

***g*-factor of middle-*Z* lithiumlike and boronlike ions**

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Combined experimental and theoretical studies of the g factor of few-electron ions have resulted in the most accurate to date value of the electron mass [1] and can serve for an independent determination of the fine structure constant α [2, 3]. We present the improved theoretical values for the g factor of middle- Z lithiumlike and boronlike ions. Reevaluation of the higher-order many-electron contributions within the newly developed approach allows us to reach the uncertainty of the order of 10^{-9} for lithiumlike ions. Comparison with the recent measurements for lithiumlike silicon and calcium provides the most stringent to date test of the many-electron bound-state QED effects in the presence of magnetic field [4, 5, 6]. For boronlike ions, the rigorous evaluation of the correlation and QED corrections provides the theoretical predictions with the uncertainty of the order of 10^{-6} . The obtained results disagree with the ones of Ref. [7].

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