Valery I Shematovich

List of Publications by Year
in descending order

140 papers	3,771 citations	101543 36 h-index	161849 54 g-index
142 all docs	142 docs citations	142 times ranked	2282 citing authors

#	Article	IF	Citations
1	THREE-DIMENSIONAL GAS DYNAMIC SIMULATION OF THE INTERACTION BETWEEN THE EXOPLANET WASP-12b AND ITS HOST STAR. Astrophysical Journal, 2013, 764, 19.	4.5	132
2	The Atmospheric Chemistry Suite (ACS) of Three Spectrometers for the ExoMars 2016 Trace Gas Orbiter. Space Science Reviews, 2018, 214, 1.	8.1	119
3	No detection of methane on Mars from early ExoMars Trace Gas Orbiter observations. Nature, 2019, 568, 517-520.	27.8	111
4	Surface-bounded atmosphere of Europa. Icarus, 2005, 173, 480-498.	2.5	107
5	Martian dust storm impact on atmospheric H2O and D/H observed by ExoMars Trace Gas Orbiter. Nature, 2019, 568, 521-525.	27.8	107
6	Exospheres and Atmospheric Escape. Space Science Reviews, 2008, 139, 355-397.	8.1	103
7	Heating efficiency in hydrogen-dominated upper atmospheres. Astronomy and Astrophysics, 2014, 571, A94.	5.1	91
8	A kinetic model of the formation of the hot oxygen geocorona: 1. Quiet geomagnetic conditions. Journal of Geophysical Research, 1994, 99, 23217.	3.3	88
9	Altitude of Saturn's aurora and its implications for the characteristic energy of precipitated electrons. Geophysical Research Letters, 2009, 36, .	4.0	81
10	Deuterium fractionation on interstellar grains studied with modified rate equations and a Monte Carlo approach. Planetary and Space Science, 2002, 50, 1257-1266.	1.7	78
11	On the master equation approach to diffusive grain-surface chemistry: The H, O, CO system. Astronomy and Astrophysics, 2002, 391, 1069-1080.	5.1	77
12	Understanding the escape of water from Enceladus. Journal of Geophysical Research, 2007, 112, n/a-n/a.	3.3	77
13	Monte Carlo model of electron transport for the calculation of Mars dayglow emissions. Journal of Geophysical Research, 2008, 113, .	3.3	68
14	Formation and Evolution of Protoatmospheres. Space Science Reviews, 2016, 205, 153-211.	8.1	68
15	Nitrogen loss from Titan. Journal of Geophysical Research, 2003, 108, .	3.3	67
16	A model of the Lyman-Î± line profile in the proton aurora. Journal of Geophysical Research, 2000, 105, 15795-15805.	3.3	65
17	Ejection of nitrogen from Titan's atmosphere by magnetospheric ions and pick-up ions. Icarus, 2005, 175, 263-267.	2.5	63
18	Scientific problems addressed by the Spektr-UV space project (world space Observatoryâ€”Ultraviolet). Astronomy Reports, 2016, 60, 1-42.	0.9	63

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19	Suprathermal hydrogen produced by the dissociation of molecular hydrogen in the extended atmosphere of exoplanet HD 209458b. Solar System Research, 2010, 44, 96-103.	0.7	62
20	Summary of quantitative interpretation of IMAGE far ultraviolet auroral data. Space Science Reviews, 2003, 109, 255-283.	8.1	60
21	Hot oxygen and carbon escape from the martian atmosphere. Planetary and Space Science, 2014, 98, 93-105.	1.7	60
22	Observation of the proton aurora with IMAGE FUV imager and simultaneous ion flux in situ measurements. Journal of Geophysical Research, 2001, 106, 28939-28948.	3.3	58
23	Variability of solar/stellar activity and magnetic field and its influence on planetary atmosphere evolution. Earth, Planets and Space, 2012, 64, 179-199.	2.5	57
24	The tails of the satellite auroral footprints at Jupiter. Journal of Geophysical Research: Space Physics, 2017, 122, 7985-7996.	2.4	57
25	SPICAM observations and modeling of Mars aurorae. Icarus, 2016, 264, 398-406.	2.5	52
26	Venus' atomic hot oxygen environment. Journal of Geophysical Research, 2010, 115, .	3.3	51
27	Types of gaseous envelopes of â€œhot Jupiterâ€•exoplanets. Astronomy Reports, 2013, 57, 715-725.	0.9	48
28	UVIS observations of the FUV OI and CO 4P Venus dayglow during the Cassini flyby. Icarus, 2010, 207, 549-557.	2.5	47
29	EUV spectroscopy of the Venus dayglow with UVIS on Cassini. Icarus, 2011, 211, 70-80.	2.5	47
30	Mapping the electron energy in Jupiter's aurora: Hubble spectral observations. Journal of Geophysical Research: Space Physics, 2014, 119, 9072-9088.	2.4	47
31	Thermalization of O(1D) atoms in the thermosphere. Journal of Geophysical Research, 1999, 104, 4287-4295.	3.3	45
32	A Coupled Dynamical and Chemical Model of Starless Cores of Magnetized Molecular Clouds. I. Formulation and Initial Results. Astrophysical Journal, 2002, 569, 792-802.	4.5	41
33	A kinetic model of the formation of the hot oxygen geocorona: 2. Influence of O+ion precipitation. Journal of Geophysical Research, 1995, 100, 3715-3720.	3.3	40
34	Titan's atomic and molecular nitrogen tori. Geophysical Research Letters, 2004, 31, .	4.0	40
35	Near-surface oxygen atmosphere at Europa. Advances in Space Research, 2001, 27, 1881-1888.	2.6	39
36	Stochastic models of hot planetary and satellite coronas: A hot oxygen corona of Mars. Solar System Research, 2006, 40, 384-392.	0.7	37

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37	Nonequilibrium aeronomic processes. Space Science Reviews, 1996, 76, 1.	8.1	36
38	An updated model of the hot nitrogen atom kinetics and thermospheric nitric oxide. Journal of Geophysical Research, 1997, 102, 285-294.	3.3	36
39	Hydrogen-dominated upper atmosphere of an exoplanet: Heating by stellar radiation from soft X-rays to extreme ultraviolet. Solar System Research, 2015, 49, 339-345.	0.7	36
40	Towards a Global Unified Model of Europaâ€™s Tenuous Atmosphere. Space Science Reviews, 2018, 214, 1.	8.1	36
41	Survival of a planet in short-period Neptunian desert under effect of photoevaporation. Monthly Notices of the Royal Astronomical Society, 2018, 476, 5639-5644.	4.4	36
42	The role of proton precipitation in the excitation of auroral FUV emissions. Journal of Geophysical Research, 2001, 106, 21475-21494.	3.3	35
43	Proton and hydrogen atom transport in the Martian upper atmosphere with an induced magnetic field. Journal of Geophysical Research, 2011, 116, n/a-n/a.	3.3	35
44	Non thermal nitrogen atoms in the Earth's thermosphere 2. A source of nitric oxide. Geophysical Research Letters, 1991, 18, 1695-1698.	4.0	33
45	Stochastic models of hot planetary and satellite coronas: A photochemical source of hot oxygen in the upper atmosphere of Mars. Solar System Research, 2005, 39, 22-32.	0.7	32
46	Ionization fraction in the thermosphere of the exoplanet HD 209458b. Solar System Research, 2014, 48, 105-112.	0.7	32
47	Non thermal nitrogen atoms in the Earth's thermosphere 1. Kinetics of hot N(⁴S). Geophysical Research Letters, 1991, 18, 1691-1694.	4.0	31
48	On the elusive hot oxygen corona of Venus. Geophysical Research Letters, 2009, 36, .	4.0	30
49	Precipitation of electrons into the upper atmosphere of a hot-jupiter exoplanet. Astronomy Reports, 2015, 59, 836-842.	0.9	30
50	Cassini-UVIS observation of dayglow FUV emissions of carbon in the thermosphere of Venus. Icarus, 2012, 220, 635-646.	2.5	29
51	Nonequilibrium Processes in the Planetary and Cometary Atmospheres: Theory and Applications. Astrophysics and Space Science Library, 1997, , .	2.7	29
52	A Coupled Dynamical and Chemical Model of Starless Cores of Magnetized Molecular Clouds. II. Chemical Differentiation. Astrophysical Journal, 2003, 588, 894-909.	4.5	27
53	The Venus ultraviolet oxygen dayglow and aurora: Model comparison with observations. Planetary and Space Science, 2008, 56, 542-552.	1.7	26
54	Suprathermal nitrogen atoms and molecules in Titan's corona. Advances in Space Research, 2001, 27, 1875-1880.	2.6	25

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55	Influence of photoelectrons on the structure and dynamics of the upper atmosphere of a hot Jupiter. Astronomy Reports, 2017, 61, 387-392.	0.9	25
56	Objectives of the Millimetron Space Observatory science program and technical capabilities of its realization. Physics-Uspekhi, 2021, 64, 386-419.	2.2	24
57	The importance of new chemical sources for the hot oxygen geocorona. Geophysical Research Letters, 1995, 22, 279-282.	4.0	22
58	Stochastic Models of Hot Planetary and Satellite Coronas. Solar System Research, 2004, 38, 28-38.	0.7	22
59	Atmospheric Mass Loss from Hot Jupiters Irradiated by Stellar Superflares. Astrophysical Journal, 2018, 869, 108.	4.5	22
60	Stochastic models of hot planetary and satellite coronas: a photochemical source of hot Oxygen in the upper atmosphere of Mars. Solar System Research, 2005, 39, 22-32.	0.7	21
61	The Mars diffuse aurora: A model of ultraviolet and visible emissions. Icarus, 2017, 288, 284-294.	2.5	20
62	Escape of planetary atmospheres: physical processes and numerical models. Physics-Uspekhi, 2018, 61, 217-246.	2.2	18
63	The distribution of hot hydrogen atoms produced by electron and proton precipitation in the Jovian aurora. Journal of Geophysical Research, 1996, 101, 21157-21168.	3.3	17
64	Self-consistent model of chemical and dynamical evolution of protostellar clouds. Monthly Notices of the Royal Astronomical Society, 1997, 292, 601-610.	4.4	17
65	New approaches to the modelling of surface chemistry on interstellar grains. Astrophysics and Space Science, 2003, 285, 725-735.	1.4	17
66	Solar flares as proxy for the young Sun: satellite observed thermosphere response to an X17.2 flare of Earth's upper atmosphere. Annales Geophysicae, 2012, 30, 1129-1141.	1.6	17
67	Influence of the crustal magnetic field on the Mars aurora electron flux and UV brightness. Icarus, 2017, 282, 127-135.	2.5	17
68	Lyman-Î± emission in the Martian proton aurora: Line profile and role of horizontal induced magnetic field. Icarus, 2019, 321, 266-271.	2.5	17
69	Suprathermal oxygen and hydrogen atoms in the upper Martian atmosphere. Solar System Research, 2013, 47, 437-445.	0.7	16
70	Neutral atmosphere near the icy surface of Jupiterâ€™s moon Ganymede. Solar System Research, 2016, 50, 262-280.	0.7	16
71	Observation of anomalous temperatures in the daytime O(1D) 6300 Ã... thermospheric emission: A possible signature of nonthermal atoms. Journal of Geophysical Research, 2001, 106, 12753-12764.	3.3	15
72	The Influence of a Stellar Flare on the Dynamical State of the Atmosphere of the Exoplanet HD 209458b. Astronomy Reports, 2018, 62, 648-653.	0.9	15

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73	Monte Carlo Simulations of the Interaction of Fast Proton and Hydrogen Atoms With the Martian Atmosphere and Comparison With In Situ Measurements. Journal of Geophysical Research: Space Physics, 2018, 123, 5850-5861.	2.4	15
74	Formation of complex chemical species in astrochemistry (a review). Solar System Research, 2012, 46, 391-407.	0.7	14
75	Loss rates of Europa×³s tenuous atmosphere. Planetary and Space Science, 2016, 130, 14-23.	1.7	14
76	Characterization and dynamics of the auroral electron precipitation during substorms deduced from IMAGE-FUV. Journal of Geophysical Research, 2003, 108, .	3.3	13
77	An auroral source of hot oxygen in the geocorona. Geophysical Research Letters, 2005, 32, .	4.0	12
78	Ionization chemistry in H2O-dominated atmospheres of icy moons. Solar System Research, 2008, 42, 473-487.	0.7	12
79	Hot oxygen atoms in the Venus nightside exosphere. Geophysical Research Letters, 2012, 39, .	4.0	12
80	Kinetic Monte Carlo Model for the Precipitation of High-Energy Protons and Hydrogen Atoms into the Atmosphere of Mars with Taking into Account the Measured Magnetic Field. Astronomy Reports, 2019, 63, 835-845.	0.9	12
81	Life as the Only Reason for the Existence of N2â€“O2-Dominated Atmospheres. Astronomy Reports, 2021, 65, 275-296.	0.9	12
82	Suprathermal Particles in XUV-Heated and Extended Exoplanetary Upper Atmospheres. Astrophysics and Space Science Library, 2015, , 105-136.	2.7	12
83	High rotational excitation of NO infrared thermospheric airglow: A signature of superthermal nitrogen atoms?. Geophysical Research Letters, 1996, 23, 2215-2218.	4.0	11
84	Stochastic models of hot planetary and satellite coronas: Atomic oxygen in Europaâ€™s corona. Solar System Research, 2006, 40, 175-190.	0.7	11
85	Effect of hot oxygen on thermospheric O I UV airglow. Journal of Geophysical Research, 1999, 104, 17139-17143.	3.3	10
86	Stochastic models of hot planetary and satellite coronas: Total water loss in the Martian atmosphere. Solar System Research, 2007, 41, 103-108.	0.7	10
87	Kinetics of Suprathermal Atoms and Molecules in the Rarefied Planetary Atmospheres. , 2008, , .		10
88	Ocean Worlds in the Outer Regions of the Solar System (Review). Solar System Research, 2018, 52, 371-381.	0.7	10
89	Suprathermal particles in astrochemistry. Russian Chemical Reviews, 2019, 88, 1013-1045.	6.5	10
90	Effect of hot N(⁴S) atoms on the NO solar cycle variation in the lower thermosphere. Journal of Geophysical Research, 1993, 98, 11581-11586.	3.3	9

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91	Energetic oxygen atoms in the polar geocorona. Journal of Geophysical Research, 2006, 111, .	3.3	9
92	Kinetic Monte Carlo method for simulating astrochemical kinetics: Test calculations of molecular hydrogen formation on interstellar dust particles. Solar System Research, 2009, 43, 301-312.	0.7	9
93	Monte Carlo study of interaction between solar wind plasma and Venusian upper atmosphere. Solar System Research, 2014, 48, 317-323.	0.7	9
94	Analytical estimate for lowâ€altitude ENA emissivity. Journal of Geophysical Research: Space Physics, 2016, 121, 1167-1191.	2.4	9
95	The Influence of Superflares of Host Stars on the Dynamics of the Envelopes of Hot Jupiters. Astronomy Reports, 2019, 63, 94-106.	0.9	9
96	Remote sensing of the proton aurora characteristics from IMAGE-FUV. Annales Geophysicae, 2003, 21, 2165-2173.	1.6	8
97	He²⁺ transport in the Martian upper atmosphere with an induced magnetic field. Journal of Geophysical Research: Space Physics, 2013, 118, 1231-1242.	2.4	8
98	An inversion method for cometary atmospheres. Icarus, 2016, 277, 237-256.	2.5	8
99	Oxygen Atom Escape from the Martian Atmosphere during Proton Auroral Events. Astronomy Reports, 2020, 64, 628-635.	0.9	8
100	Exoplanet status report: Observation, characterization and evolution of exoplanets and their host stars. Solar System Research, 2010, 44, 290-310.	0.7	7
101	Influence of the hot oxygen corona on the satellite drag in the Earthâ€™s upper atmosphere. Solar System Research, 2011, 45, 231-239.	0.7	7
102	Energy Spectral Properties of Hydrogen Energetic Neutral Atoms Emitted From the Dayside Atmosphere of Mars. Journal of Geophysical Research: Space Physics, 2019, 124, 4104-4113.	2.4	7
103	Effect of Variations in the Extended Hydrogen Corona of Mars on the Efficiency of Charge Exchange with Solar Wind Protons. Astronomy Reports, 2021, 65, 203-208.	0.9	7
104	Atmospheric Loss of Atomic Oxygen during Proton Aurorae on Mars. Solar System Research, 2021, 55, 324-334.	0.7	7
105	Exospheres and Atmospheric Escape. Space Sciences Series of ISSI, 2008, , 355-397.	0.0	7
106	Kinetic Monte Carlo method for simulating astrochemical kinetics: Hydrogen chemistry in diffuse clouds. Solar System Research, 2010, 44, 177-188.	0.7	6
107	The Role of Fast N(⁴S) Atoms and Energetic Photoelectrons on the Distribution of NO in the Thermosphere. Geophysical Monograph Series, 0, , 235-241.	0.1	6
108	Types of Hot Jupiter Atmospheres. Astrophysics and Space Science Library, 2015, , 81-104.	2.7	6

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109	A Monte Carlo model of auroral hydrogen emission line profiles. Annales Geophysicae, 2005, 23, 1473-1480.	1.6	5
110	MONTE CARLO SIMULATION OF METASTABLE OXYGEN PHOTOCHEMISTRY IN COMETARY ATMOSPHERES. Astrophysical Journal, 2015, 798, 21.	4.5	5
111	Suprathermal oxygen atoms in the Martian upper atmosphere: Contribution of the proton and hydrogen atom precipitation. Solar System Research, 2017, 51, 249-257.	0.7	5
112	Nonthermal Atmospheric Loss of the Exoplanet GJ 436b due to H2 Dissociation Processes. Solar System Research, 2021, 55, 150-158.	0.7	5
113	The Activity of Stars with Planetary Systems and Its Impact on the Loss of Atmosphere by Hot Exoplanets. Astrophysical Bulletin, 2021, 76, 450-471.	1.3	5
114	Stochastic Models of Hot Planetary and Satellite Coronas: Suprathermal Nitrogen in Titan's Upper Atmosphere. Solar System Research, 2004, 38, 178-188.	0.7	4
115	A coupled, dynamical and chemical model for the prestellar core L1544: Comparison of modeled and observed C18O, HCO+, and CS emission spectra. Astronomy Reports, 2003, 47, 176-185.	0.9	3
116	Studies of the planetary atmospheres in Russia (2007â€“2010). Izvestiya - Atmospheric and Oceanic Physics, 2012, 48, 309-331.	0.9	3
117	Nonthermal radiative transfer of oxygen 98.9â€‰nm ultraviolet emission: Solving an old mystery. Journal of Geophysical Research: Space Physics, 2015, 120, 10,772.	2.4	3
118	Nonthermal dissipation of the Martian neutral upper atmosphere. Doklady Physics, 2015, 60, 188-191.	0.7	3
119	High resolution FUV observations of proton aurora. Geophysical Research Letters, 2003, 30, .	4.0	2
120	Gas Dynamic Simulation of the Star-Planet Interaction using a Binary Star Model. Proceedings of the International Astronomical Union, 2011, 7, 545-546.	0.0	2
121	Ultraviolet emissions in the planetary atmospheres. Astrophysics and Space Science, 2011, 335, 3-8.	1.4	2
122	Changes in the Martian atmosphere induced by auroral electron precipitation. Solar System Research, 2017, 51, 362-372.	0.7	2
123	A Kinetic Model for Precipitation of Solar-Wind Protons into the Martian Atmosphere. Astronomy Reports, 2021, 65, 869-875.	0.9	2
124	Kinetic Calculations of the Charge Exchange Efficiency for Solar Wind Protons in the Extended Martian Hydrogen Corona. Astronomy Reports, 2020, 64, 863-869.	0.9	2
125	Nonthermal Atmospheric Loss of the Sub-Neptune Ï€ Men c Due to Exothermic Photochemistry. Solar System Research, 2022, 56, 67-75.	0.7	2
126	Modeling of sputtering of the ice surfaces under impact of H+ ions: Redistribution of the h and o isotopes applied to the satellites of Jupiter. Solar System Research, 2015, 49, 237-246.	0.7	1

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127	Gasâ€“Dynamical Features of the Envelopes of Contact Binary Stars. Astronomy Reports, 2017, 61, 1038-1043.	0.9	1
128	Exoplanet Habitability: Potential O2/O3 Biosignatures in the Ultraviolet. Solar System Research, 2019, 53, 322-331.	0.7	1
129	Summary of Quantitative Interpretation of IMAGE Far Ultraviolet Auroral Data. , 2003, , 255-283.		1
130	Numerical Model to Study Proton Polar Aurorae on Mars. Astronomy Reports, 2022, 66, 245-254.	0.9	1
131	Statistical modeling of the states of a gas mixture with allowance for energy exchange between translational and internal degrees of freedom. Journal of Applied Mechanics and Technical Physics, 1980, 21, 15-24.	0.5	0
132	Self-Consistent Theoretical Models of Collapsing Pre-Stellar Cores. Proceedings of the International Astronomical Union, 2005, 1, 37.	0.0	0
133	Self-consistent treatment of dynamics and chemistry in the winds from carbon-rich AGB stars. Astronomy and Astrophysics, 2007, 469, 553-560.	5.1	0
134	Symposium on the observations, parameters, and evolution of inhabited exoplanets and their parent stars, Austria, Graz-Koldorf, November 29â€“December 1, 2009. Solar System Research, 2010, 44, 354-357.	0.7	0
135	Kinetic Monte Carlo models for the study of chemical reactions in the Earthâ€™s upper atmosphere. Computational Mathematics and Mathematical Physics, 2016, 56, 1142-1150.	0.8	0
136	Neutral atmospheric escape in the Solar and extrasolar planetary systems. Proceedings of the International Astronomical Union, 2018, 14, 168-171.	0.0	0
137	Comparative Analysis of the Model for Exoplanet Atmosphere Outflow. Astronomy Reports, 2021, 65, 445-454.	0.9	0
138	Formation and Evolution of Protoatmospheres. Space Sciences Series of ISSI, 2016, , 193-251.	0.0	0
139	About the Atmospheric Loss of Hot Neptune GJ436b. , 2020, , .		0
140	Atmospheric Loss for Hot Exoplanets. , 2020, , .		0