Mehdi Benna

List of Publications by Year
in descending order

133 papers	10,981 citations	44444 50 h-index	34195 103 g-index
137 all docs	137 docs citations	137 times ranked	6190 citing authors

#	Article	IF	Citations
1	A Habitable Fluvio-Lacustrine Environment at Yellowknife Bay, Gale Crater, Mars. Science, 2014, 343, 1242777.	6.0	687
2	The Mars Atmosphere and Volatile Evolution (MAVEN) Mission. Space Science Reviews, 2015, 195, 3-48.	3.7	563
3	Mineralogy of a Mudstone at Yellowknife Bay, Gale Crater, Mars. Science, 2014, 343, 1243480.	6.0	508
4	Marsâ€™ Surface Radiation Environment Measured with the Mars Science Laboratoryâ€™s Curiosity Rover. Science, 2014, 343, 1244797.	6.0	475
5	The Sample Analysis at Mars Investigation and Instrument Suite. Space Science Reviews, 2012, 170, 401-478.	3.7	435
6	Volatile, Isotope, and Organic Analysis of Martian Fines with the Mars Curiosity Rover. Science, 2013, 341, 1238937.	6.0	367
7	X-ray Diffraction Results from Mars Science Laboratory: Mineralogy of Rocknest at Gale Crater. Science, 2013, 341, 1238932.	6.0	327
8	Abundance and Isotopic Composition of Gases in the Martian Atmosphere from the Curiosity Rover. Science, 2013, 341, 263-266.	6.0	327
9	Martian Fluvial Conglomerates at Gale Crater. Science, 2013, 340, 1068-1072.	6.0	326
10	Volatile and Organic Compositions of Sedimentary Rocks in Yellowknife Bay, Gale Crater, Mars. Science, 2014, 343, 1245267.	6.0	323
11	Curiosity at Gale Crater, Mars: Characterization and Analysis of the Rocknest Sand Shadow. Science, 2013, 341, 1239505.	6.0	280
12	Elemental Geochemistry of Sedimentary Rocks at Yellowknife Bay, Gale Crater, Mars. Science, 2014, 343, 1244734.	6.0	246
13	Isotope Ratios of H, C, and O in CO ₂ and H ₂ O of the Martian Atmosphere. Science, 2013, 341, 260-263.	6.0	241
14	MESSENGER Observations of Magnetic Reconnection in Mercuryâ€™s Magnetosphere. Science, 2009, 324, 606-610.	6.0	234
15	The Neutral Gas and Ion Mass Spectrometer on the Mars Atmosphere and Volatile Evolution Mission. Space Science Reviews, 2015, 195, 49-73.	3.7	229
16	In Situ Radiometric and Exposure Age Dating of the Martian Surface. Science, 2014, 343, 1247166.	6.0	224
17	Loss of the Martian atmosphere to space: Present-day loss rates determined from MAVEN observations and integrated loss through time. Icarus, 2018, 315, 146-157.	1.1	216
18	Soil Diversity and Hydration as Observed by ChemCam at Gale Crater, Mars. Science, 2013, 341, 1238670.	6.0	215

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19	Marsâ€™ atmospheric history derived from upper-atmosphere measurements of ³⁸ Ar/ ³⁶ Ar. Science, 2017, 355, 1408-1410.	6.0	183
20	MESSENGER Observations of Extreme Loading and Unloading of Mercuryâ€™s Magnetic Tail. Science, 2010, 329, 665-668.	6.0	172
21	Structure and composition of the neutral upper atmosphere of Mars from the MAVEN NGIMS investigation. Geophysical Research Letters, 2015, 42, 8951-8957.	1.5	168
22	Mercury's Magnetosphere After MESSENGER's First Flyby. Science, 2008, 321, 85-89.	6.0	166
23	MAVEN observations of the response of Mars to an interplanetary coronal mass ejection. Science, 2015, 350, aad0210.	6.0	166
24	First measurements of composition and dynamics of the Martian ionosphere by MAVEN's Neutral Gas and Ion Mass Spectrometer. Geophysical Research Letters, 2015, 42, 8958-8965.	1.5	142
25	The Petrochemistry of Jake_M: A Martian Mugearite. Science, 2013, 341, 1239463.	6.0	134
26	The structure and variability of Mars dayside thermosphere from MAVEN NGIMS and IUVS measurements: Seasonal and solar activity trends in scale heights and temperatures. Journal of Geophysical Research: Space Physics, 2017, 122, 1296-1313.	0.8	124
27	Mercuryâ€™s Weather-Beaten Surface: Understanding Mercury in the Context of Lunar and Asteroidal Space Weathering Studies. Space Science Reviews, 2014, 181, 121-214.	3.7	108
28	Photochemical escape of oxygen from Mars: First results from MAVEN in situ data. Journal of Geophysical Research: Space Physics, 2017, 122, 3815-3836.	0.8	106
29	Low Upper Limit to Methane Abundance on Mars. Science, 2013, 342, 355-357.	6.0	103
30	Thermal Structure of the Martian Upper Atmosphere From MAVEN NGIMS. Journal of Geophysical Research E: Planets, 2018, 123, 2842-2867.	1.5	91
31	Early MAVEN Deep Dip campaign reveals thermosphere and ionosphere variability. Science, 2015, 350, aad0459.	6.0	90
32	MAVEN NGIMS observations of atmospheric gravity waves in the Martian thermosphere. Journal of Geophysical Research: Space Physics, 2017, 122, 2310-2335.	0.8	88
33	MESSENGER and Mariner 10 flyby observations of magnetotail structure and dynamics at Mercury. Journal of Geophysical Research, 2012, 117, .	3.3	86
34	Initial SAM calibration gas experiments on Mars: Quadrupole mass spectrometer results and implications. Planetary and Space Science, 2017, 138, 44-54.	0.9	84
35	Lunar soil hydration constrained by exospheric water liberated by meteoroid impacts. Nature Geoscience, 2019, 12, 333-338.	5.4	81
36	Variability of helium, neon, and argon in the lunar exosphere as observed by the LADEE NMS instrument. Geophysical Research Letters, 2015, 42, 3723-3729.	1.5	79

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37	MAVEN observations of solar wind hydrogen deposition in the atmosphere of Mars. Geophysical Research Letters, 2015, 42, 8901-8909.	1.5	78
38	Modeling of the magnetosphere of Mercury at the time of the first MESSENGER flyby. Icarus, 2010, 209, 3-10.	1.1	67
39	The Lunar Atmosphere and Dust Environment Explorer Mission. Space Science Reviews, 2014, 185, 3-25.	3.7	66
40	Global distribution and parameter dependences of gravity wave activity in the Martian upper thermosphere derived from MAVEN/NGIMS observations. Journal of Geophysical Research: Space Physics, 2017, 122, 2374-2397.	0.8	66
41	Hydrogen escape from Mars is driven by seasonal and dust storm transport of water. Science, 2020, 370, 824-831.	6.0	66
42	Ion Densities in the Nightside Ionosphere of Mars: Effects of Electron Impact Ionization. Geophysical Research Letters, 2017, 44, 11248-11256.	1.5	64
43	MHD model results of solar wind interaction with Mars and comparison with MAVEN plasma observations. Geophysical Research Letters, 2015, 42, 9113-9120.	1.5	58
44	Water and water ions in the Martian thermosphere/ionosphere. Geophysical Research Letters, 2015, 42, 8977-8985.	1.5	56
45	MESSENGER observations of Mercury's magnetosphere during northward IMF. Geophysical Research Letters, 2009, 36, .	1.5	55
46	The Neutral Mass Spectrometer on the Lunar Atmosphere and Dust Environment Explorer Mission. Space Science Reviews, 2014, 185, 27-61.	3.7	55
47	Multifluid MHD study of the solar wind interaction with Mars' upper atmosphere during the 2015 March 8th ICME event. Geophysical Research Letters, 2015, 42, 9103-9112.	1.5	54
48	Metallic species, oxygen and silicon in the lunar exosphere: Upper limits and prospects for LADEE measurements. Journal of Geophysical Research, 2012, 117, .	3.3	53
49	Cosmic dust fluxes in the atmospheres of Earth, Mars, and Venus. Icarus, 2020, 335, 113395.	1.1	53
50	He bulge revealed: He and CO₂ diurnal and seasonal variations in the upper atmosphere of Mars as detected by MAVEN NGIMS. Journal of Geophysical Research: Space Physics, 2017, 122, 2564-2573.	0.8	52
51	Monte Carlo modeling of sodium in Mercuryâ€™s exosphere during the first two MESSENGER flybys. Icarus, 2010, 209, 63-74.	1.1	51
52	Simultaneous observations of atmospheric tides from combined in situ and remote observations at Mars from the MAVEN spacecraft. Journal of Geophysical Research E: Planets, 2016, 121, 594-607.	1.5	48
53	Solar wind forcing at Mercury: WSAâ€ENLIL model results. Journal of Geophysical Research: Space Physics, 2013, 118, 45-57.	0.8	46
54	Nightside ionosphere of Mars: Composition, vertical structure, and variability. Journal of Geophysical Research: Space Physics, 2017, 122, 4712-4725.	0.8	46

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55	Metallic ions in the upper atmosphere of Mars from the passage of comet C/2013 A1 (Siding Spring). Geophysical Research Letters, 2015, 42, 4670-4675.	1.5	45
56	Detections of lunar exospheric ions by the LADEE neutral mass spectrometer. Geophysical Research Letters, 2015, 42, 5162-5169.	1.5	42
57	Ionopauseâ€like density gradients in the Martian ionosphere: A first look with MAVEN. Geophysical Research Letters, 2015, 42, 8885-8893.	1.5	42
58	Variations of the Martian plasma environment during the ICME passage on 8 March 2015: A timeâ€dependent MHD study. Journal of Geophysical Research: Space Physics, 2017, 122, 1714-1730.	0.8	40
59	Sources of Ionospheric Variability at Mars. Journal of Geophysical Research: Space Physics, 2017, 122, 9670-9684.	0.8	40
60	MAVEN Observations of Solar Windâ€Driven Magnetosonic Waves Heating the Martian Dayside Ionosphere. Journal of Geophysical Research: Space Physics, 2018, 123, 4129-4149.	0.8	40
61	The Mars Topside Ionosphere Response to the X8.2 Solar Flare of 10 September 2017. Geophysical Research Letters, 2018, 45, 8005-8013.	1.5	38
62	MESSENGER and Venus Express observations of the solar wind interaction with Venus. Geophysical Research Letters, 2009, 36, .	1.5	37
63	Space environment of Mercury at the time of the first MESSENGER flyby: Solar wind and interplanetary magnetic field modeling of upstream conditions. Journal of Geophysical Research, 2009, 114, .	3.3	37
64	Limits to Mercury's magnesium exosphere from MESSENGER second flyby observations. Planetary and Space Science, 2011, 59, 1992-2003.	0.9	36
65	Ionizing Electrons on the Martian Nightside: Structure and Variability. Journal of Geophysical Research: Space Physics, 2018, 123, 4349-4363.	0.8	35
66	Photoelectrons and solar ionizing radiation at Mars: Predictions versus MAVEN observations. Journal of Geophysical Research: Space Physics, 2016, 121, 8859-8870.	0.8	33
67	MAVEN observations of dayside peak electron densities in the ionosphere of Mars. Journal of Geophysical Research: Space Physics, 2017, 122, 891-906.	0.8	33
68	Dust Stormâ€Enhanced Gravity Wave Activity in the Martian Thermosphere Observed by MAVEN and Implication for Atmospheric Escape. Geophysical Research Letters, 2021, 48, e2020GL092095.	1.5	33
69	Constraints on Mercuryâ€™s Na exosphere: Combined MESSENGER and ground-based data. Icarus, 2011, 211, 21-36.	1.1	32
70	Longitudinal structures in Mars' upper atmosphere as observed by MAVEN/NGIMS. Journal of Geophysical Research: Space Physics, 2017, 122, 1258-1268.	0.8	32
71	Electron transport and precipitation at Mercury during the MESSENGER flybys: Implications for electron-stimulated desorption. Planetary and Space Science, 2011, 59, 2026-2036.	0.9	30
72	Unique, nonâ€Earthlike, meteoritic ion behavior in upper atmosphere of Mars. Geophysical Research Letters, 2017, 44, 3066-3072.	1.5	30

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73	Variability of Martian Turbopause Altitudes. Journal of Geophysical Research E: Planets, 2018, 123, 2939-2957.	1.5	30
74	Observations and Modeling of the Mars Lowâ€Altitude Ionospheric Response to the 10 September 2017 Xâ€Class Solar Flare. Geophysical Research Letters, 2018, 45, 7382-7390.	1.5	30
75	Significant Space Weather Impact on the Escape of Hydrogen From Mars. Geophysical Research Letters, 2018, 45, 8844-8852.	1.5	29
76	The space environment of Mercury at the times of the second and third MESSENGER flybys. Planetary and Space Science, 2011, 59, 2066-2074.	0.9	28
77	On the Origins of Mars' Exospheric Nonthermal Oxygen Component as Observed by MAVEN and Modeled by HELIOSARES. Journal of Geophysical Research E: Planets, 2017, 122, 2401-2428.	1.5	27
78	Thermospheric Expansion Associated With Dust Increase in the Lower Atmosphere on Mars Observed by MAVEN/NGIMS. Geophysical Research Letters, 2018, 45, 2901-2910.	1.5	27
79	Importance of Ambipolar Electric Field in Driving Ion Loss From Mars: Results From a Multifluid MHD Model With the Electron Pressure Equation Included. Journal of Geophysical Research: Space Physics, 2019, 124, 9040-9057.	0.8	27
80	Sodiumâ€ion pickup observed above the magnetopause during MESSENGER's first Mercury flyby: Constraints on neutral exospheric models. Geophysical Research Letters, 2009, 36, .	1.5	26
81	Mars's Dayside Upper Ionospheric Composition Is Affected by Magnetic Field Conditions. Journal of Geophysical Research: Space Physics, 2019, 124, 3100-3109.	0.8	26
82	Volatile interactions with the lunar surface. Chemie Der Erde, 2022, 82, 125858.	0.8	26
83	Comparison of model predictions for the composition of the ionosphere of Mars to MAVEN NGIMS data. Geophysical Research Letters, 2015, 42, 8966-8976.	1.5	25
84	Understanding temporal and spatial variability of the lunar helium atmosphere using simultaneous observations from LRO, LADEE, and ARTEMIS. Icarus, 2016, 273, 45-52.	1.1	25
85	Atmospheric Tides at High Latitudes in the Martian Upper Atmosphere Observed by MAVEN and MRO. Journal of Geophysical Research: Space Physics, 2019, 124, 2943-2953.	0.8	24
86	Mars Dust Storm Effects in the Ionosphere and Magnetosphere and Implications for Atmospheric Carbon Loss. Journal of Geophysical Research: Space Physics, 2020, 125, no.	0.8	23
87	Martian Electron Temperatures in the Subsolar Region: MAVEN Observations Compared to a Oneâ€Dimensional Model. Journal of Geophysical Research: Space Physics, 2018, 123, 5960-5973.	0.8	21
88	Water Group Exospheres and Surface Interactions on the Moon, Mercury, and Ceres. Space Science Reviews, 2021, 217, 1.	3.7	21
89	Analytical techniques for retrieval of atmospheric composition with the quadrupole mass spectrometer of the Sample Analysis at Mars instrument suite on Mars Science Laboratory. Planetary and Space Science, 2014, 96, 99-113.	0.9	20
90	Changes in the thermosphere and ionosphere of Mars from Viking to MAVEN. Geophysical Research Letters, 2015, 42, 9071-9079.	1.5	20

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91	MAVEN/NGIMS Thermospheric Neutral Wind Observations: Interpretation Using the Mâ€GITM General Circulation Model. Journal of Geophysical Research E: Planets, 2019, 124, 3283-3303.	1.5	20
92	Global circulation of Marsâ€™ upper atmosphere. Science, 2019, 366, 1363-1366.	6.0	20
93	Effects of a Solar Flare on the Martian Hot O Corona and Photochemical Escape. Geophysical Research Letters, 2018, 45, 6814-6822.	1.5	19
94	Mars Upper Atmospheric Responses to the 10 September 2017 Solar Flare: A Global, Timeâ€Dependent Simulation. Geophysical Research Letters, 2019, 46, 9334-9343.	1.5	19
95	Multi-fluid model of comet 1P/Halley. Planetary and Space Science, 2007, 55, 1031-1043.	0.9	18
96	Ionâ€Neutral Coupling in the Upper Atmosphere of Mars: A Dominant Driver of Topside Ionospheric Structure. Journal of Geophysical Research: Space Physics, 2019, 124, 3786-3798.	0.8	18
97	Ambipolar Electric Field in the Martian Ionosphere: MAVEN Measurements. Journal of Geophysical Research: Space Physics, 2019, 124, 4518-4524.	0.8	18
98	In Situ Measurements of Thermal Ion Temperature in the Martian Ionosphere. Journal of Geophysical Research: Space Physics, 2021, 126, e2021JA029531.	0.8	17
99	Improving solar wind modeling at Mercury: Incorporating transient solar phenomena into the WSAâ€ENLIL model with the Cone extension. Journal of Geophysical Research: Space Physics, 2015, 120, 5667-5685.	0.8	16
100	MAVEN Observations of Ionospheric Irregularities at Mars. Geophysical Research Letters, 2017, 44, 10,845.	1.5	16
101	MAVEN and the Mars Initial Reference Ionosphere model. Geophysical Research Letters, 2015, 42, 9080-9086.	1.5	15
102	Rate coefficients for the reactions of CO<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline" id="d1e4795" altimg="si391.svg"><mml:msubsup><mml:mrow /><mml:mrow><mml:mn>2</mml:mn></mml:mrow><mml:mrow><mml:mo>+</mml:mo></mml:mrow></mml:msubsup></mml:math>Â O: Lessons from MAVEN at Mars. Icarus, 2021, 358, 114186.	1.1	15
103	Constantly forming sporadic E-like layers and rifts in the Martian ionosphere and their implications for Earth. Nature Astronomy, 2020, 4, 486-491.	4.2	14
104	Seasonal Variability of Deuterium in the Upper Atmosphere of Mars. Journal of Geophysical Research: Space Physics, 2019, 124, 2152-2164.	0.8	13
105	Traveling Ionospheric Disturbances at Mars. Geophysical Research Letters, 2019, 46, 4554-4563.	1.5	13
106	Higher order parametric excitation modes for spaceborne quadrupole mass spectrometers. Review of Scientific Instruments, 2011, 82, 125109.	0.6	12
107	MAVEN and the total electron content of the Martian ionosphere. Journal of Geophysical Research: Space Physics, 2017, 122, 3526-3537.	0.8	12
108	Tidal Effects on the Longitudinal Structures of the Martian Thermosphere and Topside Ionosphere Observed by MAVEN. Journal of Geophysical Research: Space Physics, 2021, 126, e2020JA028562.	0.8	12

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109	Volatiles and Refractories in Surface-Bounded Exospheres in the Inner Solar System. Space Science Reviews, 2021, 217, 61.	3.7	12
110	A priori information required for a two or three dimensional reconstruction of the internal structure of a comet nucleus (consert experiment). Advances in Space Research, 2002, 29, 715-724.	1.2	10
111	Modeling the response of the induced magnetosphere of Venus to changing IMF direction using MESSENGER and Venus Express observations. Geophysical Research Letters, 2009, 36, .	1.5	9
112	Simulations of lunar exospheric water events from meteoroid impacts. Planetary and Space Science, 2018, 162, 148-156.	0.9	9
113	The Modulation of Solar Wind Hydrogen Deposition in the Martian Atmosphere by Foreshock Phenomena. Journal of Geophysical Research: Space Physics, 2019, 124, 7086-7097.	0.8	9
114	Escape of CO₂⁺ and Other Heavy Minor Ions From the Ionosphere of Mars. Journal of Geophysical Research: Space Physics, 2021, 126, e2020JA028608.	0.8	9
115	The Statistical Characteristics of Smallâ€Scale Ionospheric Irregularities Observed in the Martian Ionosphere. Journal of Geophysical Research: Space Physics, 2019, 124, 5874-5893.	0.8	8
116	A prospective microwave plasma source for <i>in situ</i> spaceflight applications. Journal of Analytical Atomic Spectrometry, 2020, 35, 2740-2747.	1.6	8
117	Seasonal and Dustâ€Related Variations in the Dayside Thermospheric and Ionospheric Compositions of Mars Observed by MAVEN/NGIMS. Journal of Geophysical Research E: Planets, 2021, 126, e2021JE006926.	1.5	8
118	First Evidence of Persistent Nighttime Temperature Structures in the Neutral Thermosphere of Mars. Geophysical Research Letters, 2018, 45, 8819-8825.	1.5	7
119	First In Situ Evidence of Mars Nonthermal Exosphere. Geophysical Research Letters, 2019, 46, 4144-4150.	1.5	7
120	First Detection of Kilometerâ€Scale Density Irregularities in the Martian Ionosphere. Geophysical Research Letters, 2020, 47, e2020GL090906.	1.5	7
121	A Multiscale Central Difference Scheme Applied to Magnetohydrodynamic Simulations of Cometary Atmospheres. Astrophysical Journal, 2004, 617, 656-666.	1.6	6
122	MAVEN Case Studies of Plasma Dynamics in Lowâ€Altitude Crustal Magnetic Field at Mars 1: Dayside Ion Spikes Associated With Radial Crustal Magnetic Fields. Journal of Geophysical Research: Space Physics, 2019, 124, 1239-1261.	0.8	6
123	Subsolar Electron Temperatures in the Lower Martian Ionosphere. Journal of Geophysical Research: Space Physics, 2020, 125, e2019JA027597.	0.8	6
124	The Origins of Longâ€Term Variability in Martian Upper Atmospheric Densities. Journal of Geophysical Research: Space Physics, 2022, 127, .	0.8	6
125	Effects of the 10 September 2017 Solar Flare on the Density and Composition of the Thermosphere of Mars. Journal of Geophysical Research: Space Physics, 2020, 125, e2020JA028518.	0.8	5
126	Ionization Efficiency in the Dayside Ionosphere of Mars: Structure and Variability. Journal of Geophysical Research E: Planets, 2021, 126, e2021JE006923.	1.5	5

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127	Evaluation of the robustness of chromatographic columns in a simulated highly radiative Jovian environment. Planetary and Space Science, 2016, 122, 38-45.	0.9	4
128	Neutral Composition and Horizontal Variations of the Martian Upper Atmosphere From MAVEN NGIMS. Journal of Geophysical Research E: Planets, 2022, 127, .	1.5	4
129	On the Altitude Patterns of Photoâ€Chemicalâ€Equilibrium in the Martian Ionosphere: A Special Role for Electron Temperature. Journal of Geophysical Research: Space Physics, 2021, 126, .	0.8	3
130	Carbon Ion Fluxes at Mars: First Results of Tailward Flows From MAVENâ€STATIC. Journal of Geophysical Research: Space Physics, 2022, 127, .	0.8	3
131	MAVEN/NGIMS wind observations in the martian thermosphere during the 2018 planet encircling dust event. Icarus, 2022, 382, 115006.	1.1	2
132	A lingering local exosphere created by a gas plume of a lunar lander. Icarus, 2022, 376, 114857.	1.1	1
133	In Situ Electron Density From Active Sounding: The Influence of the Spacecraft Wake. Geophysical Research Letters, 2019, 46, 10250-10256.	1.5	0