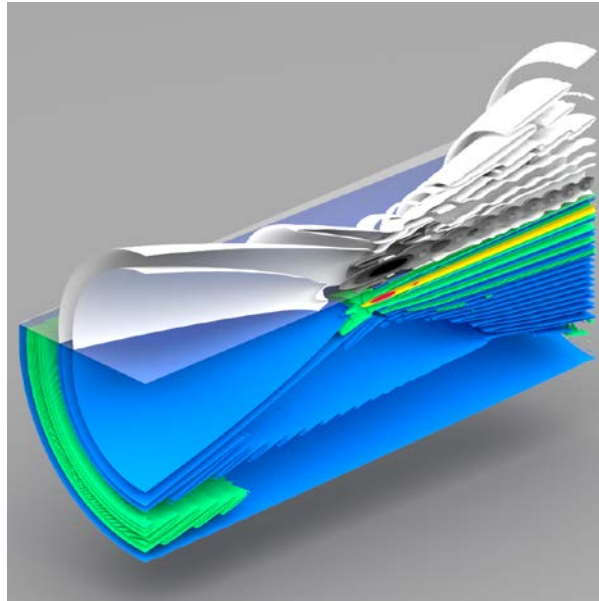


Phase memory harmonics



We demonstrate both theoretically and experimentally that harmonics generation from abruptly autofocusing beams present a surprising property, they preserve the phase distribution of the fundamental beam. Consequently this “phase memory” inherits to all harmonics the abrupt autofocusing behavior, while, under certain conditions, their foci coincide in space with the one of the fundamental. Experiments with the second harmonic of ring-Airy beams agree well with our theoretical estimates and detailed numerical calculations. Our findings open the way for the use of accelerating beams in strong field science.

More information can be found in:

A. D. Koulouklidis, D. G. Papazoglou, V. Y. Fedorov, and S. Tzortzakis, "Phase Memory Preserving Harmonics from Abruptly Autofocusing Beams," [Phys. Rev. Lett. **119**, 223901 \(2017\)](#) [Editors' Suggestion]