by the University of Texas at Austin, Department of Electrical and Computer Engineering.]

[2] F. Monticone, **"Theoretical analysis and design of a conformal electromagnetic cloak based on periodically-modulated microstrip lines on a flexible polymeric shell,"** Master's Thesis, Politecnico di Torino, Torino, Italy, 2011.

[3] F. Monticone, **"Design and analysis of width-modulated microstrip-line based high impedance surfaces,"** Bachelor's Thesis, Politecnico di Torino, Torino, Italy, 2009.