Abstract Submitted
for the OSF17 Meeting of
The American Physical Society

Pulse generation and characterization for supercontinuum experiments MATTHEW MIRCOVICH, University of Dayton, RUDRAKANT SOLLAPUR, ANDREAS HOFFMANN, Institute of Optics and Quantum Electronics, Abbe Center of Photonics, Friedrich Schiller University, CHRISTIAN SPIELMANN, Institute of Optics and Quantum Electronics, Abbe Center of Photonics, Friedrich Schiller University; and Helmholtz Institute Jena, ALEXANDER HARTUNG, ANKA SCHWUCHOW, JOERG BIERLICH, JENS KOBELKE, Leibniz Institute of Photonic Technology e.V., MARKUS A. SCHMIDT, Leibniz Institute of Photonic Technology e.V.; and Otto Schott Institute of Material Research, Abbe Center of Photonics — To study and optimize ultrafast supercontinuum generation in gas-filled fibers, the input laser pulses must be well characterized. For extending the supercontinuum into the UV we started with frequency doubling 80fs, 1mJ pulses from a titanium sapphire laser at 800nm through type 1 second harmonic generation in beta barium borate (BBO). After optimizing the setup, we were able to achieve a conversion efficiency of 20%, which is well suited for supercontinuum generation. The resulting 400nm pulses were characterized with a spectrometer, CCD camera and a self-diffraction frequency resolved optical gating (SD-FROG) device to estimate the pulse duration. Finally we studied the coupling efficiency into micro structured anti-resonant hollow core fibers (ARHCF) with a core diameter of 50m. Under optimized coupling we were able to observe the fundamental spatial mode at the output proofing the guiding mechanism at 400nm.

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Date submitted: 15 Sep 2017 Electronic form version 1.4