

Journal Publications

- (1) Jaffray, W.; Stengel, S.; Biancalana, F.; **Fruhling, C.**; Ozlu, M.; Boltasseva, A.; Shalaev, V. M.; Ferrera, M. Spatio-Spectral Optical Fission in Time-Varying Subwavelength Layers. arXiv June 18, 2024. <https://doi.org/10.48550/arXiv.2406.04917>.
- (2) Ozlu, M. G.; Mkhitarian, V.; **Fruhling, C.**; Boltasseva, A.; Shalaev, V. M. Floquet Engineering of Polaritonic Amplification in Dispersive Photonic Time Crystals. arXiv August 1, 2024. <https://doi.org/10.48550/arXiv.2408.00552>.
- (3) **Fruhling, C.**; Ozlu, M. G.; Segal, O.; Segev, M.; Shalaev, V. M. Time Refraction Near the Critical Angle and Attosecond Streaking. In Preparation 2023.
- (4) Wang, K.; Lin, Z.-Y.; De, A.; Kocoj, C.; Shao, W.; Yang, H.; He, Z.; Coffey, A. H.; **Fruhling, C.**; Tang, Y.; Varadharajan, D.; Zhu, C.; Zhao, Y. S.; Boltasseva, A.; Shalaev, V. M.; Guo, P.; Savoie, B. M.; Dou, L. Two-Dimensional Lattice Confined Single-Molecule-Like Aggregates. Nature 2024. <https://doi.org/10.1038/s41586-024-07925-9>.
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- (8) Chowdhury, S. N.; Simon, J.; Nowak, M. P.; Pagadala, K.; Nyga, P.; **Fruhling, C.**; Bravo, E. G.; Maćkowski, S.; Shalaev, V. M.; Kildishev, A. V.; **others**. Wide-Range Angle-Sensitive Plasmonic Color Printing on Lossy-Resonator Substrates. Advanced Optical Materials 2024, 12 (4), 2301678.
- (9) Simon, J.; **Fruhling, C.**; Kim, H.; Gogotsi, Y.; Boltasseva, A. MXenes for Optics and Photonics. Optics & Photonics News, OPN 2023, 34 (11), 42–49. <https://doi.org/10.1364/OPN.34.11.000042>.
- (10) Lustig, E.; Segal, O.; Saha, S.; **Fruhling, C.**; Shalaev, V. M.; Boltasseva, A.; Segev, M. Photonic Time-Crystals - Fundamental Concepts [Invited]. Opt. Express, OE 2023, 31 (6), 9165–9170. <https://doi.org/10.1364/OE.479367>.
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- (12) Wang, K.; Lin, Z.-Y.; De, A.; Kocoj, C.; Shao, W.; Yang, H.; Coffey, A.; **Fruhling, C.**; Tang, Y.; Zhu, C.; Boltasseva, A.; Shalaev, V. M.; Guo, P.; Savoie, B.; Dou, L. Two-Dimensional Lattice Confined Single-Molecule-Like Aggregates. Submitted to Nature 2023.
- (13) Sychev, D. V.; Chen, P.; Yang, M.; **Fruhling, C.**; Lagutchev, A.; Kildishev, A. V.; Boltasseva, A.; Shalaev, V. M. All-Optical Modulation with Single-Photons Using Electron Avalanche. arXiv preprint arXiv:2312.11686 2023.
- (14) **Fruhling, C.**; Wang, K.; Chowdhury, S.; Xu, X.; Simon, J.; Kildishev, A.; Dou, L.; Meng, X.; Boltasseva, A.; Shalaev, V. M. Coherent Random Lasing in Subwavelength Quasi-2D Perovskites. Laser & Photonics Reviews 2023, 17 (4), 2200314. <https://doi.org/10.1002/lpor.202200314>.
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- (16) Rakowski, R.; Zhang, P.; Jensen, K.; Kettle, B.; Kawamoto, T.; Banerjee, S.; **Fruhling, C.**; Golovin, G.; Haden, D.; Robinson, M. S.; others. Transverse Oscillating Bubble Enhanced Laser-Driven Betatron X-Ray Radiation Generation. Scientific reports 2022, 12 (1), 10855. <https://doi.org/10.1038/s41598-022-14748-z>.
- (17) **Fruhling, C.**; Wang, J.; Umstadter, D.; Schulzke, C.; Romero, M.; Ware, M.; Peatross, J. Experimental Observation of Polarization-Resolved Nonlinear Thomson Scattering of Elliptically Polarized Light. Phys. Rev. A 2021, 104 (5), 053519. <https://doi.org/10.1103/PhysRevA.104.053519>.
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- (20) Haden, D.; Golovin, G.; Yan, W.; **Fruhling, C.**; Zhang, P.; Zhao, B.; Banerjee, S.; Umstadter, D. High Energy X-Ray Compton Spectroscopy via Iterative Reconstruction. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment 2020, 951, 163032. <https://doi.org/10.1016/j.nima.2019.163032>.
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- (22) Golovin, G.; Yan, W.; Luo, J.; **Fruhling, C.**; Haden, D.; Zhao, B.; Liu, C.; Chen, M.; Chen, S.; Zhang, P.; others. Electron Trapping from Interactions between Laser-Driven Relativistic Plasma Waves. Physical review letters 2018, 121 (10), 104801.
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Conference Presentations

(1) **Fruhling, C.**; Boltasseva, A.; Dou, L.; Shalaev, V. M. Lasing Dynamics in Dimensionality Control Quasi-2D Perovskites [Invited]. In *Metamaterials, Metadevices, and Metasystems 2024*; 2024.

(2) Segal, O.; Lyubarov, M.; **Fruhling, C.**; Boltasseva, A.; Shalaev, V. M.; Segev, M. Mapping the Temporal Evolution of the Refractive Index in Few-Femtosecond Time-Varying Media. In *CLEO*; 2024.

(3) Simon, J.; Reigle, B.; **Fruhling, C.**; Zhang, D.; Ippolito, S.; Kim, H.; Shalaev, V.; Gogotsi, Y.; Boltasseva, A. Anisotropic and Nonlinear Optical Properties of 2D Transition Metal Carbides and Nitrides (Mxenes). In *CLEO: Science and innovations*; Optica Publishing Group, 2024; pp SF2R-7.

(4) Ozlu, M. G.; Mkhitarian, V.; **Fruhling, C.**; Boltasseva, A.; Shalaev, V. M. Floquet Analysis of Photonic Time Crystals with Polaritonic Band Structures. In *CLEO*; 2024.

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(6) Kildishev, A. V.; Chowdhury, S. N.; Prokopeva, L. J.; Simon, J.; Pagadala, K.; Nowak, M. P.; Nyga, P.; **Fruhling, C.**; Shalaev, V. M.; Boltasseva, A. Semicontinuous Silver Films: Plasmonic Color Printing and Advanced Disordered Media Modeling. In *Plasmonics: Design, Materials, Fabrication, Characterization, and Applications XXI*; SPIE, 2023; Vol. PC12648, p PC1264809. <https://doi.org/10.1117/12.2677827>.

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