

Abstract Submitted
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Near-threshold electron-impact excitation of the 3^3S and 3^1S states of Helium.¹ M. STEPANOVIC, M. MINIC, J. JURETA, J. KUREPA, Institute of Physics, Beograd, Serbia and Montenegro, D. CVEJANOVIC, University of Western Australia, S. CVEJANOVIC, University of Rijeka, Croatia, OLEG ZATSARINNY, KLAUS BARTSCHAT, Drake University — A joint experimental and theoretical study of near-threshold electron-impact excitation of the 3^3S and 3^1S states in helium is reported. A high-resolution electron spectrometer was used to study integral cross sections in the energy region of the $n = 3 - 5$ negative-ion resonances. Photons were detected from the decay of the two states and the observed intensities were normalised to theoretical predictions from a new B -spline R -matrix (close-coupling) method, which allows for non-orthogonal orbitals to improve the target description. Remarkable agreement between experiment and theory is demonstrated in both the overall energy dependence of the cross section and the fine details of a wealth of resonance structures. A detailed list of the resonances in the individual partial waves, along with their widths, will be presented.

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