

Matthew Reid Edwards

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| CONTACT INFORMATION | Assistant Professor Mechanical Engineering Stanford University | Building 520 Stanford, CA 94305-3030 mredwards@stanford.edu |
| RESEARCH POSITIONS | Stanford University <i>Assistant Professor</i> - Mechanical Engineering | 2022 - present |
| | Lawrence Livermore National Laboratory <i>Lawrence Fellow</i> - NIF and Photon Science Principal Directorate | 2019 - 2022 |
| | University of California, Berkeley <i>Visiting Scholar</i> - Department of Physics | 2019 - 2022 |
| | Princeton University <i>Graduate Student</i> - Mikhailova Laboratory | 2013-2019 |
| | <i>Undergraduate Student</i> - Applied Physics Group | 2009-2012 |
| | Carnegie Mellon University <i>Graduate Researcher</i> - Nanorobotics Laboratory | 2012-2013 |
| EDUCATION | Princeton University Ph.D. Mechanical and Aerospace Engineering Dissertation: <i>Ultrafast Sources of Intense Radiation</i> | 2019 |
| | M.A. Mechanical and Aerospace Engineering | 2015 |
| | B.S.E. Mechanical and Aerospace Engineering Certificates: Engineering Physics, Robotics and Intelligent Systems Thesis: <i>Femtosecond Laser Electronic Excitation Tagging</i> | 2012 |
| AWARDS AND FELLOWSHIPS | UC President's Lindau Nobel Laureate Meetings Fellowship, <i>University of California</i> | 2021 |
| | Lawrence Fellowship <i>Lawrence Livermore National Laboratory</i> | 2019 |
| | Porter Ogden Jacobus Honoric Fellowship , <i>Princeton University</i> | 2017 |
| | School of Engineering and Applied Science Award for Excellence, <i>Princeton University</i> | 2016 |
| | SPIE Optics and Photonics Education Scholarship, <i>SPIE</i> | 2015 |
| | Sayre Award for Academic Excellence, <i>Princeton University</i> | 2014 |
| | Guggenheim Second Year Fellowship, <i>Princeton University</i> | 2014 |
| | NSF Graduate Research Fellowship , <i>National Science Foundation</i> | 2012 |
| | Jeffrey O. Kephart '80 Engineering Physics Award; Donald Janssen Dike Award for Excellence in Undergraduate Research; Morgan W. McKinzie '93 Senior Thesis Prize; Newport Award of Excellence in Photonics; Phi Beta Kappa [Academic achievement]; Tau Beta Pi [Academic achievement in engineering]; Sigma Xi [Achievement in research], <i>Princeton University</i> | 2012 |
| PATENTS | [1] U.S. Patent 9863975. R.B. Miles, A. Dogariu, J.B. Michael, and M. R. Edwards , "Femtosecond Laser Excitation Tagging Anemometry" (2018). | |
| PEER-REVIEWED JOURNAL PUBLICATIONS | [36] M. R. Edwards and P. Michel. Plasma transmission gratings for compression of high-intensity laser pulses. <i>Physical Review Applied</i> , 18 (024026) (2022). [Link] [Featured in Physics] | |
| | [35] R. Kirkwood, P. Poole, D. Kalantar, T. Chapman, S. Wilks, M. R. Edwards , D. Turnbull, P. Michel, L. Divol, N. Fisch, P. Norreys, W. Rozmus, J. Bude, B. Blue, K. Fournier, B. V. Wonterghem, and A. MacKinnon. Production of high fluence laser beams using ion wave plasma optics. <i>Applied Physics Letters</i> , 120 , 200501 (2022). [Link] | |

- [34] **M. R. Edwards**, V. R. Munirov, A. Singh, N. Fasano, E. Kur, N. Lemos, J. M. Mikhailova, J. S. Wurtele, and P. Michel. Holographic plasma lenses. *Physical Review Letters*, **128**, 065003 (2022). [[Link](#)] [[Featured in Physics](#)]
- [33] J. von der Linden, G. Fiksel, J. Peebles, **M. R. Edwards**, L. Willingale, A. Link, D. Mastro Simone, and H. Chen. Confinement of relativistic electrons in a magnetic mirror en route to a magnetized relativistic pair plasma. *Physics of Plasmas*, **28**, 092508 (2021). [[arXiv:2201.08595](#)] [[Link](#)]
- [32] J. L. Peebles, G. Fiksel, **M. R. Edwards**, J. von der Linden, L. Willingale, D. Mastro Simone, and H. Chen. Magnetically collimated relativistic charge-neutral electron-positron beams from high-power lasers. *Physics of Plasmas*, **28** (7), 074501 (2021). [[Link](#)]
- [31] C. Goyon, **M. R. Edwards**, T. Chapman, L. Divol, N. Lemos, G. J. Williams, D. A. Mariscal, D. Turnbull, A. M. Hansen, and P. Michel. Slow and fast light in plasma using optical wave mixing. *Physical Review Letters*, **126**, 205001 (2021). [[Link](#)] [[Featured in Physics](#)] [[Editors' Suggestion](#)]
- [30] J. von der Linden, J. Ramos-Mendez, B. Faddegon, D. Massin, G. Fiksel, J. Holder, L. Willingale, J. Peebles, **M. R. Edwards**, and H. Chen. Dispersion calibration for the National Ignition Facility electron-positron-proton spectrometers for intense laser matter interactions. *Review of Scientific Instruments*, **92**, 033516 (2021). [[arXiv:2104.06058](#)] [[Link](#)]
- [29] **M. R. Edwards**, N. J. Fisch, and J. M. Mikhailova. Laser-driven plasma sources of intense, ultrafast, and coherent radiation. *Physics of Plasmas*, **28**, 013105 (2021). [[Invited](#)] [[Link](#)]
- [28] **M. R. Edwards**, N. M. Fasano, T. Bennett, A. Griffith, N. Turley, B. M. O'Brien, and J. M. Mikhailova. A multi-terawatt two-color beam for high-power field-controlled nonlinear optics. *Optics Letters*, **45** (23), 6542–6545 (2020). [[Link](#)]
- [27] M. R. Stoneking, T. Sunn Pedersen, P. Helander, H. Chen, U. Hergenbahn, E. V. Stenson, G. Fiksel, J. von der Linden, H. Saitoh, C. M. Surko, J. R. Danielson, C. Hugenschmidt, J. Horn-Stanja, A. Mishchenko, D. Kennedy, A. Deller, A. Card, S. Nißl, M. Singer, M. Singer, S. König, L. Willingale, J. Peebles, **M. R. Edwards**, and K. Chin. A new frontier in laboratory physics: electron positron plasmas. *Journal of Plasma Physics*, **86** (6), 155860601 (2020). [[Link](#)]
- [26] **M. R. Edwards**, N. M. Fasano, and J. M. Mikhailova. Electron-nanobunch-width-dominated spectral power law for relativistic harmonic generation from ultra-thin foils. *Physical Review Letters*, **124** (18), 185004 (2020). [[Link](#)]
- [25] **M. R. Edwards** and J. M. Mikhailova. The x-ray emission effectiveness of plasma mirrors: Reexamining power-law scaling for relativistic high-order harmonic generation. *Scientific Reports*, **10** (1) (2020). [[Link](#)]
- [24] **M. R. Edwards***, Y. Shi*, J. M. Mikhailova, and N. J. Fisch. Laser amplification in strongly-magnetized plasma. *Physical Review Letters*, **123**, 025001 (2019). *Equally Contributing. [[arXiv:1812.09429](#)] [[Link](#)]
- [23] K. Qu, Q. Jia, **M. R. Edwards**, and N. J. Fisch. Theory of electromagnetic wave frequency upconversion in dynamic media. *Physical Review E*, **98**, 023202:1–8 (2018). [[arXiv:1804.07358](#)] [[Link](#)]
- [22] **M. R. Edwards**, K. Qu, Q. Jia, J. M. Mikhailova, and N. J. Fisch. Cascaded chirped photon acceleration for efficient frequency conversion. *Physics of Plasmas*, **25**, 053102:1–6 (2018). [[Editor's Pick](#)] [[Link](#)]
- [21] **M. R. Edwards***, K. Qu*, J. M. Mikhailova, and N. J. Fisch. Beam cleaning of an incoherent laser via plasma Raman amplification. *Physics of Plasmas*, **24** (8), 103110:1–7 (2017). *Equally contributing. [[Link](#)]

- [20] **M. R. Edwards**, J. M. Mikhailova, and N. J. Fisch. X-ray amplification by stimulated Brillouin scattering. *Physical Review E*, **96**, 023209:1–12 (2017). [[arXiv:1705.08599](#)] [[Link](#)]
- [19] **M. R. Edwards** and J. M. Mikhailova. Waveform-controlled relativistic high-order-harmonic generation. *Physical Review Letters*, **117** (12), 125001:1–5 (2016). [[Link](#)]
- [18] **M. R. Edwards**, Q. Jia, J. M. Mikhailova, and N. J. Fisch. Short-pulse amplification by strongly coupled stimulated Brillouin scattering. *Physics of Plasmas*, **23** (8), 083122:1–14 (2016). [[arXiv:1607.00332](#)] [[Link](#)]
- [17] Q. Jia, I. Barth, **M. R. Edwards**, J. M. Mikhailova, and N. J. Fisch. Distinguishing Raman from strongly coupled Brillouin amplification for short pulses. *Physics of Plasmas*, **23** (5), 053118:1–7 (2016). [[Link](#)]
- [16] **M. R. Edwards**, N. J. Fisch, and J. M. Mikhailova. Strongly enhanced stimulated Brillouin backscattering in an electron-positron plasma. *Physical Review Letters*, **116** (1), 015004:1–5 (2016). [[arXiv:1512.0744](#)] [[Link](#)]
- [15] **M. R. Edwards** and J. M. Mikhailova. Multipass relativistic high-order-harmonic generation for intense attosecond pulses. *Physical Review A*, **93** (2), 023836:1–5 (2016). [[Link](#)]
- [14] **M. R. Edwards**, Z. Toroker, J. M. Mikhailova, and N. J. Fisch. The efficiency of Raman amplification in the wavebreaking regime. *Physics of Plasmas*, **22** (7), 074501:1–4 (2015). [[Link](#)]
- [13] R. B. Miles, J. B. Michael, C. M. Limbach, S. D. McGuire, T. L. Chng, **M. R. Edwards**, N. J. DeLuca, M. N. Shneider, and A. Dogariu. New diagnostic methods for laser plasma- and microwave-enhanced combustion. *Philosophical Transactions of the Royal Society A*, **373** (2048), 20140338:1–26 (2015). [[Link](#)]
- [12] **M. R. Edwards**, A. Dogariu, and R. B. Miles. Simultaneous temperature and velocity measurements in air with femtosecond laser tagging. *AIAA Journal*, **53** (8), 2280–2288 (2015). [[Link](#)]
- [11] **M. R. Edwards**, V. T. Platonenko, and J. M. Mikhailova. Enhanced attosecond bursts of relativistic high-order harmonics driven by two-color fields. *Optics Letters*, **39** (24), 6823–6826 (2014). [[Link](#)]
- [10] R. W. Carlsen*, **M. R. Edwards***, J. Zhuang, C. Pacoret, and M. Sitti. Magnetic steering control of multi-cellular bio-hybrid microswimmers. *Lab on a Chip*, **14** (19), 3850–3859 (2014). *Equally contributing. [[Link](#)]
- [9] M. Bennet, A. McCarthy, D. Fix, **M. R. Edwards**, F. Repp, P. Vach, J. W. Dunlop, M. Sitti, G. S. Buller, S. Klumpp, and D. Faivre. Influence of magnetic fields on magneto-aerotaxis. *PLoS One*, **9** (7), e101150:1–10 (2014). [[Link](#)]
- [8] J. Zhuang, G. Wei, R. W. Carlsen, **M. R. Edwards**, R. Marculescu, P. Bogdan, and M. Sitti. Analytical modeling and experimental characterization of chemotaxis in *Serratia marcescens*. *Physical Review E*, **89** (5), 052704:1–11 (2014). [[Link](#)]
- [7] E. Diller, J. Zhuang, G. Z. Lum, **M. R. Edwards**, and M. Sitti. Continuously distributed magnetization profile for millimeter-scale elastomeric undulatory swimming. *Applied Physics Letters*, **104** (17), 174101:1–4 (2014). [[Link](#)]
- [6] **M. R. Edwards**, R. W. Carlsen, J. Zhuang, and M. Sitti. Swimming characterization of *Serratia marcescens* for bio-hybrid micro-robotics. *Journal of Micro-Bio Robotics*, **9** (3-4), 47–60 (2014). [[Link](#)]
- [5] **M. R. Edwards**, R. W. Carlsen, and M. Sitti. Near and far-wall effects on the three-dimensional motion of bacteria-driven microbeads. *Applied Physics Letters*, **102** (14), 143701:1–4 (2013). [[Link](#)]

- [4] C. Myers, **M. R. Edwards**, B. Berlinger, A. Brooks, and S. Cohen. Passive superconducting flux conservers for rotating-magnetic-field-driven field-reversed configurations. *Fusion Science and Technology*, **61** (1), 86–103 (2012). [\[Link\]](#)
- [3] J. B. Michael, **M. R. Edwards**, A. Dogariu, and R. B. Miles. Femtosecond laser electronic excitation tagging for quantitative velocity imaging in air. *Applied Optics*, **50** (26), 5158–5162 (2011). [\[Link\]](#)
- [2] J. F. Curtin, N. Liu, M. Candolfi, W. Xiong, H. Assi, K. Yagiz, **M. R. Edwards**, K. S. Michelsen, K. M. Kroeger, C. Liu, A. Muhammad, M. Clark, M. Arditi, B. Comin-Anduix, A. Ribas, P. Lowenstein, and M. Castro. HMGB1 mediates endogenous TLR2 activation and brain tumor regression. *PLoS Medicine*, **6** (1), e1000010:83–104 (2009). [\[Link\]](#)
- [1] J. F. Curtin, M. Candolfi, T. M. Fakhouri, C. Liu, A. Alden, **M. R. Edwards**, P. R. Lowenstein, and M. G. Castro. Treg depletion inhibits efficacy of cancer immunotherapy: implications for clinical trials. *PLoS One*, **3** (4), e1983:1–17 (2008). [\[Link\]](#)
- [25] **M. R. Edwards**, N. M. Fasano, N. Lemos, A. Singh, V. Munirov, E. Kur, J. S. Wurtele, J. M. Mikhailova, and P. Michel. Measuring the optical properties of ionization gratings in air for control of femtosecond lasers. *CLEO: Fundamental Science*. Virtual, May 9-14 (2021).
- [24] C. Goyon, **M. R. Edwards**, T. Chapman, L. Divol, N. Lemos, G. J. Williams, D. A. Mariscal, D. Turnbull, A. M. Hansen, and P. Michel. Slow and fast light in plasma. *CLEO: Fundamental Science*. Virtual, May 9-14 (2021).
- [23] P. L. Poole, R. K. Kirkwood, S. C. Wilks, T. D. Chapman, D. Kalantar, **M. R. Edwards**, P. Michel, L. Divol, J. Bude, B. E. Blue, K. B. Fournier, B. M. V. Wouterghem, N. Fisch, P. Norreys, and W. Rozmus. Time-resolved measurement of power transfer in plasma amplifier experiments on NIF. *CLEO: Fundamental Science*. Virtual, May 9-14 (2021).
- [22] **M. R. Edwards**, N. M. Fasano, T. Bennett, A. Griffith, N. Turley, B. M. O’Brien, and J. M. Mikhailova. Cascaded plasma mirrors for enhanced relativistic harmonic generation. *CLEO: Fundamental Science*. Virtual, May 11-15 (2020). [\[Link\]](#)
- [21] N. M. Fasano, **M. R. Edwards**, and J. M. Mikhailova. Effects of electron bunch width on the efficiency of high-order harmonic generation from ultrathin solid targets. *CLEO: Fundamental Science*, JTh2A.1. Virtual, May 11-15 (2020). [\[Link\]](#)
- [20] **M. R. Edwards**, A. Griffith, T. Bennett, and J. Mikhailova. Relativistic laser-plasma diagnostics with the third harmonic. *Frontiers in Optics*, JTU3A–140. Washington, DC, September 16-20 (2018). [\[Link\]](#)
- [19] A. Griffith, **M. R. Edwards**, T. Bennett, and J. Mikhailova. Prepulse-induced three-halves-harmonic generation as a probe for relativistic-laser-driven high-density plasmas. *Frontiers in Optics*, JW3A–137. Washington, DC, September 16-20 (2018). [\[Link\]](#)
- [18] N. M. Fasano, **M. R. Edwards**, and J. M. Mikhailova. Modeling the formation of nanometer-scale high-density electron bunches in relativistic laser-solid interaction: Effects of numerical resolution. *Frontiers in Optics*, JW3A–30. Washington, DC, September 16-20 (2018). [\[Link\]](#)
- [17] **M. R. Edwards** and J. M. Mikhailova. Scaling and spectral structure of relativistic high-order-harmonic generation. *CLEO: QELS Fundamental Science*, JTU2A.159. San Jose, CA, May 14-18 (2018). [\[Link\]](#)
- [16] **M. R. Edwards**, K. Qu, J. Mikhailova, and N. Fisch. Wavelength-independent coherence cleaning by parametric plasma amplification. *High-Brightness Sources and Light-driven Interactions*, HT3A.2. Strasbourg, France, March 26-28 (2018). [\[Link\]](#)

- [15] **M. R. Edwards**, J. M. Mikhailova, and N. J. Fisch. Parametric x-ray amplification in plasmas. *Frontiers in Optics*. Washington, DC, September 18-21 (2017). [\[Link\]](#)
- [14] **M. R. Edwards** and J. M. Mikhailova. Efficient relativistic high-order harmonic generation with waveform-engineered driving pulses. *Frontiers in Optics*. Washington, DC, September 18-21 (2017). [\[Link\]](#)
- [13] N. D. Calvert, A. Dogariu, **M. R. Edwards**, and R. B. Miles. Density scaling and calibration of FLEET temperature measurements. *31st AIAA Aerodynamic Measurement Technology and Ground Testing Conference*. Dallas, TX, June 22-26 (2015). [\[Link\]](#)
- [12] **M. R. Edwards** and J. M. Mikhailova. Relativistic high harmonics driven by two-color incident fields. *CLEO: QELS Fundamental Science*, FW1B-5. San Jose, CA, May 10-15 (2015). [\[Link\]](#)
- [11] **M. R. Edwards**, C. B. Limbach, R. B. Miles, and A. A. Tropina. Limitations on high-spatial-resolution measurements of turbulence using femtosecond laser tagging. *53rd AIAA Aerospace Sciences Meeting*. Kissimmee, FL, January 5-9 (2015). [\[Link\]](#)
- [10] N. D. Lepikhin, A. V. Klochko, **M. R. Edwards**, N. A. Popov, and S. M. Starikovskaia. Capillary nanosecond discharges as a tool for the measurement of quenching coefficients at high specific energy deposition. *53rd AIAA Aerospace Sciences Meeting*. Kissimmee, FL, January 5-9 (2015). [\[Link\]](#)
- [9] A. Dogariu, **M. R. Edwards**, J. B. Michael, N. Calvert, and R. B. Miles. Femtosecond laser electronic excitation tagging (FLEET) for imaging flow structure in unseeded air. *CLEO: Applications and Technology*. San Jose, CA, June 9-14 (2013). [\[Link\]](#)
- [8] **M. R. Edwards**, A. Dogariu, and R. B. Miles. Simultaneous temperature and velocity measurement in unseeded air flows with FLEET. *51st AIAA Aerospace Sciences Meeting*. Grapevine, TX, January 7-10 (2013). [\[Link\]](#)
- [7] R. B. Miles, **M. R. Edwards**, J. B. Michael, N. D. Calvert, and A. Dogariu. Femtosecond laser electronic excitation tagging (FLEET) for imaging flow structure in unseeded hot or cold air or nitrogen. *51st AIAA Aerospace Sciences Meeting*. Grapevine, TX, January 7-10 (2013). [\[Link\]](#)
- [6] J. B. Michael, **M. R. Edwards**, A. Dogariu, and R. B. Miles. Velocimetry by femtosecond laser electronic excitation tagging (FLEET) of air and nitrogen. *50th AIAA Aerospace Sciences Meeting*. Nashville, TN, January 9-12 (2012). [\[Link\]](#)
- [5] S. A. Cohen, B. Berlinger, C. Brunkhorst, H. Feder, J. Gumbas, C. E. Myers, and **M. R. Edwards**. Construction of the PFRC-2 device. *Workshop on Innovation in Fusion Science and US-Japan Workshop on Compact Torus Plasma*. Seattle, WA, August 16-19 (2011).
- [4] **M. R. Edwards**, J. B. Michael, A. Dogariu, and R. B. Miles. Localized microwave plasma grid by laser-designation. *42nd Plasmadynamics and Lasers Conference in conjunction with the 18th International Conference on MHD Energy Conversion*. Honolulu, HI, June 27-30 (2011). [\[Link\]](#)
- [3] J. B. Michael, **M. R. Edwards**, and R. B. Miles. Time-resolved temperature measurements of laser designated microwave driven ignition. *49th AIAA Aerospace Sciences Meeting*. Orlando, FL, January 4-7 (2011). [\[Link\]](#)
- [2] S. H. Zaidi, **M. R. Edwards**, D. F. Opaits, and R. B. Miles. DBD surface charge measurement and mitigation in moving air. *49th AIAA Aerospace Sciences Meeting*. Orlando, FL, January 4-7 (2011). [\[Link\]](#)
- [1] D. Opaits, **M. R. Edwards**, S. H. Zaidi, M. N. Shneider, R. B. Miles, and S. Macheret. Surface plasma induced wall jets. *48th AIAA Aerospace Sciences Meeting*. Orlando, FL, January 4-7 (2010). [\[Link\]](#)

SEMINARS AND
INVITED TALKS

- [10] “Diffractive Plasma Optics for High-Power Lasers” *50th Anomalous Absorption Conference*, Skytop, PA, June 9, 2022. [Plenary Talk]
- [9] “Beyond the Petawatt: Next Generation Lasers via Plasma Photonics,” SLAC National Accelerator Laboratory, Menlo Park, CA, November 18, 2021.
- [8] “First Observation of Slow and Fast Light in Plasma,” *2020 NIF and JLF User Group Meeting*, Livermore, CA, February 4, 2020. [Invited Talk]
- [7] “Laser-Driven Plasma-Based Sources of Intense, Ultrafast, and Coherent Radiation,” *61st Annual Meeting of the APS Division of Plasma Physics*, Fort Lauderdale, FL, October 23, 2019. [Invited Talk]
- [6] “Intense Attosecond X-rays from Relativistic Laser-Plasma Interactions,” University of California, Berkeley, Berkeley, CA, October 9, 2018.
- [5] “Ultrafast X-Ray Radiation from Intense Laser-Plasma Interactions,” Laboratory for Laser Energetics, Rochester, NY, November 2, 2017.
- [4] “Plasma Sources of Intense Ultrafast Radiation,” University of Warwick, Coventry, UK, February 2, 2017.
- [3] “Lasers, Plasmas, and Relativity: How to Make Intense Attosecond X-rays and Other Applications of Ultrafast Light,” Princeton University, Princeton, NJ, USA, April 20, 2015.
- [2] “Measurement of Aerodynamic Flows using Femtosecond Laser Tagging,” École Centrale Paris, Châtenay-Malabry, France, September 17, 2014.
- [1] “Minimally Invasive Measurement of Aerodynamic Flows in Unseeded Flows using Femtosecond Laser Tagging,” École Polytechnique, Palaiseau, France, September 11, 2014.

CONFERENCE
PRESENTATIONS

- [29] **M. R. Edwards**, N. Fasano, V. Munirov, N. Lemos, E. Kur, J. S. Wurtele, J. M. Mikhailova, and P. Michel. Focusing high-power laser pulses with diffractive plasma lenses. *63rd Annual Meeting of the APS Division of Plasma Physics*. Pittsburgh, PA, November 8-12 (2021). [Talk]
- [28] **M. R. Edwards**, N. M. Fasano, N. Lemos, A. Singh, J. S. Wurtele, J. M. Mikhailova, and P. Michel. Diffractive plasma optics for control of high-power femtosecond beams. *47th EPS Conference on Plasma Physics*. Virtual, June 21-25 (2021). [Talk]
- [27] **M. R. Edwards**, N. M. Fasano, N. Lemos, A. Singh, V. Munirov, E. Kur, J. S. Wurtele, J. M. Mikhailova, and P. Michel. Measuring the optical properties of ionization gratings in air for control of femtosecond lasers. *CLEO: Fundamental Science*. Virtual, May 9-14 (2021). [Talk]
- [26] **M. R. Edwards**, N. M. Fasano, N. Lemos, A. Singh, E. Kur, J. S. Wurtele, J. M. Mikhailova, and P. Michel. High-intensity Bragg reflection of a femtosecond laser via ionized structures in air. *62nd Annual Meeting of the APS Division of Plasma Physics*. Virtual, November 9-13 (2020). [Talk]
- [25] **M. R. Edwards**, N. M. Fasano, T. Bennett, A. Griffith, N. Turley, B. M. O’Brien, and J. M. Mikhailova. Cascaded plasma mirrors for enhanced relativistic harmonic generation. *CLEO: Fundamental Science*. Virtual, May 11-15 (2020). [Talk]
- [24] **M. R. Edwards**, T. Bennett, A. Griffith, N. Fasano, B. O’Brien, N. Turley, and J. Mikhailova. Plasma mirrors as optical elements for the manipulation of intense light. *60th Annual Meeting of the APS Division of Plasma Physics*. Portland OR, November 5-9 (2018). [Talk]

- [23] **M. R. Edwards**, A. Griffith, T. Bennett, and J. Mikhailova. Relativistic laser-plasma diagnostics with the third harmonic. *Frontiers in Optics*, JTU3A-140. Washington, DC, September 16-20 (2018). [Poster]
- [22] **M. R. Edwards** and J. M. Mikhailova. Scaling and spectral structure of relativistic high-order-harmonic generation. *CLEO: QELS Fundamental Science*, JTU2A.159. San Jose, CA, May 14-18 (2018). [Poster]
- [21] **M. R. Edwards**, K. Qu, J. Mikhailova, and N. Fisch. Wavelength-independent coherence cleaning by parametric plasma amplification. *High-Brightness Sources and Light-driven Interactions*, HT3A.2. Strasbourg, France, March 26-28 (2018). [Talk]
- [20] **M. R. Edwards**, J. M. Mikhailova, and N. J. Fisch. X-ray pulse compression using stimulated Brillouin scattering in plasma. *59th Annual Meeting of the APS Division of Plasma Physics*. Milwaukee, WI, October 23-27 (2017). [Poster]
- [19] **M. R. Edwards**, J. M. Mikhailova, and N. J. Fisch. Parametric x-ray amplification in plasmas. *Frontiers in Optics and Laser Science*. Washington, DC, September 18-21 (2017). [Talk]
- [18] **M. R. Edwards** and J. M. Mikhailova. Efficient relativistic high-order harmonic generation with waveform-engineered driving pulses. *Frontiers in Optics and Laser Science*. Washington, DC, September 18-21 (2017). [Poster]
- [17] **M. R. Edwards**, Q. Jia, J. M. Mikhailova, and N. J. Fisch. Short pulse amplification by strongly-coupled stimulated Brillouin scattering. *58th Annual Meeting of the APS Division of Plasma Physics*. San Jose, CA, October 31 - November 4 (2016). [Poster]
- [16] **M. R. Edwards**, N. J. Fisch, and J. M. Mikhailova. Stimulated Raman and Brillouin scattering in the electron-positron plasma limit. *Solved and Unsolved Problems in Plasma Physics*. Princeton, NJ, March 28-30 (2016). [Poster]
- [15] **M. R. Edwards**, Z. Toroker, J. M. Mikhailova, and N. J. Fisch. Raman amplification in the wavebreaking regime. *57th Annual Meeting of the APS Division of Plasma Physics*. Savannah, GA, November 16-20 (2015). [Talk]
- [14] **M. R. Edwards** and J. M. Mikhailova. The optimal waveform and efficiency limit for laser-driven coherent synchrotron-type emission from solids. *9th International Conference on Inertial Fusion Science and Applications*. Bellevue, WA, September 20-25 (2015). [Poster]
- [13] **M. R. Edwards**, N. J. Fisch, and J. M. Mikhailova. Stimulated Raman and Brillouin scattering in the electron-positron plasma limit. *9th International Conference on Inertial Fusion Science and Applications*. Bellevue, WA, September 20-25 (2015). [Poster]
- [12] **M. R. Edwards** and J. M. Mikhailova. Waveform engineering for relativistic high harmonic generation from overdense plasmas. *56th Course International School of Quantum Electronics: Atoms and Plasmas in Super-Intense Laser Fields*. Erice, Italy, July 12-22 (2015). [Poster - Awarded Best Poster]
- [11] **M. R. Edwards** and J. M. Mikhailova. Multi-pass relativistic high harmonic generation. *5th International Conference on Attophysics*. Saint-Sauveur, Québec, Canada, July 6-10 (2015). [Poster]
- [10] **M. R. Edwards** and J. M. Mikhailova. Intense attosecond pulses from solids. *Princeton-TAMU Workshop on Classical-Quantum Interface*. Princeton NJ, May 27-29 (2015). [Talk]
- [9] **M. R. Edwards** and J. M. Mikhailova. Relativistic high harmonics driven by two-color incident fields. *CLEO: QELS Fundamental Science*, FW1B-5. San Jose, CA, May 10-15 (2015). [Talk]

- [8] **M. R. Edwards**, C. M. Limbach, R. B. Miles, and A. A. Tropina. Limitations on high-spatial-resolution measurements of turbulence using femtosecond laser tagging. *53rd AIAA Aerospace Sciences Meeting*. Kissimmee, FL, January 5-9 (2015). [Talk]
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