

Solovyev Dmitri
List of Publications

2023

1. A. Anikin, T. Zalialiutdinov, D. Solovyev, Natural line profile asymmetry, Phys. Scr. 98, 045407 (2023)
<https://doi.org/10.1088/1402-4896/acc28d>
2. T. Zalialiutdinov, Y. Kozhedub, and D. Solovyev, Thermal contribution to measured g -factors in alkali atoms, Canadian Journal of Physics 101, 656 (2023)
<https://doi.org/10.1139/cjp-2023-0068>
3. D. Solovyev and T. Zalialiutdinov, Radiative corrections to the level width in the presence of magnetic field, Phys. Scr. 98, 085406 (2023)
<https://dx.doi.org/10.1088/1402-4896/ace223>
4. T. Zalialiutdinov and D. Solovyev, Combined two-loop self-energy corrections at finite and zero temperatures, Phys. Rev. A 108, 042801 (2023)
<https://link.aps.org/doi/10.1103/PhysRevA.108.042801>
5. A. Anikin, A. Danilov, D. Glazov, A. Kotov, D. Solovyev, Light antiproton one-electron quasi-molecular ions within the relativistic A-DKB method, J. Chem. Phys. 159, 214304 (2023)
<https://doi.org/10.1063/5.0181614>

2022

1. D. Solovyev, E. Solovyeva, Adapted method of moments for determining the transition frequency, Physics Letters A 432, 128021 (2022)
<https://doi.org/10.1016/j.physleta.2022.128021>
2. T. Zalialiutdinov, D. Solovyev, D. Chubukov, S. Chekhovskoi, and L. Labzowsky, Alternative interpretation of relativistic time-reversal and the time arrow, Phys. Rev. Research 4, L022052 (2022)
<https://journals.aps.org/prresearch/abstract/10.1103/PhysRevResearch.4.L022052>
3. T. Zalialiutdinov, D. Glazov, and D. Solovyev, Thermal corrections to the bound-electron g factor, Phys. Rev. A 105, 012804 (2022)
<https://doi.org/10.1103/PhysRevA.105.012804>
4. D. Solovyev, T. Zalialiutdinov, and A. Anikin, Thermal corrections for positronium, Phys. Rev. A 105, 022827 (2022)
<https://doi.org/10.1103/PhysRevA.105.022827>
5. T. Zalialiutdinov, A. Anikin, and D. Solovyev, Thermal induced Stark shifts of highly excited states of the hydrogen atom,

JETP, Vol. 135, No. 5, November 2022
[doi:10.31857/S0044451022110013](https://doi.org/10.31857/S0044451022110013), <http://www.jetp.ras.ru/>

6. T. Zalialiutdinov, D. Glazov, and D. Solovyev, Thermal radiative corrections to hyperfine structure of light hydrogenlike systems,

Phys. Rev. A 106, 062808 (2022)

<https://doi.org/10.1103/PhysRevA.106.062808>

2021

1. D. Solovyev, T. Zalialiutdinov, and A. Anikin, Vertex-type thermal correction to the one-photon transition rates,

J. Phys. B: At. Mol. Opt. Phys. 54, 095001 (2021)

<https://doi.org/10.1088/1361-6455/abd2d0>

2. D. Solovyev, T. Zalialiutdinov, and A. Anikin, Relativistic corrections to the thermal interaction of bound particles,

Phys. Rev. Res. 3, 023102 (2021)

<https://doi.org/10.1103/PhysRevResearch.3.023102>

3. J. Triaskin, T. Zalialiutdinov, A. Anikin, and D. Solovyev, Lowest-Order Thermal Correction to the Hydrogen Recombination Cross-Section in Presence of Blackbody Radiation, Atom, 9(4), 80 (2021)

<https://doi.org/10.3390/atoms9040080>

4. T. Zalialiutdinov, A. Anikin, and D. Solovyev, Analysis of nonresonant effects in the two-photon spectroscopy of helium,

J. Phys. B: At. Mol. Opt. Phys. 54, 165002 (2021)

<https://doi.org/10.1088/1361-6455/ac232c>

5. A.A. Anikin, T. A. Zalialiutdinov, and D.A. Solovyev, Nonresonant Effects in the Two-Photon Spectroscopy of a Hydrogen Atom: Application to the Calculation of the Charge Radius of the Proton, JETP Lett. 114, 180–187 (2021)

<https://doi.org/10.1134/S0021364021160037>

6. A. Anikin, T. Zalialiutdinov, and D. Solovyev, Angular correlations in two-photon spectroscopy of hydrogen,

Phys. Rev. A 103, 022833 (2021)

<https://journals.aps.org/pr/abstract/10.1103/PhysRevA.103.022833>

2020

1. D. Solovyev, Thermal QED theory for bound states,

Annals of Physics 415, 168128 (2020)

<https://doi.org/10.1016/j.aop.2020.168128>.

2. D. Solovyev, T. Zalialiutdinov, and A. Anikin, Thermal corrections of lowest order for a helium atom, Phys. Rev. A 101, 052501 (2020)

<https://doi.org/10.1103/PhysRevA.101.052501>

3. T. Zaliutdinov, D. Solov'yev, and L. Labzowsky, Radiative QED corrections to one-photon transition rates in the hydrogen atom at finite temperatures, Phys. Rev. A 101, 052503 (2020)

<https://doi.org/10.1103/PhysRevA.101.052503>

4. T. Zaliutdinov, A. Anikin, and D. Solov'yev, Two-photon atomic level widths at finite temperatures,

Phys. Rev. A 102, 032204 (2020)

<https://doi.org/10.1103/PhysRevA.102.032204>

5. D. Solov'yev, A. Anikin, T. Zaliutdinov and L. Labzowsky, Importance of nonresonant corrections for the description of atomic spectra,

J. Phys. B: At. Mol. Opt. Phys. 53, 125002 (2020)

<https://doi.org/10.1088/1361-6455/ab8b43>

2019

1. T. Zaliutdinov, D. Solov'yev, L. Labzowsky, and G. Plunien, Mixing of atomic levels by blackbody radiation and its consequences in an astrophysical context,

Phys. Rev. A 99, 012502 (2019)

<https://doi.org/10.1103/PhysRevA.99.012502>

2. D. Solov'yev, T. Zaliutdinov, A. Anikin, J. Triaskin and L. Labzowsky, Recombination process for the hydrogen atom in the presence of blackbody radiation,

Phys. Rev. A 100, 012506 (2019)

<https://doi.org/10.1103/PhysRevA.100.012506>

2018

1. D. Solov'yev, Analysis of the absorption line profile at 21 cm for the hydrogen atom in the interstellar medium,

J. Phys. B: At. Mol. Opt. Phys. 51, 225004 (2018)

<https://doi.org/10.1088/1361-6455/aae55a>

2. T. A. Zaliutdinov, D. A. Solov'yev, L. N. Labzowsky and G. Plunien, QED theory of multiphoton transitions in atoms and ions,

Phys. Rep. 737, 1-84 (2018)

<https://doi.org/10.1016/j.physrep.2018.02.003>

3. T. A. Zaliutdinov, D. A. Solov'yev and L. N. Labzowsky, Influence of BBR-Induced Level Mixing Effect on Cosmological Recombination of Hydrogen and Singly Ionized Helium Atoms, Journal of Experimental and Theoretical Physics. 126(1), pp. 8-20 (2018)

<https://doi.org/10.1134/S1063776118010119>

4. T. Zaliutdinov, D. Solov'yev and L. Labzowsky, BBR-induced Stark shifts and level broadening in a helium atom,

J. Phys. B: At. Mol. Opt. Phys. 51, 015003 (2018)

<https://doi.org/10.1088/1361-6455/aa8e6e>

2017

1. T. Zaliutdinov, D. Solov'yev, L. Labzowsky, and G. Plunien, Level-mixing effect induced by blackbody radiation and its influence on the cosmological hydrogen recombination problem, *Phys. Rev. A* 96, 012512 (2017)

<https://doi.org/10.1103/PhysRevA.96.012512>

2. T. Zaliutdinov, D. Solov'yev and L. Labzowsky, Generalized spin-statistic selection rules for atomic transitions with arbitrary number of equivalent photons, *Eur. Phys. J. D* 226, 2837-2842 (2017)

<https://doi.org/10.1140/epjst/e2016-60328-y>

2016

1. T. Zaliutdinov, D. Solov'yev, L. Labzowsky and G. Plunien, Spin-statistic selection rules for multiphoton transitions: Application to helium atoms, *Phys. Rev. A* 93, 012510 (2016)

<https://doi.org/10.1103/PhysRevA.93.012510>

2. T. Zaliutdinov, D. Solov'yev, L. Labzowsky, QED calculations of three-photon transition probabilities in H-like ions with arbitrary nuclear charge, *J. Phys. B: At. Mol. Opt. Phys.* 49, 055001 (2016)

<https://doi.org/10.1088/0953-4075/49/5/055001>

2015

1. T. Zaliutdinov, D. Solov'yev, L. Labzowsky, G. Plunien, Exclusion principle for photons: Spin-statistic selection rules for multiphoton transitions in atomic systems, *Phys. Rev. A* 91, 033417 (2015)

<https://doi.org/10.1103/PhysRevA.91.033417>

2. D. Solov'yev, L. Labzowsky, G. Plunien, QED derivation of the Stark shift and line broadening induced by blackbody radiation, *Phys. Rev. A* 92, 022508 (2015)

<https://doi.org/10.1103/PhysRevA.92.022508>

3. D. Solov'yev, E. Solov'yeva, Rydberg-state mixing in the presence of an external electric field: Comparison of the hydrogen and antihydrogen spectra, *Phys. Rev. A* 91, 042506 (2015)

<https://doi.org/10.1103/PhysRevA.91.042506>

2014

1. T. Zaliutdinov, D. Solov'yev, L. Labzowsky, G. Plunien, Two-photon transitions with cascades: two-photon transition rates and two-photon level widths, *Phys. Rev. A* 89, 052502 (2014)

<https://doi.org/10.1103/PhysRevA.89.052502>

2. D. Solov'yev, L. Labzowsky, The 21 cm absorption line profile as a tool for the search for antimatter in the universe,

PTEP 2014 (2014) 11, 111E01

<https://doi.org/10.1093/ptep/ptu142>

3. D. Solovyev, V. Dubrovich, EIT phenomenon for the three-level hydrogen atoms and its application to the era of cosmological recombination, *Centr.Eur.J.Phys.* 12, 367–374 (2014)
<https://doi.org/10.2478/s11534-014-0452-0>

4. T. Zalialutdinov, Yu. Baukina, D. Solovyev, L. Labzowsky, Theory of the multiphoton cascade transitions with two photon links: comparison of quantum electrodynamical and quantum mechanical approaches, *J. Phys. B: At. Mol. Opt. Phys.* 47, 115007 (2014)
<https://doi.org/10.1088/0953-4075/47/11/115007>

2013

1. D. Solovyev, Bloch-Siegert shift in application to the astrophysical determination of the fundamental constants variation, *Phys. Lett. A* 377, 2573-2576 (2013)
<https://doi.org/10.1016/j.physleta.2013.07.022>

2012

1. T. Zalialutdinov, D. Solovyev, L. Labzowsky, QED model of the radiation escape from matter, *J. Phys. B: At. Mol. Opt. Phys.* 45, 165006 (2012)
<https://doi.org/10.1088/0953-4075/45/16/165006>

2. D. Solovyev, V. K. Dubrovich, G. Plunien, Investigation of the electromagnetically induced transparency in the era of cosmological hydrogen recombination, *J. Phys. B: At. Mol. Opt. Phys.* 45, 215001 (2012)
<https://doi.org/10.1088/0953-4075/45/21/215001>

2011

1. T. A. Zalyalyutdinov, D. A. Solovyev, L. N. Labzovskii, 4s-1s two-photon decay in hydrogen atom with allowance for cascades, *Optics and Spectroscopy* 110, 328-334 (2011)
<https://doi.org/10.1134/S0030400X11030283>

2. D. Solovyev, L. Labzowsky, The two-photon approximation for the four-photon decay of the 4d excited state in hydrogen, *Can. J. Phys.* 89, 123-127 (2011)
<https://doi.org/10.1139/P10-073>

3. D. Solovyev, L. Labzowsky, A. Volotka, G. Plunien, Extension of the sum rule for the transition rates between multiplets to the multiphoton case, *Eur. Phys. J. D* 61, 297-304 (2011)
<https://doi.org/10.1140/epjd/e2010-10485-3>

2010

1. D. Solovyev, L. Labzowsky, G. Plunien and V. Sharipov, Influence of external electric fields on multi-photon transitions between the 2s, 2p and 1s levels for hydrogen and antihydrogen atoms and hydrogen-like ions, *J. Phys. B: At. Mol. Opt. Phys.* 43, 074005 (2010)
<https://doi.org/10.1088/0953-4075/43/7/074005>

2. D. Solovyev, L. Labzowsky, Two-photon approximation in the theory of electron recombination in hydrogen,
Phys. Rev. A 81, 062509 (2010)
<https://doi.org/10.1103/PhysRevA.81.062509>

3. D. Solovyev, V. Dubrovich, A. V. Volotka, L. Labzowsky, G. Plunien, Two-photon decays of highly excited states in hydrogen,
J. Phys. B: At. Mol. Opt. Phys. 43, 175001 (2010)
<https://doi.org/10.1088/0953-4075/43/17/175001>

2009

1. L. Labzowsky, G. Schedrin, D. Solovyev, E. Chernovskaya, G. Plunien and S. Karshenboim, Nonresonant corrections for the optical resonance frequency measurements in the hydrogen atom,
Phys. Rev. A 79, 052506 (2009)
<https://doi.org/10.1103/PhysRevA.79.052506>

2. L. Labzowsky, D. Solovyev, G. Plunien, Two-photon decay of excited levels in hydrogen: the ambiguity of the separation of cascades and pure two-photon emission,
Phys. Rev. A 80, 062514 (2009)
<https://doi.org/10.1103/PhysRevA.80.062514>

3. D. A. Solovyev, L. N. Labzowsky, V. F. Sharipov, Influence of an external electric field on the probabilities of two-photon transitions between 2s, 2p and 1s levels for hydrogen and antihydrogen atom,
Optics and Spectroscopy 107, 16-24 (2009)
<https://doi.org/10.1134/S0030400X09070030>

2008

1. O. Yu Andreev, L. N. Labzowsky, G. Plunien, D. A. Solovyev, QED theory of the spectral line profiles and its applications to atoms and ions,
Phys. Rep. 455, 135-246 (2008)
<https://doi.org/10.1016/j.physrep.2007.10.003>

2. D. A. Solov'ev, V. F. Sharipov, L. N. Labzovskii, G. Plunien, Probabilities of single-photon 2s-1s transition in hydrogen and antihydrogen atoms in an external electric field,
Optics and Spectroscopy 104, 509-512 (2008)
<https://doi.org/10.1134/S0030400X0804005X>

2007

1. L. Labzowsky, G. Schedrin, D. Solovyev and G. Plunien, Theoretical study of the accuracy limits of optical resonance frequency measurements,
Phys. Rev. Lett. 98, 203003 (2007)
<https://doi.org/10.1103/PhysRevLett.98.203003>

2. L. Labzowsky, D. Solovyev, G. Plunien, O. Andreev and G. Schedrin, Intensity distribution shift in multiple nonresonant photon scattering on the hydrogen atom,
J. Phys. B: At. Mol. Opt. Phys. 40, 525-535 (2007)
<https://doi.org/10.1088/0953-4075/40/3/008>

3. L. Labzowsky, G. Schedrin, D. Solovyev and G. Plunien, Nonresonant corrections and limits for the accuracy of the frequency measurements in modern hydrogen experiments, *Can. J. Phys.* 85, 1-11 (2007)
<https://doi.org/10.1139/p07-014>

2006

1. L. Labzowsky, V. Sharipov, D. Solovyev and G. Plunien, Coherent beam-foil excitation of $2s_{1/2}$ and $2p_{1/2}$ states of hydrogen and antihydrogen atoms in an external electric field, *J. Phys. B: At. Mol. Opt. Phys.* 39, 5091-5096 (2006)
<https://doi.org/10.1088/0953-4075/39/24/006>

2. L. N. Labzowsky, D. A. Solovyev, G. Plunien and G. Soff, Two-photon $E1M1$ and $E1E2$ transitions between $2p$ and $1s$ levels in hydrogen, *Eur. Phys. J. D* 37, 335-343 (2006)
<https://doi.org/10.1140/epjd/e2006-00022-6>

2005

1. L. N. Labzowsky, A. V. Shonin and D. A. Solovyev, QED calculation of $E1M1$ and $E1E2$ transition probabilities in one-electron ions with arbitrary nuclear charge, *J. Phys. B: At. Mol. Opt. Phys.* 38, 265 (2005)
<https://doi.org/10.1088/0953-4075/38/3/010>

2004

1. L. Labzowsky, V. Sharipov, D. Solovyev, G. Plunien and G. Soff, Spectroscopy of the hydrogen and anti-hydrogen atoms in external fields, *Int. J. Mod. Phys. B* 18, 3875 (2004)
<https://doi.org/10.1142/S0217979204026809>

2. L. N. Labzowsky and D. A. Solovyev, Multiple resonant photon scattering on the hydrogen atom and the shift of the photon intensity distribution, *J. Phys. B: At. Mol. Opt. Phys.* 37, 3271-3281 (2004)
<https://doi.org/10.1088/0953-4075/37/16/005>

2003

1. L. Labzowsky and D. Solovyev, Resonant spectroscopy of the antihydrogen atom, *Phys. Rev. A* 68, 014501 (2003)
<https://doi.org/10.1103/PhysRevA.68.014501>

2. L. Labzowsky, D. Solovyev, V. Sharipov, G. Plunien and G. Soff, One- and two-photon resonant spectroscopy of hydrogen and anti-hydrogen atoms in external electric fields, *J. Phys. B: At. Mol. Opt. Phys.* 36, L227-L233 (2003)
<https://doi.org/10.1088/0953-4075/36/15/101>

3. L. N. Labzowsky and D. A. Solovyev, Coulomb Green function and its applications in atomic theory, *Precise Physics of Simple Atomic Systems*, Springer, p.15 (2003)
<https://doi.org/10.1088/0953-4075/36/15/101>

2002

1. L. N. Labzowsky, D. A. Solovyev, G. Plunien and G. Soff, Nonresonant corrections to the 1s-2s two-photon resonance for the hydrogen atom,
Phys. Rev. A 65, 054502 (2002)
<https://doi.org/10.1103/PhysRevA.65.054502>

2. L. Labzowsky and D. Solovyev, Intensity distribution shift for the resonant photon scattering on the hydrogen atom,
Phys. Rev. A 66, 024503 (2002)
<https://doi.org/10.1103/PhysRevA.66.024503>

3. L. N. Labzowsky, D. A. Solovyev, G. Plunien and G. Soff, Nonresonant corrections for the hydrogen atom,
Can. J. Phys. 80, 1187-1194 (2002)
<https://doi.org/10.1139/p02-094>

2001

1. L. N. Labzowsky, D. A. Solovyev, G. Plunien and G. Soff, Asymmetry of the natural line profile for the hydrogen atom,
Phys. Rev. Lett. 87, 143003 (2001)
<https://doi.org/10.1103/PhysRevLett.87.143003>