

Abstract Submitted  
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**Benchmark Experiment and Theory for Near-Threshold Excitation of Helium by Electron Impact.**<sup>1</sup> MICHAEL LANGE, JUN MATSUMOTO, JULIAN LOWER, STEPHEN BUCKMAN, Australian National University, KLAUS BARTSCHAT, OLEG ZATSARINNY, Drake University, IGOR BRAY, DMITRY FURSA, Murdoch University — Experimental measurements of absolute angle-differential scattering cross sections for electron-impact excitation of the  $n=2,3$  states of helium, obtained with a new time-of-flight technique for incident energies below 24 eV, are presented. The results are compared with state-of-the-art calculations employing the R-matrix and convergent close-coupling approaches. The agreement between experiment and theory is generally very good. A detailed analysis of the theoretical predictions highlights the need for multi-configuration expansions of the target states, as well as coupling to the ionization continuum, in order to achieve a highly accurate theoretical description of the problem.

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