

Abstract Submitted
for the DAMOP15 Meeting of
The American Physical Society

Search for variation of the fine-structure constant using optical clock transitions in Cf¹⁵⁺, Es¹⁷⁺ and Es¹⁶⁺ ions ULYANA SAFRONOVA, University of Nevada, Reno, VLADIMIR DZUBA, UNSW, Australia, MARIANNA SAFRONOVA, University of Delaware and JQI, NIST and the University of Maryland, VICTOR FLAMBAUM, UNSW, Australia — We study optical transitions in Cf¹⁵⁺, Es¹⁷⁺ and Es¹⁶⁺ ions using the high-precision relativistic method that combines the configuration interaction and linearized coupled-cluster approaches. We identify the transitions that are extremely sensitive to the variation of the fine-structure constant. The sensitivities are the largest among all atomic systems studied so far. These transitions have all features for the implementation of the ultra-precision optical atomic clocks for test of the α -variation at extremely high accuracy of 10^{-20} per year.

Ulyana Safronova
University of Nevada, Reno

Date submitted: 29 Jan 2015

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