

Abstract Submitted
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High Precision Theory and Spectroscopy for ^3He ¹ GORDON DRAKE, QIXUE WU, University of Windsor, DONALD MORTON, Herzberg Institute for Astrophysics — In previous work, a combination of theory and high precision measurements for the transition energies of ^4He has yielded absolute ionization energies (IE) accurate to better than ± 1 MHz for most states except for the ground state. In the present work, these IEs are combined with accurate calculations of the isotope shift, including relativistic recoil and quantum electrodynamic corrections, to obtain similarly high precision data for the entire singly-excited spectrum of the rarer isotope ^3He . The hyperfine structure is also calculated and compared with experiment. In most cases, the theoretical results are expected to be definitive values that are considerably more accurate than the available experimental data.

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