

Publications Peer-Reviewed Journal Paper

Under review or in preparation

- Gorel et al., Pulse length dependence of radiation damage in serial femtosecond crystallography, IUCrJ (in preparation)
- E. S. Burgie et al., Photoreversible Interconversion of a Phytochrome Photosensory Module in the Crystalline State (in preparation)
- S. Carbajo, T. Matsubara, I. Calvo Sanchez, S. Grebenschikov, S. Fukahori, Y. Nabekawa, and K. Midorikawa, Multi-photon Excitation Reveals Wavepacket Interference in Carbon Production from Carbon Dioxide (in preparation)
- V. Adam et al., Rational control of off-state heterogeneity in a photoswitchable fluorescent protein provides switching contrast enhancement (submitted to ChemPhysChem)
- Hutchison et al., Amplification of ultrafast structural motion in a photo-excited fluorescent protein (submitted to Nature)
- S. Grebenschikov, S. Carbajo, Ab initio quantum mechanical model of nonlinear photoexcitation of carbon dioxide (under review) [arXiv:2102.05136](https://arxiv.org/abs/2102.05136)
- X. Li, et al. Pump laser can alter LCP solution in serial crystallography (under review)

Published

- Lemons, Randy, and Sergio Carbajo. "Phase Retrieval and Reconstruction of Coherent Synthesis by Genetic Algorithm." *Journal of Physics: Photonics* (2022)
- R Lemons, N Neveu, J Duris, A Marinelli, C Durfee, **S Carbajo**, Temporal shaping of narrow-band picosecond pulses via noncolinear sum-frequency mixing of dispersion-controlled pulses, *Phys. Rev. Accel. Beams* 25, 013401 (2022)
- Cesar, David, et al. "Electron beam shaping via laser heater temporal shaping." *Physical Review Accelerators and Beams* 24.11 (2021): 110703.
- S. Carbajo, Structured Photonics in Light-Matter Interactions, Accelerators, and X-ray Lasers, IEEE IPC 2021 doi: 10.1109/IPC48725.2021.9592853. (invited)
- Hussein, Rana, et al. "Structural dynamics in the water and proton channels of photosystem II during the S2 to S3 transition." *Nature communications* 12.1 (2021): 1-16.
- S. Carbajo, Light by design: emerging frontiers in ultrafast photon sciences and light-matter interactions, invited perspective article in [Journal of Physics: Photonics, Volume 3, Number 3](#) (2021)
- H. Yong et al., Ultrafast X-Ray Scattering Offers a Structural View of Excited State Charge Transfer, *PNAS* May 11, 2021 118 (19) e2021714118
- Grünbein et al., Effect of X-ray free-electron laser-induced shockwaves on hemoglobin microcrystals delivered in a liquid jet, *Nat Commun* 12, 1672 (2021)
- Sorigué et al., Mechanism and dynamics of light-driven decarboxylation in fatty acid photodecarboxylase, *Science* 372, eabd5687 (2021) DOI: 10.1126/science.abd5687
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- **Sergio Carbajo**, Jonathan C. Coopersmith, Geoffrey Cushman, Kevin Felch, John Lohr, Julie Mikula, Alan Rhodes and Edl Schamiloglu, Beamed Energy Propulsion for Low-Cost Launch to Earth Orbit: Paths for Progress, *Aerospace Research Central* DOI: 10.2514/6.2020-4173 (2020)
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Software Package Releases

- Fourier optics-based propagation and modeling of complex and arbitrary optical fields
 1. [Matlab file exchange](#)
 2. [Github repository](#)