Abstract Submitted
for the DAMOP20 Meeting of
The American Physical Society

High-harmonic generation (HHG) enhancement from Cr-doped MgO[1] V. NEFEDOVA, CEA-CNRS-Saclay, F. NAVARRETE, Kansas State University, S. FROEHLICH, CEA-CNRS-Saclay, N. TANCOGNE-DEJEAN, CFEL Hamburg, W. BOUTU, CEA-CNRS-Saclay, M. F. CIAPPINA, Eli beamlines Prague, D. GAUTHIER, A. HAMDOU, S. KAASSAMANI, CEA-CNRS-Saclay, A. RUBIO, CFEL Hamburg, U. THUMM, Kansas State University, H. MERDJI, CEA-CNRS-Saclay — HHG from crystals is a source of coherent extreme ultraviolet (XUV) attosecond radiation [1] and reveals band-structure information of the sample [2]. Increasing the HHG yield and HH cutoff frequency are fundamental goals in the development of efficient XUV sources, which we aim for by investigating the effects of doping on HHG spectra. The presence of dopants results in new electronic states in the band gap, as well as lattice defects, which modify the minimum band gap. Because the interband HHG yield depends exponentially on the minimum band-gap energy of the solid [3], we expect a substantial change of the HHG yield by doping [4]. We measured impurity-enhanced HHG yields [5] and analyze our experimental spectra in comparison with numerical solutions of the Semiconductor Bloch Equations. [1] G. Vampa, et al., IEEE J. Sel. Top. Quantum Electron. 21, 8700110 (2015). [2] N. Tancogne-Dejean, et al., Phys. Rev. Lett. 118, 087403 (2017). [3] F. Navarrete, et al., Phys. Rev. A 100, 033405 (2019). [4] T. Huang, et al., Phys.Rev. A 96, 043425 (2017). [5] V. Nefedova, et al., arXiv:2001.00839 (2020).

[1]Supported by AFOSR Grant FA9550-17-1-0369, NSF Grants 1802085, and PETA-Com FET Open H2020 grant number 829153.

Uwe Thumm
Kansas State Univ

Date submitted: 31 Jan 2020 Electronic form version 1.4