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K-shell photoionization of Be-like B^+ ions A. MÜLLER, S. SCHIPPERS, U. Giessen, Germany, R.A. PHANEUF, S.W.J. SCULLY, U. Nevada Reno, A. AGUILAR, A.S. SCHLACHTER, LBL-ALS Berkeley, M. GHARAIBEH, Jordan U. Sci. & Tech., Irbid, C. CISNEROS, U. Nac. Aut. Mexico Cuernavaca, B.M. MCLAUGHLIN, Q.U.Belfast, UK, and ITAMP Cambridge — Absolute cross sections for K-shell photoionization of Be-like B^+ ions were measured employing the photon-ion merged-beam technique at the Advanced Light Source in Berkeley. By using high-resolution spectroscopy with $E/\Delta E$ up to 8800 the energy ranges 193.7 eV to 194.7 eV and 209.5 eV to 215 eV were covered. Lifetimes of the strongest resonances were determined with a relative uncertainty as low as about 4% for the broadest resonance. Moreover, resonance energies could be measured with absolute uncertainties of less than 30 meV. The experimental resonance parameters, i.e., strengths, energies and natural widths, compare favorably with theoretical results obtained with the R-matrix method. Agreement is also found with heavy-ion storage ring experiments where the $1s2s2p^2\ ^3D$ resonance was observed in B^{2+} ion-electron photorecombination which is time-reversed photoionization of B^+. The present photoionization data were obtained for a mixture of B^+ ions in the $1s^22s^2$ ground state and the $1s^22s2p\ ^3P^o$ metastable states, respectively. The measured resonance strengths are consistent with 60% ground- state and 40% metastable-state ions in the primary ion beam.

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