

Abstract Submitted  
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**Power Scaling and Stability of Intracavity High Order Harmonic Generation** THOMAS ALLISON, DYLAN YOST, JILA, NIST and the University of Colorado, ARMAN CINGOZ, JILA, NIST and the University of Colorado, AXEL RUEHL, INGMAR HARTL, MARTIN FERMAN, IMRA America, Inc., JUN YE, JILA, NIST and the University of Colorado — We generate high order harmonics of a femtosecond frequency comb at the focus of a high finesse optical cavity with 150 MHz repetition rate. The resulting table top high average brightness extreme ultraviolet (XUV) light source has promising applications in XUV frequency metrology, strong field and molecular physics studies, and more traditional XUV applications currently served by synchrotron light sources. We will discuss our recent technical achievements and detailed understandings of the intracavity extreme nonlinear processes that have led to XUV output power beyond the  $10 \mu\text{W}$  per harmonic level and reduced high frequency optical phase noise. We will also present the latest measurement on the coherence properties of VUV/XUV frequency combs.

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