

Abstract Submitted
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Experimental absolute cross section for photoionization of Xe⁷⁺

S. SCHIPPERS, A. MÜLLER, Justus-Liebig-University Giessen, Germany, D. ESTEVES, M. HABIBI, Department of Physics, University of Nevada, Reno, A. AGUILAR, A.L.D. KILCOYNE, Advanced Light Source, Lawrence Berkeley National Laboratory — Collision processes with highly charged xenon ions are of interest for UV-radiation generation in plasma discharges, for fusion research and for space craft propulsion. Here we report results for the photoionization of Xe⁷⁺ ions¹ which were measured at the photon-ion end station of ALS beamline 10.0.1. As compared with the only previous experimental study² of this reaction, the present cross sections were obtained at higher energy resolution (50–80 meV vs. 200–500 meV) and on an absolute cross section scale. In the experimental photon energy range of 95–145 eV the cross section is dominated by resonances associated with $4d \rightarrow 5f$ excitation and subsequent autoionization. The most prominent feature in the measured spectrum is the $4d^9 5s 5f^2 P$ resonance at 121.14 ± 0.02 eV which reaches a peak cross section of 1.2 Gb at 50 meV photon energy spread. The experimental resonance strength of 160 Mb eV (corresponding to an absorption oscillator strength of 1.46) is in fair agreement with the theoretical result².

¹S. Schippers et al., J. Phys.: Conf. Ser. (in print)

²J. M. Bizau et al., Phys. Rev. Lett. 84, 435 (2000)

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