High-order harmonic generation in laser-produced plasmas at high repetition rates

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The process of high-order harmonic generation from femtosecond visible laser pulses allows to produce coherent radiation in the extreme ultraviolet (XUV) spectral regime. Table-top lasers render these processes possible with the prospect of wide-spread scientific applications. Presently predominantly rare gases are employed as target media. For practical applications of high-order harmonic sources a higher conversion efficiency and thus an increase in the photon flux and also of the maximum photon energy of the harmonic radiation would be beneficial. The generation of high harmonics in plasmas, being for this purpose a new and largely unexplored medium, promises to yield these advances. Therefore, in this project the generation of high-order harmonics in laser-produced plasmas will be investigated, both theoretically and experimentally at high pulse repetition rates of 1 kHz.

Projektbeteiligte

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