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Spectroscopic studies of Cr VI species in a laser produced plasma¹ NICOLAI KLEMKE, SMIJESH NADARAJAN, DANE LABAN, JAMES WOOD, DASHAVIR CHETTY, DAVID KIELPINSKI, IGOR LITVINYUK, ROBERT SANG, Australian Attosecond Science Facility, Centre for Quantum Dynamics, Griffith University — We present measurements characterizing a laser generated, highly ionized microplasma suitable to extend the cut-off energy of High Harmonic Generation (HHG) to energies up to 5 keV. The HHG process occurs when a strong ultrafast laser hits a gaseous target producing coherent radiation with a much higher photon energy than the driving laser. Commonly, noble gases are used and typical photon energies of several 100 eV are obtained. We plan to use Cr^{5+} species as the target for HHG as generated by a double pulse method: the first pulse creates the plasma, the second pulse is used to obtain the temperature required for Cr^{5+} . Here, we present results on the optimization of plasma parameters such as the plasma temperature, the number density and the dynamics of Cr^{5+} by means of spectroscopic techniques in the optical and the XUV regime.

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