

Abstract Submitted
for the DAMOP15 Meeting of
The American Physical Society

Controlling the hole alignment with Fano resonances¹ STEFAN PABST, CFEL, DESY, ELISABETH HEINRICH-JOSTIES, Department of Physics and Astronomy, UCLA, ROBIN SANTRA, CFEL, DESY and Department of Physics, University of Hamburg — We study the state-resolved production of neon ion after resonant photoionization of Ne via the $2s$ - $3p$ Fano resonance. We find that by tuning the photon energy across the Fano resonance a surprisingly high control over the alignment of the final $2p$ hole along the polarization direction can be achieved. In this way, hole alignments can be created that are otherwise not possible to reach in the XUV regime. This effect survives for high-intensity FEL pulses and strongly influences the ionization behavior close to saturation.

¹This work has been supported by the Deutsche Forschungsgemeinschaft (DFG) under Grant No. SFB 925/A5.

Stefan Pabst
Harvard-Smithsonian CFA

Date submitted: 27 Jan 2015

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