

# Alexander N Petrov

## List of Publications by Year in descending order

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85  
papers

2,243  
citations

186265

28  
h-index

243625

44  
g-index

87  
all docs

87  
docs citations

87  
times ranked

1134  
citing authors

#	ARTICLE	IF	CITATIONS
1	Quantum chaos in ultracold collisions of gas-phase erbium atoms. Nature, 2014, 507, 475-479. Measurement of a Large Chemical Reaction Rate between Ultracold Closed-Shell	27.8	196
2	Atoms and Open-Shell	7.8	127
3	Molecules. Physical Review Letters, 2012, 109, 230403.	7.8	85
4	Emergence of Chaotic Scattering in Ultracold Er and Dy. Physical Review X, 2015, 5, .	8.9	81
5	Communication: Theoretical study of ThO for the electron electric dipole moment search. Journal of Chemical Physics, 2013, 139, 221103.	3.0	78
6	Ultracold Dipolar Molecules Composed of Strongly Magnetic Atoms. Physical Review Letters, 2015, 115, 203201.	7.8	76
7	P,T-PARITYVIOLATIONEFFECTS INPOLARHEAVY-ATOM MOLECULES. , 2006, , 253-283.		73
8	Ab initio study of radium monofluoride (RaF) as a candidate to search for parity- and time-and-parity violation effects. Physical Review A, 2014, 90, .	2.5	68
9	Theoretical study of HfF <sup>+</sup> in search of the electron electric dipole moment. Physical Review A, 2007, 76, .	2.5	62
10	Anisotropy-Induced Feshbach Resonances in a Quantum Dipolar Gas of Highly Magnetic Atoms. Physical Review Letters, 2012, 109, 103002.	7.8	60
11	Universality and chaoticity in ultracold K+KRb chemical reactions. Nature Communications, 2017, 8, 15897.	12.8	56
12	Calculation of P,T-Odd Effects in T <sub>205</sub> Including Electron Correlation. Physical Review Letters, 2002, 88, 073001.	7.8	53
13	Broadband velocity modulation spectroscopy of HfF <sup>+</sup> : Towards a measurement of the electron electric dipole moment. Chemical Physics Letters, 2012, 546, 1-11.	2.6	49
14	Universalities in ultracold reactions of alkali-metal polar molecules. Physical Review A, 2011, 84, .	2.5	46
15	Ab initio properties of Li-group-II molecules for ultracold matter studies. Journal of Chemical Physics, 2011, 135, 164108.	3.0	45
16	Ultracold Heteronuclear Mixture of Ground and Excited State Atoms. Physical Review Letters, 2014, 112, 033201.	7.8	44
17	GENERALIZED RECPACCOUNTING FOR BREIT EFFECTS: URANIUM, PLUTONIUM AND SUPERHEAVY ELEMENTS 112, 113, 114. , 2006, , 229-251.		43
18	Zeeman interaction in ThO the electron electric-dipole-moment search. Physical Review A, 2014, 89, .	2.5	39

#	ARTICLE	IF	CITATIONS
19	Accounting for the Breit interaction in relativistic effective core potential calculations of actinides. <i>Journal of Physics B: Atomic, Molecular and Optical Physics</i> , 2004, 37, 4621-4637.	1.5	37
20	Enhancement of the electron electric dipole moment in Eu $\langle \text{mml:math} \text{xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"} \langle \text{mml:msup} \langle \text{mml:mrow} / \rangle \langle \text{mml:mrow} \rangle \langle \text{mml:mn} \rangle 2 \langle / \text{mml:mn} \rangle \langle \text{mml:mo} \rangle + \langle / \text{mml:mo} \rangle \langle / \text{mml:mrow} \rangle \langle / \text{mml:msup} \rangle \langle / \text{mml:math} \rangle$ .	2.5	37
21	CP-Violating Effect of the Th Nuclear Magnetic Quadrupole Moment: Accurate Many-Body Study of ThO. <i>Physical Review Letters</i> , 2014, 113, 263006.	7.8	34
22	In search of the electron dipole moment: Ab initio calculations on PbO <sub>2</sub> excited states. <i>Physical Review A</i> , 2004, 69, .	2.5	32
23	Progress toward the electron electric-dipole-moment search: Theoretical study of the PbF molecule. <i>Physical Review A</i> , 2010, 82, .	2.5	32
24	Search for parity- and time-and-parity violation effects in lead monofluoride (PbF): Ab initio molecular study. <i>Physical Review A</i> , 2014, 90, .	2.5	32
25	Anisotropy in the interaction of ultracold dysprosium. <i>Physical Chemistry Chemical Physics</i> , 2011, 13, 19165.	2.8	31
26	TaN molecule as a candidate for the search for a T,P-violating nuclear magnetic quadrupole moment. <i>Physical Review A</i> , 2015, 92, .	2.5	31
27	Optical spectroscopy of tungsten carbide for uncertainty analysis in electron electric-dipole-moment search. <i>Physical Review A</i> , 2013, 87, .	2.5	30
28	Configuration-interaction calculation of hyperfine and P,T-odd constants on Pb <sup>207</sup> O excited states for electron electric-dipole-moment experiments. <i>Physical Review A</i> , 2005, 72, .	2.5	29
29	Centrifugal correction to hyperfine structure constants in the ground state of lead monofluoride. <i>Physical Review A</i> , 2013, 88, .	2.5	29
30	Ultracold chemistry with alkali-metal rare-earth molecules. <i>Physical Review A</i> , 2015, 91, .	2.5	29
31	Hyperfine and Zeeman interactions of the $a$ $\langle \text{mml:math} \text{xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"} \langle \text{mml:mrow} \rangle \langle \text{mml:mi} \rangle a \langle / \text{mml:mi} \rangle \langle \text{mml:mo} \text{stretchy="false"} \rangle \langle / \text{mml:mo} \rangle \langle \text{mml:mn} \rangle 1 \langle / \text{mml:mn} \rangle \langle \text{mml:mo} \text{stretchy="false"} \rangle \langle / \text{mml:mo} \rangle \langle \text{mml:mo} \text{stretchy="false"} \rangle \langle / \text{mml:mo} \rangle \langle \text{mml:msup} \rangle \langle \text{mml:mrow} / \rangle \langle \text{mml:mrow} \rangle \langle \text{mml:mn} \rangle 3 \langle / \text{mml:mn} \rangle \langle / \text{mml:mrow} \rangle \langle / \text{mml:msup} \rangle \langle \text{mml:msubsup} \rangle \langle \text{mml:mi} \rangle \frac{1}{2} \langle / \text{mml:mi} \rangle \langle \text{mml:mrow} \rangle \langle \text{mml:mn} \rangle 1 \langle / \text{mml:mn} \rangle \langle / \text{mml:mrow} \rangle \langle / \text{mml:msubsup} \rangle \langle / \text{mml:math} \rangle$ .	2.5	28
32	Two-step method for precise calculation of core properties in molecules. <i>International Journal of Quantum Chemistry</i> , 2005, 104, 223-239.	2.0	27
33	Photoassociative production of ultracold heteronuclear YbLi $\langle \text{mml:math} \text{xmlns:mml="http://www.w3.org/1998/Math/MathML"} \langle \text{mml:msup} \rangle \langle \text{mml:mrow} \rangle \langle \text{mml:mi} \rangle \text{YbLi} \langle / \text{mml:mi} \rangle \langle / \text{mml:mrow} \rangle \langle \text{mml:mo} \rangle * \langle / \text{mml:mo} \rangle \langle / \text{mml:math} \rangle$ .	2.5	26
34	Molecular-ion trap-depletion spectroscopy of BaCl $\langle \text{mml:math} \text{xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"} \langle \text{mml:mrow} \rangle \langle \text{mml:msup} \rangle \langle \text{mml:mrow} / \rangle \langle \text{mml:mrow} \rangle \langle \text{mml:mo} \rangle + \langle / \text{mml:mo} \rangle \langle / \text{mml:mrow} \rangle \langle / \text{mml:msup} \rangle \langle / \text{mml:mrow} \rangle \langle / \text{mml:math} \rangle$ .	2.5	26
35	Calculation of the parity- and time-reversal-violating interaction in RaO. <i>Physical Review A</i> , 2013, 87, .	2.5	25
36	Theoretical study of low-lying electronic terms and transition moments for Hf $\langle \text{mml:math} \text{xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"} \langle \text{mml:mrow} \rangle \langle \text{mml:mi} \text{mathvariant="normal"} \rangle \text{Hf} \langle / \text{mml:mi} \rangle \langle \text{mml:msup} \rangle \langle \text{mml:mi} \text{mathvariant="normal"} \rangle \text{F} \langle / \text{mml:mi} \rangle \langle \text{mml:mo} \rangle + \langle / \text{mml:mo} \rangle \langle / \text{mml:msup} \rangle \langle / \text{mml:mrow} \rangle \langle / \text{mml:math} \rangle$ for the electron electric-dipole-moment search. <i>Physical Review A</i> , 2009, 79, .	2.5	23

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37	electric dipole moment: Relativistic correlation calculations of the $P$ -violation effect in the $T$ -odd effects for the RaOH molecule in the excited vibrational state. Physical Review A, 2021, 103, .	2.5	23
38	Evaluation of $CP$ violation in $HfF$ ion experiment to search for the electron electric dipole moment. Physical Review A, 2018, 97, .	2.5	21
39	state of $^3P_2$ mixture. New Journal of Physics, 2015, 17, 055007.	2.5	20
40	Magnetic field dependent interactions in an ultracold $Li^{6,7}Yb^{174,176}P^{3,2}$ mixture. New Journal of Physics, 2015, 17, 055007.	2.9	19
41	Emulating optical cycling centers in polyatomic molecules. Communications Physics, 2019, 2, .	5.3	18
42	In Search of the Electron Electric Dipole Moment: Relativistic Correlation Calculations of the $P, T$ -Violating Effect in the Ground State of $H^{1+}$ . Physical Review Letters, 2005, 95, 163004.	7.8	17
43	Precision spectroscopy of the $^3P_2$ state of $^{207}Pb$ . Physical Review A, 2015, 91, .	2.5	16
44	Systematic effects in the $HfF$ ion experiment to search for the electron electric dipole moment. Physical Review A, 2018, 97, .	2.5	15
45	On the search for time variation in the fine-structure constant: Ab initio calculation of $HfF^+$ . JETP Letters, 2009, 88, 578-581.	1.4	15
46	The Iodine Molecule. , 2018, , .		15
47	$P$ -odd effects for the RaOH molecule in the excited vibrational state. Physical Review A, 2021, 103, .	2.5	15
48	Enhanced effects of temporal variation of the fundamental constants in $^{211}Po$ diatomic molecules: $^{207}Pb^{19}F$ . Physical Review A, 2013, 88, .	2.5	13
49	ac Stark effect in $ThO$ for the electron electric-dipole-moment search. Physical Review A, 2015, 91, .	2.5	13
50	Energy levels of radium monofluoride $RaF$ in external electric and magnetic fields to search for $P$ - and $T$ -violation effects. Physical Review A, 2020, 102, .	2.5	13
51	Sensitivity of the $YbOH$ molecule to $CP$ -odd effects in an external electric field. Physical Review A, 2022, 105, .	2.5	12
52	Ab initio study of $Hg$ - $Hg$ and $E112$ - $E112$ van der Waals interactions. Physics of Atomic Nuclei, 2009, 72, 396-400.	0.4	11
53	Further investigation of $g$ -factors for the lead monofluoride ground state. Physical Review A, 2015, 92, .	2.5	11
54	Magnetic control of ultra-cold $Li^{6,7}$ and $Yb^{174,176}P^{3,2}$ atom mixtures with Feshbach resonances. New Journal of Physics, 2015, 17, 045010.	2.9	11

#	ARTICLE	IF	CITATIONS
55	Action spectroscopy of SrCl <sup>+</sup> using an integrated ion trap time-of-flight mass spectrometer. Journal of Chemical Physics, 2014, 141, 014309.	3.0	9
56	Rabi frequency of the $\hat{I}_y$ $\langle \text{mml:math} \text{xmlns:mml="http://www.w3.org/1998/Math/MathML"} \rangle \langle \text{mml:mrow} \rangle \langle \text{mml:mi} \rangle \text{H} \langle \text{mml:mi} \rangle \langle \text{mml:mpace width="0.16em"} \rangle \langle \text{mml:mmultiscripts} \rangle \langle \text{mml:mrow} \rangle \langle \text{mml:mi} \text{mathvariant="normal"} \rangle \hat{I}_y \langle \text{mml:mi} \rangle \langle \text{mml:mrow} \rangle \langle \text{mml:mn} \rangle 1 \langle \text{mml:mn} \rangle \langle \text{mml:none} \rangle \langle \text{mml:mprescripts} \rangle \langle \text{mml:none} \rangle \langle \text{mml:mn} \rangle 3 \langle \text{mml:mn} \rangle \langle \text{mml:mmultiscripts} \rangle \langle \text{mml:mrow} \rangle \langle \text{mml:math} \rangle \text{to} \langle \text{mml:math} \text{xmlns:mml="http://www.w3.org/1998/Math/MathML"} \rangle \langle \text{mml:mrow} \rangle \langle \text{mml:mi} \rangle \text{C} \langle \text{mml:mi} \rangle \langle \text{mml:mpace wi}$	2.5	9
57	Universal Scattering of Ultracold Atoms and Molecules in Optical Potentials. Atoms, 2019, 7, 36.	1.6	9
58	Excitation-assisted nonadiabatic charge-transfer reaction in a mixed atom-ion system. Physical Review A, 2019, 99, .	2.5	9
59	The effect of the iterative triple and quadruple cluster amplitudes on the adiabatic potential curve in the coupled cluster calculations of the ground electronic state of the Yb dimer. International Journal of Quantum Chemistry, 2011, 111, 3793-3798.	2.0	8
60	Laser controlled charge-transfer reaction at low temperatures. Journal of Chemical Physics, 2017, 146, 084304.	3.0	8
61	Rovibrational structure of the ytterbium monohydroxide molecule and the P,T-violation searches. Journal of Chemical Physics, 2021, 155, 164301.	3.0	8
62	Accuracy and efficiency of modern methods for electronic structure calculation on heavy-and superheavy-element compounds. Physics of Atomic Nuclei, 2003, 66, 1152-1162.	0.4	7
63	Ab initio calculation of the spectroscopic properties of TlF <sup>+</sup> . Optics and Spectroscopy (English) Tj ETQq1 1 0.784314 rgBT /Qverlock 0.6	0.6	7
64	Pendular trapping conditions for ultracold polar molecules enforced by external electric fields. Physical Review A, 2017, 95, .	2.5	7
65	Photon-mediated charge exchange reactions between <sup>39</sup> K atoms and <sup>40</sup> Ca <sup>+</sup> ions in a hybrid trap. Physical Chemistry Chemical Physics, 2020, 22, 10870-10881.	2.8	7
66	Relativistic aspects of orbital and magnetic anisotropies in the chemical bonding and structure of lanthanide molecules. New Journal of Physics, 2021, 23, 085007.	2.9	7
67	External field control of spin-dependent rotational decoherence of ultracold polar molecules. Molecular Physics, 2013, 111, 1731-1737.	1.7	6
68	Calculation of the energy-level structure of the $\text{HfF}^+$ $\langle \text{mml:math} \text{xmlns:mml="http://www.w3.org/1998/Math/MathML"} \rangle \langle \text{mml:mrow} \rangle \langle \text{mml:msup} \rangle \langle \text{mml:mi} \rangle \text{HfF} \langle \text{mml:mi} \rangle \langle \text{mml:mrow} \rangle \langle \text{mml:mo} \rangle + \langle \text{mml:mo} \rangle + \langle \text{mml:mo} \rangle \langle \text{mml:mi} \rangle \text{c} \text{ation to search for parity-nonconservation effects. Physical Review A, 2020, 102, .}$	1.5	6
69	Photodissociation spectroscopy of the dysprosium monochloride molecular ion. Journal of Chemical Physics, 2015, 143, 124309.	3.0	4
70	Generalized relativistic effective core potential calculations of the adiabatic potential curve and spectroscopic constants for the ground electronic state of the Ca <sub>2</sub> molecule. International Journal of Quantum Chemistry, 2013, 113, 2277-2281.	2.0	3
71	HfF <sup>+</sup> as a candidate to search for the nuclear weak quadrupole moment. Physical Review A, 2019, 99, .	2.5	3
72	P,T <sup>+</sup> odd Faraday rotation in intracavity absorption spectroscopy with a molecular beam as a possible way to improve the sensitivity of the search for time-reflection-noninvariant effects in nature. Physical Review A, 2021, 103, .	2.5	3

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73	Theoretical study of low-lying electronic states and emission spectra of the excimer ions NaHe+ and NaNe+. Computational and Theoretical Chemistry, 1999, 490, 189-200.	1.5	2
74	Electronic structure and fluorescence spectrum of the HeO+ cation. Optics and Spectroscopy (English Translation of Optika i Spektroskopiya), 2001, 90, 367-370.	0.6	2
75	Hyperfine coupling of the iodine $D_{0,0}^+$ and $D_{1,0}^+$ ion-pair states. Journal of Physics B: Atomic, Molecular and Optical Physics, 2018, 51, 095101.	1.5	2
76	Interference between the E1 and M1 Amplitudes of the Transition from the H State to C of a ThO Molecule. Optics and Spectroscopy (English Translation of Optika i Spektroskopiya), 2019, 126, 331-335.	0.6	2
77	Photon-spin-dependent contribution to the P,T -odd Faraday rotation effect for atoms. Journal of Physics B: Atomic, Molecular and Optical Physics, 2021, 54, 055001.	1.5	2
78	Calculating $^{179}\text{Hf}^+$ to Find the Spatial Parity and Time Invariance Violation Effects. Optics and Spectroscopy (English Translation of Optika i Spektroskopiya), 2021, 129, 941-947.	0.6	2
79	Search for the nuclear Schiff moment in liquid xenon. Physical Review A, 2007, 75, .	2.5	1
80	Effects of conical intersections on hyperfine quenching of hydroxyl OH in collision with an ultracold Sr atom. Scientific Reports, 2020, 10, 14130.	3.3	1
81	Electric-field-dependent g factor for the ground state of lead monofluoride, PbF. Physical Review A, 2021, 104, .	2.5	1
82	$P,T$ -odd Faraday rotation in intracavity absorption spectroscopy with particle beam as a possible way to improve the sensitivity of the search for the time reflection noninvariant effects in nature. Annals of Physics, 2021, 434, 168591.	2.8	1
83	Near-resonant rovibronic Raman scattering from $0_g^+$ valence state via the $D_0^+$ ion-pair state in iodine molecule. Optics and Spectroscopy (English Translation of Optika i Spektroskopiya), 2016, 121, 798-803.	0.6	0
84	Quantum-State Resolved Study of the Ultracold $K+KRb$ Reaction. Journal of Physics: Conference Series, 2017, 875, 082004.	0.4	0
85	Intramolecular Perturbations in the Electronically Excited States. , 2018, , 57-90.		0