

# Maxim A Goryachev

## List of Publications by Year in descending order

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101  
papers

2,393  
citations

236925

25  
h-index

214800

47  
g-index

106  
all docs

106  
docs citations

106  
times ranked

1633  
citing authors

#	ARTICLE	IF	CITATIONS
1	High-Cooperativity Cavity QED with Magnons at Microwave Frequencies. <i>Physical Review Applied</i> , 2014, 2, .	3.8	407
2	The ORGAN experiment: An axion haloscope above 15 GHz. <i>Physics of the Dark Universe</i> , 2017, 18, 67-72.	4.9	217
3	Ultrahigh cooperativity interactions between magnons and resonant photons in a YIG sphere. <i>Physical Review B</i> , 2016, 93, .	3.2	161
4	Superstrong coupling of a microwave cavity to yttrium iron garnet magnons. <i>Applied Physics Letters</i> , 2016, 108, .	3.3	120
5	Challenges and opportunities of gravitational-wave searches at MHz to GHz frequencies. <i>Living Reviews in Relativity</i> , 2021, 24, 1.	26.7	105
6	Extremely Low Loss Phonon-Trapping Cryogenic Acoustic Cavities for Future Physical Experiments. <i>Scientific Reports</i> , 2013, 3, 2132.	3.3	87
7	Extremely low-loss acoustic phonons in a quartz bulk acoustic wave resonator at millikelvin temperature. <i>Applied Physics Letters</i> , 2012, 100, .	3.3	73
8	Testing the generalized uncertainty principle with macroscopic mechanical oscillators and pendulums. <i>Physical Review D</i> , 2019, 100, .	4.7	70
9	Gravitational wave detection with high frequency phonon trapping acoustic cavities. <i>Physical Review D</i> , 2014, 90, .	4.7	67
10	Experimental implementations of cavity-magnon systems: from ultra strong coupling to applications in precision measurement. <i>New Journal of Physics</i> , 2019, 21, 095004.	2.9	54
11	Broadening frequency range of a ferromagnetic axion haloscope with strongly coupled cavityâ€magnon polaritons. <i>Physics of the Dark Universe</i> , 2019, 25, 100306.	4.9	51
12	Observation of Rayleigh Phonon Scattering through Excitation of Extremely High Overtones in Low-Loss Cryogenic Acoustic Cavities for Hybrid Quantum Systems. <i>Physical Review Letters</i> , 2013, 111, 085502.	7.8	49
13	Ultrasensitive microwave spectroscopy of paramagnetic impurities in sapphire crystals at millikelvin temperatures. <i>Physical Review B</i> , 2013, 88, .	3.2	47
14	Losses in high quality quartz crystal resonators at cryogenic temperatures. <i>Applied Physics Letters</i> , 2011, 98, .	3.3	43
15	Three-dimensional cavity quantum electrodynamics with a rare-earth spin ensemble. <i>Physical Review B</i> , 2014, 90, .	3.2	42
16	Modified axion electrodynamics as impressed electromagnetic sources through oscillating background polarization and magnetization. <i>Physics of the Dark Universe</i> , 2019, 26, 100339.	4.9	35
17	Reconfigurable Microwave Photonic Topological Insulator. <i>Physical Review Applied</i> , 2016, 6, .	3.8	30
18	Acoustic Tests of Lorentz Symmetry Using Quartz Oscillators. <i>Physical Review X</i> , 2016, 6, .	8.9	29

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19	Cavity magnon polaritons with lithium ferrite and three-dimensional microwave resonators at millikelvin temperatures. <i>Physical Review B</i> , 2018, 97, .	3.2	28
20	A 3D printed superconducting aluminium microwave cavity. <i>Applied Physics Letters</i> , 2016, 109, .	3.3	27
21	Axion detection with negatively coupled cavity arrays. <i>Physics Letters, Section A: General, Atomic and Solid State Physics</i> , 2018, 382, 2199-2204.	2.1	26
22	Axion detection with precision frequency metrology. <i>Physics of the Dark Universe</i> , 2019, 26, 100345.	4.9	26
23	Searching for Scalar Dark Matter via Coupling to Fundamental Constants with Photonic, Atomic, and Mechanical Oscillators. <i>Physical Review Letters</i> , 2021, 126, 071301.	7.8	26
24	Gravitational wave detectors with broadband high frequency sensitivity. <i>Communications Physics</i> , 2021, 4, .	5.3	26
25	Spin-photon interaction in a cavity with time-reversal symmetry breaking. <i>Physical Review B</i> , 2014, 89, .	3.2	25
26	Strong coupling between impurity centers and a three-dimensional lumped photonic microwave cavity. <i>Physical Review B</i> , 2015, 91, .	3.2	24
27	Quartz resonator instabilities under cryogenic conditions. <i>IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control</i> , 2012, 59, 21-29.	3.0	20
28	Rare Events Detected with a Bulk Acoustic Wave High Frequency Gravitational Wave Antenna. <i>Physical Review Letters</i> , 2021, 127, 071102.	7.8	20
29	Upconversion Loop Oscillator Axion Detection Experiment: A Precision Frequency Interferometric Axion Dark Matter Search with a Cylindrical Microwave Cavity. <i>Physical Review Letters</i> , 2021, 126, 081803.	7.8	19
30	Strong coupling between whispering gallery modes and chromium ions in ruby. <i>Physical Review B</i> , 2014, 90, .	3.2	18
31	Observation of the fundamental Nyquist noise limit in an ultra-high $Q$ -factor cryogenic bulk acoustic wave cavity. <i>Applied Physics Letters</i> , 2014, 105, .	3.3	18
32	Single-photon level study of microwave properties of lithium niobate at millikelvin temperatures. <i>Physical Review B</i> , 2015, 92, .	3.2	18
33	Next Generation of Phonon Tests of Lorentz Invariance Using Quartz BAW Resonators. <i>IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control</i> , 2018, 65, 991-1000.	3.0	18
34	Cryogenic transistor measurement and modeling for engineering applications. <i>Cryogenics</i> , 2010, 50, 381-389.	1.7	17
35	Advances in development of quartz crystal oscillators at liquid helium temperatures. <i>Cryogenics</i> , 2013, 57, 104-112.	1.7	17
36	Giant $Q$ -factors of natural impurities in synthetic quartz. <i>Applied Physics Letters</i> , 2013, 103, .	3.3	17

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37	Broadband electrical action sensing techniques with conducting wires for low-mass dark matter axion detection. <i>Physics of the Dark Universe</i> , 2020, 30, 100624.	4.9	16
38	Poynting vector controversy in axion modified electrodynamics. <i>Physical Review D</i> , 2022, 105, .	4.7	16
39	The 3D split-ring cavity lattice: a new metastructure for engineering arrays of coupled microwave harmonic oscillators. <i>New Journal of Physics</i> , 2015, 17, 023003.	2.9	15
40	Recent investigations on BAW resonators at cryogenic temperatures. , 2011, , .		14
41	Effects of geometry on quantum fluctuations of phonon-trapping acoustic cavities. <i>New Journal of Physics</i> , 2014, 16, 083007.	2.9	13
42	Casimir spring and dilution in macroscopic cavity optomechanics. <i>Nature Physics</i> , 2020, 16, 1117-1122.	16.7	13
43	Generation of ultralow power phononic combs. <i>Physical Review Research</i> , 2020, 2, .	3.6	13
44	Controlling a whispering-gallery-doublet-mode avoided frequency crossing: Strong coupling between photon bosonic and spin degrees of freedom. <i>Physical Review A</i> , 2014, 89, .	2.5	12
45	Evidence of dilute ferromagnetism in rare-earth doped yttrium aluminium garnet. <i>Applied Physics Letters</i> , 2015, 107, .	3.3	12
46	Quality Factor Measurements of Various Types of Quartz Crystal Resonators Operating Near 4ÅK. <i>IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control</i> , 2016, 63, 975-980.	3.0	12
47	Electrodynamic improvements to the theory of magnetostatic modes in ferrimagnetic spheres and their applications to saturation magnetization measurements. <i>Journal of Magnetism and Magnetic Materials</i> , 2019, 487, 165331.	2.3	12
48	Discovery of iron group impurity ion spin states in single crystal Y2SiO5 with strong coupling to whispering gallery photons. <i>Applied Physics Letters</i> , 2015, 106, .	3.3	11
49	Spin bath maser in a cryogenically cooled sapphire whispering gallery mode resonator. <i>Physical Review B</i> , 2013, 88, .	3.2	10
50	Quartz-superconductor quantum electromechanical system. <i>Physical Review B</i> , 2016, 93, .	3.2	9
51	Probing dark universe with exceptional points. <i>Physics of the Dark Universe</i> , 2019, 23, 100244.	4.9	9
52	Piezo-optomechanical coupling of a 3D microwave resonator to a bulk acoustic wave crystalline resonator. <i>Applied Physics Letters</i> , 2019, 115, .	3.3	9
53	Electrodynamics of Free- and Bound-Charge Electricity Generators Using Impressed Sources. <i>Physical Review Applied</i> , 2021, 15, .	3.8	9
54	Precision close-to-carrier phase noise simulation of BAW oscillators. <i>IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control</i> , 2011, 58, 6-9.	3.0	8

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55	Anomalous strong nonlinearity of unswept quartz acoustic cavities at liquid helium temperatures. Journal of Applied Physics, 2013, 114, 094506.	2.5	8
56	Creating tuneable microwave media from a two-dimensional lattice of re-entrant posts. Journal of Applied Physics, 2015, 118, .	2.5	8
57	Determination of Low Loss in Isotopically Pure Single Crystal $^{28}\text{Si}$ at Low Temperatures and Single Microwave Photon Energy. Scientific Reports, 2017, 7, 44813.	3.3	7
58	Hyperparametric effects in a whispering-gallery mode rutile dielectric resonator at liquid helium temperatures. Journal of Applied Physics, 2014, 116, 134105.	2.5	5
59	A new method of probing mechanical losses of coatings at cryogenic temperatures. Review of Scientific Instruments, 2016, 87, 123906.	1.3	5
60	Parametric model of the BAW resonator phase-noise. Ultrasonics, 2011, 51, 966-973.	3.9	4
61	Metal Bulk Foil Resistor Characterization for BAW Application at Low Cryogenic Temperatures. IEEE Transactions on Instrumentation and Measurement, 2014, 63, 628-632.	4.7	4
62	Low-temperature microwave properties of biaxial $\langle \text{mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"} \langle \text{mml:msub} \rangle \langle \text{mml:mi mathvariant="normal"} \rangle \text{YAlO} \langle \text{mml:mi} \rangle \langle \text{mml:mn} \rangle 3 \langle \text{mml:mn} \rangle \langle \text{mml:msub} \rangle \langle \text{mml:math} \rangle .$ Physical Review B, 2017, 96, .	3.2	4
63	Resonances in large ferrimagnetic YIG samples $\hat{\epsilon}$ Electrodynamic analysis. Journal of Magnetism and Magnetic Materials, 2021, 521, 167536.	2.3	4
64	Jump chaotic behaviour of ultra low loss bulk acoustic wave cavities. Applied Physics Letters, 2014, 105, .	3.3	3
65	Properties related to Q-factors and noise of quartz resonator-based systems at 4K. , 2014, , .		3
66	Collective behavior of $\text{Cr}^{3+}$ ions in ruby revealed by whispering gallery modes. Physical Review A, 2015, 92, .	2.5	3
67	Determination of niobium cavity magnetic field screening via a dispersively hybridized magnonic sensor. Applied Physics Letters, 2020, 117, .	3.3	3
68	Characterization of Cryogenic Material Properties of 3-D-Printed Superconducting Niobium Using a 3-D Lumped Element Microwave Cavity. IEEE Transactions on Instrumentation and Measurement, 2021, 70, 1-7.	4.7	3
69	Oscillator frequency stability improvement by means of negative feedback. IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, 2011, 58, 2297-2304.	3.0	2
70	Quartz resonators at cryogenic temperatures: Noise and quality factor. , 2013, , .		2
71	Measurements of elastic properties of langatate at liquid helium temperatures for design of ultra low loss mechanical systems. Applied Physics Letters, 2014, 104, 261904.	3.3	2
72	Extremely high Q-factor mechanical modes in quartz bulk acoustic wave resonators at millikelvin temperature. , 2014, , .		2

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73	Low-Temperature Properties of Whispering-Gallery Modes in Isotopically Pure Silicon-28. <i>Physical Review Applied</i> , 2019, 11, .	3.8	2
74	Observation of low-temperature magnetomechanic effects in crystalline resonant phonon cavities. <i>Physical Review B</i> , 2019, 100, .	3.2	2
75	Generation of coherent phonons via a cavity enhanced photonic lambda scheme. <i>Applied Physics Letters</i> , 2020, 117, .	3.3	2
76	Generation of bimodal solitons in a sapphire whispering-gallery-mode maser at millikelvin temperatures. <i>Physical Review A</i> , 2022, 105, .	2.5	2
77	Towards Cryogenic Quartz Oscillators: Coupling of a Bulk Acoustic Wave quartz resonator to a SQUID. , 2016, , .		1
78	Impact of coatings on the quality factor of a quartz crystal resonator at liquid helium temperature. , 2016, , .		1
79	Electromagnetic properties of terbium gallium garnet at millikelvin temperatures and low photon energy. <i>Applied Physics Letters</i> , 2017, 111, 052402.	3.3	1
80	Experiments match simulations in a multiple post reentrant cavity. <i>Review of Scientific Instruments</i> , 2017, 88, 125104.	1.3	1
81	Indirect methods to control population distribution in a large spin system. <i>New Journal of Physics</i> , 2017, 19, 033016.	2.9	1
82	Inducing Strong Non-Linearities in a Phonon Trapping Quartz Bulk Acoustic Wave Resonator Coupled to a Superconducting Quantum Interference Device. <i>Applied Sciences (Switzerland)</i> , 2018, 8, 602.	2.5	1
83	Precision Frequency Metrology for Axion Searches. , 2019, , .		1
84	Precision Multi-Mode Dielectric Characterization of a Crystalline Perovskite Enables Determination of the Temperature-Dependent Phase Transitions. <i>IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control</i> , 2022, 69, 423-429.	3.0	1
85	Measurement of temperature sensitivity of LGT elastic coefficients over [4K, 15K] cryogenic range. , 2012, , .		0
86	Cryogenic quartz frequency sources: Problems and perspectives. , 2012, , .		0
87	Some future applications of cryogenic high-Q resonant cavities. , 2012, , .		0
88	Electron spin resonance spectroscopy of high purity crystals at millikelvin temperatures. <i>Proceedings of SPIE</i> , 2013, , .	0.8	0
89	Recent progress and perspectives of extremely low loss acoustic cavities: From frequency sources to artificial atoms. , 2013, , .		0
90	Bulk acoustic wave resonator thermal noise measurements. , 2014, , .		0

#	ARTICLE	IF	CITATIONS
91	Ultra-sensitive Whispering Gallery Mode spectroscopy of low loss crystals at cryogenic temperatures. , 2014, , .		0
92	Quality factors of quartz crystal resonators operating at 4 Kelvins. , 2015, , .		0
93	Behavior of quartz crystal resonators at liquid helium temperature. , 2016, , .		0
94	Achieving long phonon lifetimes. Nature Materials, 2017, 16, 285-286.	27.5	0
95	Improving phonon sector tests of Lorentz Invariance. , 2017, , .		0
96	First search for axions of mass $110 \hat{=} 4\text{eV}$ using milliKelvin cooled 26.6 GHz microwave resonator. , 2017, , .		0
97	Isotopically Pure Silicon-28 Whispering Gallery Mode Resonators: A Host for Narrow Linewidth Spin Ensembles. , 2018, , .		0
98	Bulk Acoustic Wave Resonator-Oscillators and Tests of Fundamental Physics. , 2019, , .		0
99	Experimental implementation of a large scale multipost re-entrant array. Applied Physics Express, 2019, 12, 054002.	2.4	0
100	Precision Tests of Lorentz Invariance and Fundamental Physics with Acoustic Phonons. , 2020, , .		0
101	Precision Frequency Techniques to Search for Dark Matter and New Physics with Photonic, Phononic and Atomic Oscillators. , 2021, , .		0