

Speaker : G. Drake

Calculated Isotope Shifts for Halo Nuclei: A Progress Report

Abstract

The talk will summarize the various theoretical contributions to the isotope shift for light nuclei. The method of calculating accurate nonrelativistic wave functions in Hylleraas coordinates will be described. Updated results will be presented for the isotopes of lithium, and new results will be presented for Be⁺.

These calculations lay the theoretical foundation to extract the nuclear charge radius from the measured isotope shift for Be-11. As a by-product, the theoretical ionization potential for Be⁺ is estimated to be an order of magnitude more accurate than the experimental value from the NIST data base.