

Full Publication List of Sergiy Bubin

- [1] S. Bubin and I. Simenog, Precise variational calculations of energy spectra of Coulomb-type three- and four-particle systems, *J. Phys. Studies* **4**, 124 (2000).
- [2] S. Bubin and L. Adamowicz, Variational calculations of excited states with zero total angular momentum (vibrational spectrum) of H_2 without use of the Born–Oppenheimer approximation, *J. Chem. Phys.* **118**, 3079 (2003).
- [3] M. Cafiero, S. Bubin, and L. Adamowicz, Non-Born-Oppenheimer calculations of atoms and molecules, *Phys. Chem. Chem. Phys.* **5**, 1491 (2003).
- [4] S. Bubin and L. Adamowicz, Non-Born–Oppenheimer study of positronic molecular systems: e^+LiH , *J. Chem. Phys.* **120**, 6051 (2004).
- [5] S. Bubin and L. Adamowicz, Nonrelativistic molecular quantum mechanics without approximations: Electron affinities of LiH and LiD , *J. Chem. Phys.* **121**, 6249 (2004).
- [6] S. Bubin, M. Cafiero, and L. Adamowicz, Quantum Mechanical Calculations on Molecules Containing Positrons, in *Fundamental World of Quantum Chemistry: A Tribute to the Memory of Per-Olov Löwdin Volume III*, edited by E. S. Brändas, Erkki J. and Kryachko (Springer Netherlands, Dordrecht, 2004) pp. 521–545.
- [7] S. Bubin, E. Bednarz, and L. Adamowicz, Charge asymmetry in HD^+ , *J. Chem. Phys.* **122**, 041102 (2005).
- [8] S. Bubin and L. Adamowicz, Nucleus-nucleus correlation function in non-Born-Oppenheimer molecular calculations: vibrationally excited states of HD^+ , *Chem. Phys. Lett.* **403**, 185 (2005).
- [9] E. Bednarz, S. Bubin, and L. Adamowicz, Integrals for non-Born–Oppenheimer calculations of molecules with three nuclei, *Mol. Phys.* **103**, 1169 (2005).
- [10] E. Bednarz, S. Bubin, and L. Adamowicz, Non-Born–Oppenheimer variational calculations of HT^+ bound states with zero angular momentum, *J. Chem. Phys.* **122**, 164302 (2005).
- [11] S. Bubin, M. Cafiero, and L. Adamowicz, Non-Born-Oppenheimer variational calculations of atoms and molecules with explicitly correlated Gaussian basis functions, *Adv. Chem. Phys.* **131**, 377 (2005).
- [12] M. Pavanello, S. Bubin, M. Molski, and L. Adamowicz, Non-Born–Oppenheimer calculations of the pure vibrational spectrum of HeH^+ , *J. Chem. Phys.* **123**, 104306 (2005).
- [13] S. Bubin, L. Adamowicz, and M. Molski, An accurate non-Born–Oppenheimer calculation of the first purely vibrational transition in LiH molecule, *J. Chem. Phys.* **123**, 134310 (2005).
- [14] S. Bubin and L. Adamowicz, Matrix elements of N -particle explicitly correlated Gaussian basis functions with complex exponential parameters, *J. Chem. Phys.* **124**, 224317 (2006).
- [15] M. Stanke, D. Kędziera, M. Molski, S. Bubin, M. Barysz, and L. Adamowicz, Convergence of Experiment and Theory on the Pure Vibrational Spectrum of HeH^+ , *Phys. Rev. Lett.* **96**, 233002 (2006).
- [16] D. Kędziera, M. Stanke, S. Bubin, M. Barysz, and L. Adamowicz, Darwin and mass-velocity relativistic corrections in non-Born-Oppenheimer variational calculations, *J. Chem. Phys.* **125**, 084303 (2006).
- [17] D. Kędziera, M. Stanke, S. Bubin, M. Barysz, and L. Adamowicz, Darwin and mass-velocity relativistic corrections in the non-Born-Oppenheimer calculations of pure vibrational states of H_2 , *J. Chem. Phys.* **125**, 014318 (2006).
- [18] S. Bubin and L. Adamowicz, Non-Born-Oppenheimer variational calculation of the ground-state vibrational spectrum of LiH^+ , *J. Chem. Phys.* **125**, 064309 (2006).
- [19] S. Bubin and L. Adamowicz, Nonrelativistic variational calculations of the positronium molecule and the positronium hydride, *Phys. Rev. A* **74**, 052502 (2006).

- [20] M. Stanke, D. Kędziera, S. Bubin, and L. Adamowicz, Relativistic corrections to the non-Born-Oppenheimer energies of the lowest singlet Rydberg states of ^3He and ^4He , *J. Chem. Phys.* **126**, 194312 (2007).
- [21] S. Bubin, M. Stanke, D. Kędziera, and L. Adamowicz, Relativistic corrections to the ground-state energy of the positronium molecule, *Phys. Rev. A* **75**, 062504 (2007).
- [22] S. Bubin and L. Adamowicz, Calculations of the ground states of BeH and BeH^+ without the Born-Oppenheimer approximation, *J. Chem. Phys.* **126**, 214305 (2007).
- [23] M. Stanke, D. Kędziera, S. Bubin, and L. Adamowicz, Ionization potential of ^9Be calculated including nuclear motion and relativistic corrections, *Phys. Rev. A* **75**, 052510 (2007).
- [24] M. Stanke, D. Kędziera, S. Bubin, and L. Adamowicz, Lowest Excitation Energy of ^9Be , *Phys. Rev. Lett.* **99**, 043001 (2007).
- [25] S. Bubin, M. Stanke, D. Kędziera, and L. Adamowicz, Improved calculations of the lowest vibrational transitions in HeH^+ , *Phys. Rev. A* **76**, 022512 (2007).
- [26] M. Stanke, D. Kędziera, S. Bubin, and L. Adamowicz, Electron affinity of ^7Li calculated with the inclusion of nuclear motion and relativistic corrections, *J. Chem. Phys.* **127**, 134107 (2007).
- [27] M. Stanke, D. Kędziera, S. Bubin, M. Molski, and L. Adamowicz, Lowest vibrational states of $^4\text{He}^3\text{He}^+$: Non-Born-Oppenheimer calculations, *Phys. Rev. A* **76**, 052506 (2007).
- [28] M. Pavanello, M. Cafiero, S. Bubin, and L. Adamowicz, Accurate Born–Oppenheimer calculations of the low-lying $c^3\Sigma_g^+$ and $a^3\Sigma_u^+$ excited states of helium dimer, *Int. J. Quantum Chem.* **108**, 2291 (2008).
- [29] M. Stanke, D. Kędziera, S. Bubin, M. Molski, and L. Adamowicz, Orbit-orbit relativistic corrections to the pure vibrational non-Born-Oppenheimer energies of H_2 , *J. Chem. Phys.* **128**, 114313 (2008).
- [30] M. Stanke, D. Kędziera, S. Bubin, and L. Adamowicz, Complete α^2 relativistic corrections to the pure vibrational non-Born-Oppenheimer energies of HeH^+ , *Phys. Rev. A* **77**, 022506 (2008).
- [31] S. Bubin and L. Adamowicz, Energy and energy gradient matrix elements with N -particle explicitly correlated complex Gaussian basis functions with $L = 1$, *J. Chem. Phys.* **128**, 114107 (2008).
- [32] M. Stanke, J. Komasa, D. Kędziera, S. Bubin, and L. Adamowicz, Three lowest S states of $^9\text{Be}^+$ calculated with including nuclear motion and relativistic and QED corrections, *Phys. Rev. A* **77**, 062509 (2008).
- [33] M. Stanke, J. Komasa, D. Kędziera, S. Bubin, and L. Adamowicz, Accuracy limits on the description of the lowest S excitation in the Li atom using explicitly correlated Gaussian basis functions, *Phys. Rev. A* **78**, 052507 (2008).
- [34] S. Bubin and L. Adamowicz, Calculations of low-lying 1P states of the beryllium atom, *Phys. Rev. A* **79**, 022501 (2009).
- [35] M. Stanke, S. Bubin, M. Molski, and L. Adamowicz, Non-Born-Oppenheimer calculations of the lowest vibrational energy of HD including relativistic corrections, *Phys. Rev. A* **79**, 032507 (2009).
- [36] S. Bubin, F. Leonarski, M. Stanke, and L. Adamowicz, Charge asymmetry in pure vibrational states of the HD molecule, *J. Chem. Phys.* **130**, 124120 (2009).
- [37] M. Stanke, S. Bubin, and L. Adamowicz, Fundamental vibrational transitions of the $^3\text{He}^4\text{He}^+$ and $^7\text{LiH}^+$ ions calculated without assuming the Born-Oppenheimer approximation and with including leading relativistic corrections, *Phys. Rev. A* **79**, 060501 (2009).
- [38] S. Bubin, F. Leonarski, M. Stanke, and L. Adamowicz, Non-adiabatic corrections to the energies of the pure vibrational states of H_2 , *Chem. Phys. Lett.* **477**, 12 (2009).
- [39] S. Bubin, M. Stanke, and L. Adamowicz, Non-Born–Oppenheimer calculations of the BH molecule, *J. Chem. Phys.* **131**, 044128 (2009).
- [40] M. Stanke, J. Komasa, S. Bubin, and L. Adamowicz, Five lowest 1S states of the Be atom

- calculated with a finite-nuclear-mass approach and with relativistic and QED corrections, [Phys. Rev. A **80**, 022514 \(2009\)](#).
- [41] K. L. Sharkey, M. Pavanello, S. Bubin, and L. Adamowicz, Algorithm for quantum-mechanical finite-nuclear-mass variational calculations of atoms with two p electrons using all-electron explicitly correlated Gaussian basis functions, [Phys. Rev. A **80**, 062510 \(2009\)](#).
- [42] S. Bubin, J. Komasa, M. Stanke, and L. Adamowicz, Isotope shift in the electron affinity of lithium, [J. Chem. Phys. **131**, 234112 \(2009\)](#).
- [43] S. Bubin, J. Komasa, M. Stanke, and L. Adamowicz, Isotope shifts of the $1s^2 2s^2(^1S_0) \rightarrow 1s^2 2p^2(^1S_0)$ transition in the doubly ionized carbon ion C^{2+} , [Phys. Rev. A **81**, 052504 \(2010\)](#).
- [44] S. Bubin, J. Komasa, M. Stanke, and L. Adamowicz, Isotope shifts of the three lowest 1S states of the B^+ ion calculated with a finite-nuclear-mass approach and with relativistic and quantum electrodynamics corrections, [J. Chem. Phys. **132**, 114109 \(2010\)](#).
- [45] K. L. Sharkey, S. Bubin, and L. Adamowicz, Analytical energy gradient in variational calculations of the two lowest 3P states of the carbon atom with explicitly correlated Gaussian basis functions, [J. Chem. Phys. **132**, 184106 \(2010\)](#).
- [46] S. Bubin, M. Stanke, M. Molski, and L. Adamowicz, Accurate non-Born-Oppenheimer calculations of the lowest vibrational energies of D_2 and T_2 with including relativistic corrections, [Chem. Phys. Lett. **494**, 21 \(2010\)](#).
- [47] S. Bubin and K. Varga, Calculation of transmission probability by solving an eigenvalue problem, [J. Phys. Condens. Matter **22**, 465306 \(2010\)](#).
- [48] S. Bubin, M. Stanke, and L. Adamowicz, Lower vibrational transitions of the $^3He^4He^+$ ion calculated without the Born-Oppenheimer approximation and with leading relativistic corrections, [Chem. Phys. Lett. **500**, 229 \(2010\)](#).
- [49] K. L. Sharkey, S. Bubin, and L. Adamowicz, An algorithm for calculating atomic D states with explicitly correlated Gaussian functions, [J. Chem. Phys. **134**, 044120 \(2011\)](#).
- [50] S. Bubin, M. Stanke, and L. Adamowicz, Vibrational transitions of the $^7LiH^+$ ion calculated without the Born-Oppenheimer approximation and with leading relativistic corrections, [J. Chem. Phys. **134**, 024103 \(2011\)](#).
- [51] K. L. Sharkey, S. Bubin, and L. Adamowicz, Lower Rydberg 2D states of the lithium atom: Finite-nuclear-mass calculations with explicitly correlated Gaussian functions, [Phys. Rev. A **83**, 012506 \(2011\)](#).
- [52] S. Bubin and L. Adamowicz, Correlated-Gaussian calculations of the ground and low-lying excited states of the boron atom, [Phys. Rev. A **83**, 022505 \(2011\)](#).
- [53] S. Bubin and K. Varga, First-principles time-dependent simulation of laser assisted desorption of hydrogen atoms from H-Si(111) surface, [Appl. Phys. Lett. **98**, 154101 \(2011\)](#).
- [54] S. Bubin, M. Stanke, and L. Adamowicz, Complete pure vibrational spectrum of HD calculated without the Born-Oppenheimer approximation and including relativistic corrections, [Phys. Rev. A **83**, 042520 \(2011\)](#).
- [55] K. L. Sharkey, S. Bubin, and L. Adamowicz, Refinement of the experimental energy levels of higher 2D Rydberg states of the lithium atom with very accurate quantum mechanical calculations, [J. Chem. Phys. **134**, 194114 \(2011\)](#).
- [56] J. A. Driscoll, S. Bubin, W. R. French, and K. Varga, Time-dependent density functional study of field emission from nanotubes composed of C, BN, SiC, Si, and GaN, [Nanotechnology **22**, 285702 \(2011\)](#).
- [57] J. A. Driscoll, S. Bubin, and K. Varga, Laser-induced electron emission from nanostructures: A first-principles study, [Phys. Rev. B **83**, 233405 \(2011\)](#).
- [58] S. Bubin and K. Varga, Ground-state energy and relativistic corrections for positronium hydride, [Phys. Rev. A **84**, 012509 \(2011\)](#).
- [59] J. A. Driscoll, B. Cook, S. Bubin, and K. Varga, First-principles study of field emission from

- carbon nanotubes and graphene nanoribbons, *J. Appl. Phys.* **110**, 024304 (2011).
- [60] S. Bubin, M. Stanke, and L. Adamowicz, Accurate non-Born-Oppenheimer calculations of the complete pure vibrational spectrum of D_2 with including relativistic corrections, *J. Chem. Phys.* **135**, 074110 (2011).
- [61] S. Bubin and K. Varga, Electron-ion dynamics in laser-assisted desorption of hydrogen atoms from H-Si(111) surface, *J. Appl. Phys.* **110**, 064905 (2011).
- [62] K. L. Sharkey, S. Bubin, and L. Adamowicz, 1D states of the beryllium atom: Quantum mechanical nonrelativistic calculations employing explicitly correlated Gaussian functions, *Phys. Rev. A* **84**, 044503 (2011).
- [63] S. Bubin and L. Adamowicz, Accurate variational calculations of the ground $^2P^o(1s^22s^22p)$ and excited $^2S(1s^22s2p^2)$ and $^2P^o(1s^22s^23p)$ states of singly ionized carbon atom, *J. Chem. Phys.* **135**, 214104 (2011).
- [64] S. Bubin and L. Adamowicz, Explicitly correlated Gaussian calculations of the $^2P^o$ Rydberg spectrum of the lithium atom, *J. Chem. Phys.* **136**, 134305 (2012).
- [65] S. Bubin and K. Varga, Electron and ion dynamics in graphene and graphene fragments subjected to high-intensity laser pulses, *Phys. Rev. B* **85**, 205441 (2012).
- [66] S. Bubin, B. Wang, S. Pantelides, and K. Varga, Simulation of high-energy ion collisions with graphene fragments, *Phys. Rev. B* **85**, 235435 (2012).
- [67] S. Bubin and L. Adamowicz, Assessment of the accuracy the experimental energies of the $^1P^o$ $1s^22s6p$ and $1s^22s7p$ states of ^9Be based on variational calculations with explicitly correlated Gaussians, *J. Chem. Phys.* **137**, 104315 (2012).
- [68] S. Bubin, M. Atkinson, K. Varga, X. Xie, S. Roither, D. Kartashov, A. Baltuška, and M. Kitzler, Strong laser-pulse-driven ionization and Coulomb explosion of hydrocarbon molecules, *Phys. Rev. A* **86**, 043407 (2012).
- [69] S. Bubin, M. Pavanello, W.-C. Tung, K. L. Sharkey, and L. Adamowicz, Born–Oppenheimer and Non-Born–Oppenheimer, Atomic and Molecular Calculations with Explicitly Correlated Gaussians, *Chem. Rev.* **113**, 36 (2013).
- [70] S. Bubin, A. G. Russakoff, and K. Varga, Interaction of electromagnetic fields and atomic clusters, *J. Phys. Conf. Ser.* **436**, 012084 (2013).
- [71] S. Bubin and L. Adamowicz, Prediction of 2S Rydberg energy levels of ^6Li and ^7Li based on quantum-mechanical calculations performed with explicitly correlated Gaussian functions, *Phys. Rev. A* **87**, 042510 (2013).
- [72] S. Bubin, K. L. Sharkey, and L. Adamowicz, Prediction of 2D Rydberg energy levels of ^6Li and ^7Li based on very accurate quantum mechanical calculations performed with explicitly correlated Gaussian functions, *J. Chem. Phys.* **138**, 164308 (2013).
- [73] J. Mitroy, S. Bubin, W. Horiuchi, Y. Suzuki, L. Adamowicz, W. Cencek, K. Szalewicz, J. Komasa, D. Blume, and K. Varga, Theory and application of explicitly correlated Gaussians, *Rev. Mod. Phys.* **85**, 693 (2013).
- [74] S. Bubin, O. V. Prezhdo, and K. Varga, Instability of tripositronium, *Phys. Rev. A* **87**, 054501 (2013).
- [75] S. Bubin and O. V. Prezhdo, Excited States of Positronic Lithium and Beryllium, *Phys. Rev. Lett.* **111**, 193401 (2013).
- [76] S. Bubin and L. Adamowicz, Prediction of 1P Rydberg energy levels of beryllium based on calculations with explicitly correlated Gaussians, *J. Chem. Phys.* **140**, 024301 (2014).
- [77] S. Bubin, M. Stanke, and L. Adamowicz, Accurate non-Born-Oppenheimer calculations of the complete pure vibrational spectrum of ditritium using all-particle explicitly correlated Gaussian functions, *J. Chem. Phys.* **140**, 154303 (2014).
- [78] X. Xie, S. Roither, M. Schöffler, H. Xu, S. Bubin, E. Lötstedt, S. Erattuphuza, A. Iwasaki, D. Kartashov, K. Varga, G. G. Paulus, A. Baltuška, K. Yamanouchi, and M. Kitzler, Role of

- proton dynamics in efficient photoionization of hydrocarbon molecules, *Phys. Rev. A* **89**, 023429 (2014).
- [79] K. L. Sharkey, S. Bubin, and L. Adamowicz, Singlet–triplet energy splitting between 1D and 3D ($1s^2snd$) $n=3,4,5$, and 6, Rydberg states of the beryllium atom (^9Be) calculated with all-electron explicitly correlated Gaussian functions, *Chem. Phys. Lett.* **616-617**, 254 (2014).
- [80] A. Russakoff, S. Bubin, X. Xie, S. Erattupuzha, M. Kitzler, and K. Varga, Time-dependent density-functional study of the alignment-dependent ionization of acetylene and ethylene by strong laser pulses, *Phys. Rev. A* **91**, 023422 (2015).
- [81] S. Bubin, M. Formanek, and L. Adamowicz, Universal all-particle explicitly-correlated Gaussians for non-Born–Oppenheimer calculations of molecular rotationless states, *Chem. Phys. Lett.* **647**, 122 (2016).
- [82] S. Bubin and L. Adamowicz, Lowest 2S Electronic Excitations of the Boron Atom, *Phys. Rev. Lett.* **118**, 043001 (2017).
- [83] S. Erattupuzha, C. L. Covington, A. Russakoff, E. Lötstedt, S. Larimian, V. Hanus, S. Bubin, M. Koch, S. Gräfe, A. Baltuška, X. Xie, K. Yamanouchi, K. Varga, and M. Kitzler, Enhanced ionisation of polyatomic molecules in intense laser pulses is due to energy upshift and field coupling of multiple orbitals, *J. Phys. B* **50**, 125601 (2017).
- [84] S. Bubin, M. Stanke, and L. Adamowicz, Relativistic corrections for non-Born–Oppenheimer molecular wave functions expanded in terms of complex explicitly correlated Gaussian functions, *Phys. Rev. A* **95**, 062509 (2017).
- [85] M. Stanke, A. Bralin, S. Bubin, and L. Adamowicz, Leading relativistic corrections for atomic P states calculated with a finite-nuclear-mass approach and all-electron explicitly correlated Gaussian functions, *Phys. Rev. A* **97**, 012513 (2018).
- [86] E. M. Chavez, S. Bubin, and L. Adamowicz, Implementation of explicitly correlated complex Gaussian functions in calculations of molecular rovibrational $J = 1$ states without Born–Oppenheimer approximation, *Chem. Phys. Lett.* **717**, 147 (2019).
- [87] A. Bralin, S. Bubin, M. Stanke, and L. Adamowicz, The 2S Rydberg series of the lithium atom. Calculations with all-electron explicitly correlated Gaussian functions, *Chem. Phys. Lett.* **730**, 497 (2019).
- [88] M. Stanke, S. Bubin, and L. Adamowicz, Lowest ten 1P Rydberg states of beryllium calculated with all-electron explicitly correlated Gaussian functions, *J. Phys. B* **52**, 155002 (2019).
- [89] I. Hornyák, L. Adamowicz, and S. Bubin, Ground and excited 1S states of the beryllium atom, *Phys. Rev. A* **100**, 032504 (2019).
- [90] O. Skrynyk, V. Voloshchuk, D. Budak, and S. Bubin, Regional HYSPLIT simulation of atmospheric transport and deposition of the Chernobyl ^{137}Cs releases, *Atmos. Pollut. Res.* **10**, 1953 (2019).
- [91] S. Bubin and L. Adamowicz, Computer program ATOM-MOL-nonBO for performing calculations of ground and excited states of atoms and molecules without assuming the Born–Oppenheimer approximation using all-particle complex explicitly correlated Gaussian functions, *J. Chem. Phys.* **152**, 204102 (2020).
- [92] S. Nasiri, S. Bubin, and L. Adamowicz, Chapter Five - Non-Born–Oppenheimer variational calculations of atoms and molecules with explicitly correlated Gaussian basis functions, in *Chemical Physics and Quantum Chemistry*, Adv. Quantum Chem., Vol. 81, edited by K. Ruud and E. J. Brändas (Academic Press, 2020) pp. 143–166.
- [93] I. Hornyák, L. Adamowicz, and S. Bubin, Low-lying 2S states of the singly charged carbon ion, *Phys. Rev. A* **102**, 062825 (2020).
- [94] O. Skrynyk, E. Aguilar, J. Guijarro, L. Y. A. Randriamarolaza, and S. Bubin, Uncertainty evaluation of Climatol’s adjustment algorithm applied to daily air temperature time series, *Int. J. Climatol.* **41**, E2395 (2021).
- [95] S. Nasiri, T. Shomenov, S. Bubin, and L. Adamowicz, High-accuracy calculations of the lowest

- eleven Rydberg 2P states of Li atom, *J. Phys. B* **54**, 085003 (2021).
- [96] I. Hornyák, S. Nasiri, S. Bubin, and L. Adamowicz, 2S Rydberg spectrum of the boron atom, *Phys. Rev. A* **104**, 032809 (2021).
- [97] S. Nasiri, L. Adamowicz, and S. Bubin, Benchmark Calculations of the Energy Spectra and Oscillator Strengths of the Beryllium Atom, *J. Phys. Chem. Ref. Data* **50**, 043107 (2021).
- [98] S. Nasiri, L. Adamowicz, and S. Bubin, Electron affinity of LiH^- , *Mol. Phys.* **120**, e2065375 (2022).
- [99] S. Nasiri, T. Shomenov, S. Bubin, and L. Adamowicz, Dissociation energy and the lowest vibrational transition in LiH without assuming the non-Born–Oppenheimer approximation, *Mol. Phys.* **120**, e2147105 (2022).
- [100] S. Nasiri, J. Liu, S. Bubin, M. Stanke, A. Kędziorowski, and L. Adamowicz, Oscillator strengths and interstate transition energies involving 2S and 2P states of the Li atom, *At. Data Nucl. Data Tables* **149**, 101559 (2023).
- [101] O. Skrynyk and S. Bubin, Numerical simulation of the radioactive contamination of Ukraine after the Chernobyl disaster: the influence of the input meteorological data on the results uncertainty, *Geophys. J.* **45**, 77 (2023).
- [102] M. Stanke, A. Kędziorowski, S. Nasiri, L. Adamowicz, and S. Bubin, Fine structure of the 2P energy levels of singly ionized carbon (C II), *Phys. Rev. A* **108**, 012812 (2023).
- [103] T. Shomenov and S. Bubin, Explicitly correlated Gaussians for high-precision variational calculations of S^e , P^e , and D^e states of quantum systems: An efficient algorithm, *Phys. Rev. E* **108**, 065308 (2023).
- [104] S. Nasiri, S. Bubin, and L. Adamowicz, Isotopic shifts in 3P states of the carbon atom, *Mol. Phys.* **122**, e2325049 (2024).
- [105] S. Nasiri, S. Bubin, and L. Adamowicz, Oscillator strengths for $^2P - ^2S$ transitions in neutral boron, *Phys. Rev. A* **109**, 042813 (2024).
- [106] D. Tumakov, P. Rzhetskii, T. Shomenov, and S. Bubin, Relativistic corrections in the ground and excited states of positronic beryllium, *Phys. Rev. A* **109**, 042826 (2024).
- [107] S. Nasiri, S. Bubin, M. Stanke, and L. Adamowicz, Molecular Structure Theory Without the Born–Oppenheimer Approximation: Rotationless Vibrational States of LiH , *J. Phys. Chem. A* **128**, 9175 (2024).
- [108] S. Nasiri, D. Tumakov, M. Stanke, A. Kedziorski, L. Adamowicz, and S. Bubin, Fine structure of the doublet P levels of boron, *Phys. Rev. Research* **6**, 043225 (2024).
- [109] S. Nasiri, S. Bubin, and L. Adamowicz, Non-Born–Oppenheimer Electronic Structure and Relativistic Effects in the Ground States of BH and BH^+ , *J. Phys. Chem. A* **129**, 1623 (2025).