

Andrey Stolyarov

List of Publications by Year in descending order

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125
papers

1,899
citations

218677

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36
g-index

126
all docs

126
docs citations

126
times ranked

807
citing authors

#	ARTICLE	IF	CITATIONS
1	Duo: A general program for calculating spectra of diatomic molecules. Computer Physics Communications, 2016, 202, 262-275.	7.5	134
2	The $\epsilon^+_{3\sigma}$, $\beta^+_{3\sigma}$, and $\alpha^+_{3\sigma}$ states of NaK revisited. Journal of Chemical Physics, 2000, 112, 5740-5750.	2.0	52
3	Solution of the fully mixed-state problem: Direct deperturbation analysis of the $A \frac{1}{r^2} + \frac{1}{r^4}$ Spectroscopic data, spin-orbit functions, and revised analysis of strong perturbative interactions for the $A \frac{1}{r^2} + \frac{1}{r^4}$	2.5	47
4	High resolution spectroscopy and channel-coupling treatment of the $\epsilon^+_{3\sigma}$ complex of NaRb. Journal of Chemical Physics, 2002, 117, 7980-7988.	3.0	45
6	Deperturbation treatment of the $\epsilon^+_{3\sigma}$ complex of NaRb and prospects for ultracold molecule formation in $X^1\Sigma^+_g(v=0;J=0)$. Physical Review A, 2007, 75, .	2.5	45
7	Spectroscopic observations, spin-orbit functions, and coupled-channel deperturbation analysis of data on the $A \frac{1}{r^2} + \frac{1}{r^4}$	2.5	44
8	Direct-potential-fit analyses yield improved empirical potentials for the ground $X^1\Sigma^+_g$ and $X^1\Sigma^+_g+1$ state of Be ₂ . Journal of Chemical Physics, 2014, 140, 064315.	3.0	44
9	Laser synthesis of ultracold alkali metal dimers: optimization and control. Russian Chemical Reviews, 2015, 84, 1001-1020.	6.5	42
10	Global analysis of data on the spin-orbit-coupled $A \frac{1}{r^2} + \frac{1}{r^4}$	2.5	41
11	Quasi-relativistic treatment of the low-lying KCs states. Journal of Molecular Spectroscopy, 2009, 256, 57-67.	1.2	40
12	Impact of the dipole-moment representation on the intensity of high overtones. Journal of Molecular Spectroscopy, 2016, 330, 36-42.	1.2	38
13	Adaptive analytical mapping procedure for efficiently solving the radial Schrödinger equation. Physical Review A, 2008, 78, .	2.5	35
14	Dissociative recombination of rare gas hydride ions: II. ArH ⁺ . Journal of Physics B: Atomic, Molecular and Optical Physics, 2005, 38, L175-L181.	1.5	33
15	Fourier-transform spectroscopy and coupled-channels deperturbation treatment of the $A \frac{1}{r^2} + \frac{1}{r^4}$	2.5	33
16	Fourier transform spectroscopy and extended deperturbation treatment of the spin-orbit-coupled $A \frac{1}{r^2} + \frac{1}{r^4}$	2.5	31
17	Approximate sum rule for diatomic vibronic states. Physical Review A, 1994, 49, 1693-1697.	2.5	31
18	Energy and radiative properties of the low-lying NaRb states. Physical Review A, 2001, 63, .	2.5	31

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19	Permanent electric dipoles and \hat{b} -doubling constants in the lowest 1^1 states of RbCs. <i>Physical Review A</i> , 2005, 71, .	2.5	29
20	Fourier transform spectroscopy and direct potential fit of a shelflike state: Application to $(4)1^1\Sigma^+ +$ KCs. <i>Journal of Chemical Physics</i> , 2011, 134, 104307.	3.0	29
21	Peculiarities of high-overtone transition probabilities in carbon monoxide revealed by high-precision calculation. <i>Journal of Chemical Physics</i> , 2015, 143, 154301.	3.0	29
22	Approximate sum rule for diatomic vibronic states as a tool for the evaluation of molecular properties. <i>Chemical Physics Letters</i> , 1994, 228, 219-224.	2.6	28
23	Lifetimes and transition dipole moment functions of NaK low lying singlet states: Empirical and ab initio approach. <i>Journal of Chemical Physics</i> , 1998, 109, 6725-6735.	3.0	28
24	Ab initio nonadiabatic calculation of the sensitivity coefficients for the $X^1\Sigma^+ + \hat{a}^1\Pi$ B $1^1\Sigma^+ +$; C $1^1\Pi$ lines of H ₂ to the proton-to-electron mass ratio. <i>JETP Letters</i> , 2006, 83, 303-307.	1.4	28
25	Approximate relativistic coupled-cluster calculations on heavy alkali-metal diatomics: Application to the spin-orbit-coupled $X^1\Sigma^+ + \hat{a}^1\Pi$ B $1^1\Sigma^+ +$; C $1^1\Pi$ lines of H ₂ to the proton-to-electron mass ratio. <i>JETP Letters</i> , 2006, 83, 303-307.	2.5	28
26	Near-dissociation photoassociative production of deeply bound NaCs molecules. <i>Physical Review A</i> , 2010, 82, .	2.5	26
27	The $X^2\Sigma^+$ state of LiCa studied by Fourier-transform spectroscopy. <i>Journal of Chemical Physics</i> , 2011, 135, 174303.	3.0	26
28	The phase formalism for the one-dimensional eigenvalue problem and its relation with the quantum Bohr-Sommerfeld rule. <i>Journal of Physics B: Atomic, Molecular and Optical Physics</i> , 1990, 23, 2419-2426.	1.5	24
29	NaK \hat{b} doubling and permanent electric dipoles in low-lying 1^1 states: Experiment and theory. <i>Physical Review A</i> , 1998, 58, 1932-1943.	2.5	23
30	Modeling of the $X^1\Sigma^+ + \hat{a}^1\Pi$ B $1^1\Sigma^+ +$; C $1^1\Pi$ lines of H ₂ to the proton-to-electron mass ratio. <i>JETP Letters</i> , 2006, 83, 303-307.	2.5	22
31	Fourier-transform spectroscopy of $(4)1^1\Sigma^+ +$ KCs and deperturbation treatment of $(4)1^1\Sigma^+ +$ and $(4)3^1\Pi_0^- +$ states. <i>Journal of Chemical Physics</i> , 2013, 139, 244301.	3.0	22
32	Permanent electric dipoles in $B^2\Sigma^+ [sup 1] \hat{I}$ and $D^2\Sigma^+ [sup 1] \hat{I}$ states of NaRb: Experiment and theory. <i>Journal of Chemical Physics</i> , 2000, 113, 4896.	3.0	19
33	Theoretical study of the ArH ⁺ electronic states. <i>Physical Chemistry Chemical Physics</i> , 2005, 7, 2259.	2.8	18
34	Direct coupled-channels deperturbation analysis of the $A^1\Sigma^+ + \hat{a}^{1/4} b^3\Pi$ complex in LiCs with experimental accuracy. <i>Journal of Chemical Physics</i> , 2015, 142, 234308.	3.0	18
35	Electronic Transition Dipole Moments in Relativistic Coupled-Cluster Theory: the Finite-Field Method. <i>Optics and Spectroscopy (English Translation of Optika i Spektroskopiya)</i> , 2018, 124, 451-456.	0.6	18
36	NaK $\hat{D}1^1$ electric dipole moment measurement by Stark level crossing and $\hat{a}^1\Pi$ mixing spectroscopy. <i>Journal of Chemical Physics</i> , 1997, 106, 2195-2204.	3.0	17

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37	Experimental studies of the NaRb ground-state potential up to the $\nu=76$ level. Physical Review A, 2002, 66, .	2.5	17
38	Lifetime measurements and quantum-defect theory treatment of the $n=3$ state of hydrogen molecule. Journal of Chemical Physics, 2003, 118, 121-129.	3.0	17
39	Competition between predissociative and radiative decays in the $n=3$ states of H ₂ and D ₂ . Physical Review A, 1999, 60, 4494-4503.	2.5	16
40	Direct excitation of the $n=3$ states of H ₂ and D ₂ . Physical Review A, 1999, 60, 4494-4503.	2.5	16
41	Extended Fourier-transform spectroscopy studies and deperturbation analysis of the spin-orbit coupled $n=3$ states in RbCs. Journal of Chemical Physics, 2014, 141, 184309.	3.0	16
42	Analytical approximations for adiabatic and non-adiabatic matrix elements of homonuclear diatomic Rydberg states. Application to the singlet p-complex of the hydrogen molecule. Journal of Physics B: Atomic, Molecular and Optical Physics, 1997, 30, 3077-3093.	1.5	15
43	Rapid, accurate calculation of the s-wave scattering length. Journal of Chemical Physics, 2011, 135, 154108.	3.0	15
44	Ab initio long-range interaction and adiabatic channel capture model for ultracold reactions between the KRb molecules. Journal of Chemical Physics, 2012, 137, 114305.	3.0	15
45	Fourier-transform spectroscopy and deperturbation analysis of the spin-orbit coupled $n=3$ states of KRb. Journal of Chemical Physics, 2016, 144, 144310.	3.0	15
46	Ab initio interatomic potentials and transport properties of alkali metal (M = Rb and Cs) rare gas (Rg) Tj ETQq0 0,0 rgBT / Overlock 10	2.8	15
47	Radiative properties of diatomic Rydberg states in quantum defect theory. Application to the hydrogen molecule. Journal of Physics B: Atomic, Molecular and Optical Physics, 1999, 32, 527-535.	1.5	14
48	The origin of \hat{L} -doubling effect for the $n=1$ and $n=2$ states of NaK. Journal of Chemical Physics, 2000, 113, 8589-8593.	3.0	14
49	Direct deperturbation analysis of the $n=2$ complex of LiAr _{7,6} isotopomers. Journal of Chemical Physics, 2005, 123, 204307.	3.0	14
50	Investigation of the D $n=1$ state of NaK by polarisation labelling spectroscopy. Journal of Molecular Spectroscopy, 2008, 250, 27-32.	1.2	14
51	The CaO orange system in meteor spectra. Planetary and Space Science, 2018, 151, 27-32.	1.7	14
52	Determination of electronic transition strengths in diatomic molecules using laser-induced fluorescence: Application to 80Se^{2+} and B^{1+} . Journal of Molecular Spectroscopy, 1989, 137, 251-267.	1.2	13
53	Alignment-orientation conversion by quadratic Zeeman effect: Analysis and observation for Te ₂ . Journal of Chemical Physics, 1993, 99, 5748-5753.	3.0	13
54	Analog of the Hellmann-Feynman theorem in multichannel quantum-defect theory. Physical Review A, 2001, 63, .	2.5	13

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55	Analogue of oscillation theorem for nonadiabatic diatomic states: application to the Λ and Σ states of KCs. <i>Physical Chemistry Chemical Physics</i> , 2010, 12, 4809.	2.8	13
56	Intensity anomalies in the rotational and ro-vibrational spectra of diatomic molecules. <i>Journal of Chemical Physics</i> , 2017, 147, 164309.	3.0	13
57	Intensities of the laser-induced fluorescence of $^{130}\text{Te}_2$ and electronic transition strengths for the $\text{AOu}+\text{XOg}+$ and $\text{BOu}+\text{XOg}+$ systems. <i>Journal of Molecular Spectroscopy</i> , 1987, 125, 1-13.	1.2	12
58	Spin-orbit coupling in the $D^1\text{g}^+$ complex of $^{23}\text{Na}^{39}\text{K}$. <i>Molecular Physics</i> , 1999, 96, 955-961.	1.7	12
59	Nonadiabatic representation for the H_2 and D_2 . <i>Physical Review A</i> , 2000, 61, .	2.5	12
60	Experimental and theoretical studies of the coupled Λ and Σ states of H_2 and D_2 . <i>Physical Review A</i> , 2000, 61, .	2.5	12
61	Semi-empirical ground-state potential of carbon monoxide with physical behavior in the limits of small and large inter-atomic separations. <i>Journal of Quantitative Spectroscopy and Radiative Transfer</i> , 2018, 217, 262-273.	2.3	12
62	Effects of perturbations on the term values, Landé factors of $\text{BOu}+$ and $\text{A}1\text{u}$ states and on intensities of $\text{BOu}+\text{X}1\text{g}$ transitions of $^{130}\text{Te}_2$. <i>Chemical Physics Letters</i> , 1990, 166, 290-294.	2.6	11
63	Molecular hydrogen $3s, \Sigma^+$ complex revisited. <i>Journal of Chemical Physics</i> , 2002, 116, 6618-6627.	3.0	11
64	Theoretical study of spin-orbit and Coriolis coupling among the low-lying states of Rb_2 and Cs_2 . <i>Chemical Physics</i> , 2015, 462, 51-56.	1.9	11
65	The $I_2(B)$ predissociation by solving an inverse atoms-in-molecule problem. <i>Molecular Physics</i> , 2001, 99, 91-101.	1.7	10
66	LIF intensity distribution as a deperturbation tool: application to the fully-mixed Λ complex of NaRb . <i>Journal of Quantitative Spectroscopy and Radiative Transfer</i> , 2005, 95, 165-174.	2.3	10
67	Global deperturbation analysis from energetic, magnetic, and radiative measurements: Application to Te_2 . <i>Journal of Chemical Physics</i> , 1993, 99, 7873-7887.	3.0	9
68	Theoretical spectroscopy of molecular iodine. 1. <i>Ab initio</i> study on the BO^+ and $\text{B}\Sigma^+$ radiative transition intensities. <i>Molecular Physics</i> , 2000, 98, 1973-1979.	1.7	9
69	Experimental and theoretical studies of Λ doublings and permanent electric dipoles in the low-lying Λ states of NaCs . <i>Journal of Chemical Physics</i> , 2006, 124, 184318.	3.0	9
70	Spectroscopic studies of the Λ and Σ states of RbCs and modeling of the optical cycle for ultracold Λ and Σ states of RbCs and modeling of the optical cycle for ultracold Λ and Σ states of RbCs . <i>Physical Review A</i> , 2013, 87, 042501.	2.5	9
71	<i>Ab initio</i> and long-range studies of the electronic transition dipole moments among the low-lying states of Rb_2 and Cs_2 molecules. <i>Journal of Quantitative Spectroscopy and Radiative Transfer</i> , 2016, 177, 283-290.	2.3	9
72	Fourier-transform spectroscopy, relativistic electronic structure calculation, and coupled-channel deperturbation analysis of the fully mixed Λ and Σ states of RbCs and modeling of the optical cycle for ultracold Λ and Σ states of RbCs . <i>Physical Review A</i> , 2013, 87, 042501.	2.5	9

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73	A first principles study of the spin-orbit coupling effect in LiM (M = Na, K, Rb, Cs) molecules. Physical Chemistry Chemical Physics, 2020, 22, 2295-2306.	2.8	9
74	Semi-empirical dipole moment of carbon monoxide and line lists for all its isotopologues revisited. Journal of Quantitative Spectroscopy and Radiative Transfer, 2022, 280, 108090.	2.3	9
75	Rotational magnetic moment of the Na ₂ molecule in Λ -state: Perturbation effects. Journal of Chemical Physics, 1992, 96, 3510-3522.	3.0	8
76	Intensities and electronic transition strengths of seven Te ₂ visible and i.r. band systems. Journal of Quantitative Spectroscopy and Radiative Transfer, 1992, 47, 143-158.	2.3	8
77	Observation of Λ -state interaction factors of weakly coupled Na ₂ Λ -state levels. Journal of Chemical Physics, 1993, 98, 826-835.	3.0	8
78	Magnetic field induced alignment-orientation conversion: Nonlinear energy shift and predissociation in Te ₂ Λ -state. Journal of Chemical Physics, 1996, 105, 37-49.	3.0	8
79	Ab initio and quantum-defect calculations for the Rydberg states of ArH. Physical Chemistry Chemical Physics, 2006, 8, 247-255.	2.8	8
80	Potential Energy Curves for Alkali Metal-Rare Gas Exciplex Lasers. , 2010, , .		7
81	Long-range behavior of the transition dipole moments of heteronuclear dimers XY (X, Y = Li, Na, K, Rb) based on ab initio calculations. Physical Chemistry Chemical Physics, 2018, 20, 1889-1896.	2.8	7
82	Ab initio and analytical studies of the spin-orbit coupling in heteronuclear alkali-metal dimers $\langle \mathbf{A} \mathbf{B} \rangle$ and $\langle \mathbf{A} \mathbf{B} \rangle$ states. Journal of Chemical Physics, 2019, 150, 124301.	3.7	7
83	Experimental and theoretical studies of photoinduced reactions in the solid phase of the interstellar medium. Russian Chemical Reviews, 2020, 89, 430-448.	6.5	7
84	Mathematical justification of the r-centroid approximation. Journal of Quantitative Spectroscopy and Radiative Transfer, 1986, 35, 415-418.	2.3	6
85	Separation of quadratic and linear external field effects in high quantum beats. Journal of Chemical Physics, 1994, 101, 5559-5565.	3.0	6
86	Radiative lifetimes of the NaRb C(3) Λ -state: experiment and theory. European Physical Journal D, 2006, 39, 373-378.	1.3	6
87	Radiative lifetimes of the $\langle \mathbf{A} \mathbf{B} \rangle$ states in NaCs: Experiment and theory. Physical Review A, 2007, 76, 042507.	2.5	6
88	A Reduced Method of Coupled Vibrational Channels: Analysis of Regular Perturbations in the $\langle \mathbf{A} \mathbf{B} \rangle$ -State of a KRb Molecule. Optics and Spectroscopy (English Translation of Optika i Spektroskopiya), 2018, 125, 464-469.	0.6	6
89	Spectroscopy of Diatomic Molecules in an Adiabatic Approximation. Russian Journal of Physical Chemistry A, 2019, 93, 1865-1872.	0.6	6
90	Tackling the FeO orange band puzzle in meteor and airglow spectra through combined astronomical and laboratory studies. Monthly Notices of the Royal Astronomical Society, 2020, 500, 4296-4306.	4.4	6

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91	Solution of the radial Schrödinger equation by a modified "shooting" method. European Physical Journal D, 1987, 37, 529-536.	0.4	5
92	Improvement on Van Vleck's formula for diatomic nonadiabatic energy shifts. Chemical Physics Letters, 1997, 267, 207-214.	2.6	5
93	Energy and radiative properties of the $(3)1$ and $(5)1+1$ states of RbCs: Experiment and theory. Physical Review A, 2017, 96, .	2.5	5
94	The spin-orbit coupling of the 6^1 and 4^3 states in KCs: Observation and deperturbation. Journal of Quantitative Spectroscopy and Radiative Transfer, 2019, 239, 106650.	2.8	5
95	Long-range potentials and dipole moments of the CO electronic states converging to the ground dissociation limit. Physical Chemistry Chemical Physics, 2020, 22, 12058-12067.	1.0	4
96	The Influence of the Rotation-Vibrational Interaction on the Franck-Condon Factors for Diatomic Molecules. Spectroscopy Letters, 1986, 19, 1113-1124.	2.5	4
97	Two-fold diabaticization of the KRb 1^1 complex in the framework of <i>ab initio</i> deperturbation approaches. Physical Review A, 2016, 94, .	0.9	4
98	The Photolysis of Aromatic Hydrocarbons Adsorbed on the Surfaces of Cosmic Dust Grains. Astronomy Reports, 2019, 63, 633-641.	4.4	4
99	ExoMol molecular line lists "XLIII. Rovibronic transitions corresponding to the close-lying X^2 and A^2+ states of NaO. Monthly Notices of the Royal Astronomical Society, 2022, 511, 2349-2355.	1.0	3
100	A New Approach to the Estimation of Accuracy of Calculations of Vibrational Wavefunctions and Radiative Parameters. Spectroscopy Letters, 1985, 18, 671-678.	1.0	3
101	The Quantum and Semiclassical Phase Formalism for Obtaining the 1D Eigenfunctions. Spectroscopy Letters, 1992, 25, 271-277.	0.6	3
102	The Effect of Relativistic Interactions on the Spectral Characteristics of the Ground State of Carbon Monoxide. Optics and Spectroscopy (English Translation of Optika i Spektroskopiya), 2018, 125, 470-475.	2.3	3
103	An accurate <i>ab initio</i> electronic structure calculation for interstellar argonium. Journal of Quantitative Spectroscopy and Radiative Transfer, 2019, 234, 139-146.	3.0	3
104	Observation and modeling of bound-free transitions to the X^1 and a^3 states of KCs. Journal of Chemical Physics, 2022, 156, 114305.	2.5	2
105	Publisher's Note: Deperturbation treatment of the 1^1 complex of NaRb and prospects for ultracold molecule formation in X^1+1 ($v=0; J=0$) [Phys. Rev. A75, 042503 (2007)]. Physical Review A, 2007, 75, .	0.6	2
106	Nonempirical studies of the molecular properties and thermodynamic functions of urea in the ideal gas state. Russian Journal of Physical Chemistry A, 2009, 83, 270-275.	6.5	2
107	Laser-induced processes in chemistry and material sciences. Russian Chemical Reviews, 2015, 84, E01-E01.		1
108	Data bank RADEN. , 1994, , .		

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109	Fourier-transform spectroscopy, direct potential fit, and electronic structure calculations on the entirely perturbed (4) $\langle \text{mml:math} \text{xmlns:mml="http://www.w3.org/1998/Math/MathML"} \rangle \langle \text{mml:mrow} \rangle \langle \text{mml:msup} \rangle \langle \text{mml:mpace} \text{width="0.16em"} \rangle \langle \text{mml:mn} \rangle 1 \langle \text{mml:mn} \rangle \langle \text{mml:msup} \rangle \langle \text{mml:mi} \text{mathvariant="normal"} \rangle \langle \text{mml:mrow} \rangle \langle \text{mml:math} \text{state of RbCs. Physical Review A, 2018, 98,}$	2.5	1
110	Theoretical study of the Coriolis effect in LiNa, LiK, and LiRb molecules. Physical Chemistry Chemical Physics, 2021, 23, 5187-5198.	2.8	1
111	Laser Synthesis of Ultra-Cold Molecules: From Design to Production. Springer Series in Chemical Physics, 2017, , 169-177.	0.2	1
112	AIE u+~b3II u interaction studies from Na 2 g-factor measurements. , 1994, 2205, 253.		0
113	Occurrence of circular polarization in Te 2 fluorescence due to quadratic Zeeman effect. , 1994, , .		0
114	Molecular constant error propagations into Franck-Condon integrals. , 1994, , .		0
115	Deperturbation analysis of Te 2 molecule. , 1994, , .		0
116	Stark level crossing and optical-rf double resonance in NaK D 1 \hat{I} . , 1997, , .		0
117	Magnetic predissociation in Te 2 B 1 u. , 1997, 3090, 189.		0
118	Studies of rotational level \hat{I} -doubling by rf-optical double resonance spectroscopy: application to NaK D1 \hat{I} . Journal of Molecular Structure, 1997, 410-411, 55-58.	3.6	0
119	Lifetimes of the $k3\hat{I}u$ state in the H2 and D2 \hat{a}^{∞} experiment and theory. Radiation Physics and Chemistry, 2003, 68, 165-167.	2.8	0
120	Spin-orbit, radial, and angular coupling effects in the NaRb excited states. , 2009, , .		0
121	Theoretical Investigations of Alkali Metal \hat{a}^{∞} Rare Gas Photodissociation Lasers. , 2010, , .		0
122	Nonadiabatic effects in (1~2)1 \hat{a}^{∞} X1 $\hat{I}\xi+$ rovibronic transitions of KRb molecules. Optics and Spectroscopy (English Translation of Optika I Spektroskopiya), 2017, 123, 676-681.	0.6	0
123	Ab Initio Simulation of Transport Properties in Rb \hat{a}^{∞} CH4 and Cs \hat{a}^{∞} CH4 Laser Media. Russian Journal of Physical Chemistry A, 2018, 92, 756-759.	0.6	0
124	The collision cross-sections for proton \hat{a}^{∞} argon interaction based on $\langle i \rangle$ ab initio $\langle /i \rangle$ potential. Journal of Plasma Physics, 2020, 86, .	2.1	0
125	Cosmological Constraints on a Temporal Variation of the Proton-to-electron Mass Ratio based on the Red-shifted Lines of Extragalactic Argonium. Astronomy Reports, 2021, 65, 1211-1214.	0.9	0