

Abstract Submitted  
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**Enhanced Harmonic Generation via Breaking of Phase-Matching Symmetry**<sup>1</sup> EKATERINA SERGAN, GEORGE GIBSON, University of Connecticut — We discuss experimental results of third harmonic generation (THG) with a focused Gaussian beam in the semi-infinite limit, using two methods. The first method involves placing a metal septum at the waist such that the laser drills a small pinhole, which in turn disrupts the beam after the waist. The second method uses a very thin septum as a separator for two gasses: one with a large third order susceptibility (before the focus), and the other with a small susceptibility (after the focus). Both methods inhibit harmonic generation immediately after the beam waist, leading to increased conversion efficiency and better mode quality. Our work involves studies of conversion efficiency with varying septum thickness and gas pressure, and the results are compared to computer simulations.

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Ekaterina Sergan  
University of Connecticut

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