

Abstract Submitted
for the DAMOP17 Meeting of
The American Physical Society

Forbidden M1 and E2 transitions in monovalent atoms and ions

W. R. JOHNSON, University of Notre Dame, U. I. SAFRONOVA, University of Nevada, Reno, M. S. SAFRONOVA, University of Delaware and JQI, NIST and the University of Maryland — We carried out a systematic high-precision relativistic study of the forbidden magnetic-dipole and electric-quadrupole transitions in Ca^+ , Rb , Sr^+ , Cs , Ba^+ , Fr , Ra^+ , Ac^{2+} and Th^{3+} . This work is motivated by the importance of these transitions for tests of fundamental physics and precision measurements. The relative importance of the relativistic, correlation, Breit correction and contributions of negative-energy states is investigated. Recommended values of reduced matrix elements are presented together with their uncertainties. The matrix elements and resulting lifetimes are compared with other theoretical values and with experiment where available.

Ulyana Safronova
University of Nevada, Reno

Date submitted: 25 Jan 2017

Electronic form version 1.4