Thomas H Prettyman

List of Publications by Year
in descending order

125 papers	8,925 citations	53794 45 h-index	40979 93 g-index
131 all docs	131 docs citations	131 times ranked	3896 citing authors

#	Article	IF	Citations
1	Distribution of Hydrogen in the Near Surface of Mars: Evidence for Subsurface Ice Deposits. Science, 2002, 297, 81-85.	12.6	884
2	Global Distribution of Neutrons from Mars: Results from Mars Odyssey. Science, 2002, 297, 75-78.	12.6	468
3	Global distribution of near-surface hydrogen on Mars. Journal of Geophysical Research, 2004, 109, .	3.3	423
4	Dawn at Vesta: Testing the Protoplanetary Paradigm. Science, 2012, 336, 684-686.	12.6	422
5	Elemental composition of the lunar surface: Analysis of gamma ray spectroscopy data from Lunar Prospector. Journal of Geophysical Research, 2006, 111, n/a-n/a.	3.3	342
6	The presence and stability of ground ice in the southern hemisphere of Mars. Icarus, 2004, 169, 324-340.	2.5	299
7	Evidence for water ice near the lunar poles. Journal of Geophysical Research, 2001, 106, 23231-23251.	3.3	296
8	Ammoniated phyllosilicates with a likely outer Solar System origin on (1) Ceres. Nature, 2015, 528, 241-244.	27.8	276
9	Understanding the Lunar Surface and Space-Moon Interactions. Reviews in Mineralogy and Geochemistry, 2006, 60, 83-219.	4.8	274
10	Vestaâ€™s Shape and Morphology. Science, 2012, 336, 687-690.	12.6	222
11	Iron abundances on the lunar surface as measured by the Lunar Prospector gamma-ray and neutron spectrometers. Journal of Geophysical Research, 2002, 107, 13-1-13-26.	3.3	220
12	Elemental Mapping by Dawn Reveals Exogenic H in Vestaâ€™s Regolith. Science, 2012, 338, 242-246.	12.6	201
13	Thorium abundances on the lunar surface. Journal of Geophysical Research, 2000, 105, 20307-20331.	3.3	190
14	Dawn; the Vestaâ€“<scp>HED</scp> connection; and the geologic context for eucrites, diogenites, and howardites. Meteoritics and Planetary Science, 2013, 48, 2090-2104.	1.6	185
15	Dawn arrives at Ceres: Exploration of a small, volatile-rich world. Science, 2016, 353, 1008-1010.	12.6	178
16	Evidence for Water Ice Near Mercuryâ€™s North Pole from MESSENGER Neutron Spectrometer Measurements. Science, 2013, 339, 292-296.	12.6	173
17	Small-area thorium features on the lunar surface. Journal of Geophysical Research, 2003, 108, .	3.3	171
18	Extensive water ice within Ceresâ€™ aqueously altered regolith: Evidence from nuclear spectroscopy. Science, 2017, 355, 55-59.	12.6	169

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19	Dawnâ€™s Gamma Ray and Neutron Detector. Space Science Reviews, 2011, 163, 371-459.	8.1	160
20	Improved modeling of Lunar Prospector neutron spectrometer data: Implications for hydrogen deposits at the lunar poles. Journal of Geophysical Research, 2006, 111, .	3.3	136
21	Dawn Mission to Vesta and Ceres. Earth, Moon and Planets, 2007, 101, 65-91.	0.6	125
22	Gamma-Ray, Neutron, and Alpha-Particle Spectrometers for the Lunar Prospector mission. Journal of Geophysical Research, 2004, 109, .	3.3	109
23	Composition and structure of the Martian surface at high southern latitudes from neutron spectroscopy. Journal of Geophysical Research, 2004, 109, .	3.3	101
24	Dawn: A journey in space and time. Planetary and Space Science, 2004, 52, 465-489.	1.7	100
25	MCNPX benchmark for cosmic ray interactions with the Moon. Journal of Geophysical Research, 2006, 111, .	3.3	92
26	Tomographic Gamma Scanning to Assay Heterogeneous Radioactive Waste. Nuclear Science and Engineering, 1994, 118, 145-152.	1.1	91
27	Composition of the Rheasilvia basin, a window into Vesta's interior. Journal of Geophysical Research E: Planets, 2013, 118, 335-346.	3.6	84
28	High resolution measurements of absolute thorium abundances on the lunar surface. Geophysical Research Letters, 1999, 26, 2681-2684.	4.0	83
29	Insights into Ceres's evolution from surface composition. Meteoritics and Planetary Science, 2018, 53, 1820-1843.	1.6	73
30	Depth, distribution, and density of CO2deposition on Mars. Journal of Geophysical Research, 2004, 109, .	3.3	72
31	Chondritic models of 4 Vesta: Implications for geochemical and geophysical properties. Meteoritics and Planetary Science, 2013, 48, 2300-2315.	1.6	66
32	Hydrated states of MgSO4at equatorial latitudes on Mars. Geophysical Research Letters, 2004, 31, .	4.0	65
33	Carbonaceous chondrites as analogs for the composition and alteration of Ceres. Meteoritics and Planetary Science, 2018, 53, 1793-1804.	1.6	65
34	Composition from fast neutrons: Application to the Moon. Geophysical Research Letters, 2001, 28, 3797-3800.	4.0	64
35	Global spatial deconvolution of Lunar Prospector Th abundances. Geophysical Research Letters, 2007, 34, .	4.0	64
36	An aqueously altered carbon-rich Ceres. Nature Astronomy, 2019, 3, 140-145.	10.1	62

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37	Observations, Meteorites, and Models: A Preflight Assessment of the Composition and Formation of (16) Psyche. Journal of Geophysical Research E: Planets, 2020, 125, e2019JE006296.	3.6	61
38	Dawn completes its mission at 4 Vesta. Meteoritics and Planetary Science, 2013, 48, 2076-2089.	1.6	54
39	Compositional variability on the surface of 4 Vesta revealed through <scp>GR</scp>a<scp>ND</scp> measurements of highâ€energy gamma rays. Meteoritics and Planetary Science, 2013, 48, 2252-2270.	1.6	53
40	Mars Odyssey neutron data: 2. Search for buried excess water ice deposits at nonpolar latitudes on Mars. Journal of Geophysical Research, 2011, 116, .	3.3	51
41	Impact-driven mobilization of deep crustal brines on dwarf planet Ceres. Nature Astronomy, 2020, 4, 741-747.	10.1	50
42	Hydrogen content of sand dunes within Olympia Undae. Icarus, 2008, 196, 422-432.	2.5	49
43	Pitted terrains on (1) Ceres and implications for shallow subsurface volatile distribution. Geophysical Research Letters, 2017, 44, 6570-6578.	4.0	48
44	Olivine or impact melt: Nature of the â€œOrangeâ€•material on Vesta from Dawn. Icarus, 2013, 226, 1568-1594.	2.5	47
45	Neutron absorption constraints on the composition of 4 Vesta. Meteoritics and Planetary Science, 2013, 48, 2211-2236.	1.6	47
46	CO2frost cap thickness on Mars during northern winter and spring. Journal of Geophysical Research, 2003, 108, .	3.3	45
47	Ceres: Astrobiological Target and Possible Ocean World. Astrobiology, 2020, 20, 269-291.	3.0	43
48	SURFACE ALBEDO AND SPECTRAL VARIABILITY OF CERES. Astrophysical Journal Letters, 2016, 817, L22.	8.3	42
49	The Dependence of the Cerean Exosphere on Solar Energetic Particle Events. Astrophysical Journal Letters, 2017, 838, L8.	8.3	41
50	Conditions for Sublimating Water Ice to Supply Ceres' Exosphere. Journal of Geophysical Research E: Planets, 2017, 122, 1984-1995.	3.6	40
51	Ice concentration and distribution near the south pole of Mars: Synthesis of odyssey and global surveyor analyses. Geophysical Research Letters, 2002, 29, 10-1-10-4.	4.0	38
52	Characterization of Mars' seasonal caps using neutron spectroscopy. Journal of Geophysical Research, 2009, 114, .	3.3	37
53	Gamma-ray and neutron spectrometer for the Dawn mission to 1 Ceres and 4 Vesta. IEEE Transactions on Nuclear Science, 2003, 50, 1190-1197.	2.0	36
54	The geology of the Marcia quadrangle of asteroid Vesta: Assessing the effects of large, young craters. Icarus, 2014, 244, 74-88.	2.5	36

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55	Vertical distribution of hydrogen at high northern latitudes on Mars: The Mars Odyssey Neutron Spectrometer. Geophysical Research Letters, 2007, 34, .	4.0	35
56	Distribution of iron on Vesta. Meteoritics and Planetary Science, 2013, 48, 2237-2251.	1.6	35
57	Topographic control of hydrogen deposits at low latitudes to midlatitudes of Mars. Journal of Geophysical Research, 2005, 110, .	3.3	34
58	Detection of serpentine in exogenic carbonaceous chondrite material on Vesta from Dawn FC data. Icarus, 2014, 239, 222-237.	2.5	34
59	Concentrations of potassium and thorium within Vestaâ€™s regolith. Icarus, 2015, 259, 39-52.	2.5	33
60	A Global Inventory of Iceâ€Related Morphological Features on Dwarf Planet Ceres: Implications for the Evolution and Current State of the Cryosphere. Journal of Geophysical Research E: Planets, 2019, 124, 1650-1689.	3.6	33
61	Exploring the asteroid belt with ion propulsion: Dawn mission history, status and plans. Advances in Space Research, 2007, 40, 193-201.	2.6	32
62	H layering in the top meter of Mars. Icarus, 2008, 196, 409-421.	2.5	32
63	Electrode design for coplanar-grid detectors. IEEE Transactions on Nuclear Science, 1997, 44, 713-720.	2.0	30
64	Evidence for a high-Th, evolved lithology on the Moon at Hansteen Alpha. Geophysical Research Letters, 2005, 32, n/a-n/a.	4.0	30
65	Evidence of non-uniform crust of Ceres from Dawnâ€™s high-resolution gravity data. Nature Astronomy, 2020, 4, 748-755.	10.1	30
66	Constraints on Vesta's elemental composition: Fast neutron measurements by Dawn's gamma ray and neutron detector. Meteoritics and Planetary Science, 2013, 48, 2271-2288.	1.6	28
67	The contamination of the surface of Vesta by impacts and the delivery of the dark material. Icarus, 2014, 240, 86-102.	2.5	28
68	Fast neutron flux spectrum aboard Mars Odyssey during cruise. Journal of Geophysical Research, 2002, 107, SSH 2-1.	3.3	27
69	Driven by excess? Climatic implications of new global mapping of near-surface water-equivalent hydrogen on Mars. Icarus, 2018, 301, 97-116.	2.5	27
70	Dawn Discovery mission to Vesta and Ceres: Present status. Advances in Space Research, 2006, 38, 2043-2048.	2.6	26
71	A combined transmission and scattering tomographic approach to composition and density imaging. Applied Radiation and Isotopes, 1993, 44, 1327-1341.	1.5	25
72	Surface Composition of Vesta: Issues and Integrated Approach. Space Science Reviews, 2011, 163, 117-139.	8.1	25

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73	Technical Comment on â€œHydrogen Mapping of the Lunar South Pole Using the LRO Neutron Detector Experiment LENDâ€. Science, 2011, 334, 1058-1058.	12.6	25
74	Sensitivity of orbital neutron measurements to the thickness and abundance of surficial lunar water. Journal of Geophysical Research, 2011, 116, .	3.3	24
75	Using <scp>HED</scp> meteorites to interpret neutron and gammaâ€ray data from asteroidÂ4 Vesta. Meteoritics and Planetary Science, 2015, 50, 1311-1337.	1.6	24
76	Performance of Orbital Neutron Instruments for Spatially Resolved Hydrogen Measurements of Airless Planetary Bodies. Astrobiology, 2010, 10, 183-200.	3.0	23
77	CdZnTe gamma-ray spectrometer for orbital planetary missions. IEEE Transactions on Nuclear Science, 2002, 49, 1881-1886.	2.0	22
78	Bulk hydrogen abundances in the lunar highlands: Measurements from orbital neutron data. Icarus, 2015, 255, 127-134.	2.5	21
79	Volatiles on Mars: scientific results from the Mars Odyssey Neutron Spectrometer. , 2008, , 125-148.		20
80	Water Vapor Contribution to Ceres' Exosphere From Observed Surface Ice and Postulated Iceâ€Exposing Impacts. Journal of Geophysical Research E: Planets, 2019, 124, 61-75.	3.6	20
81	Latitude variation of the subsurface lunar temperature: Lunar Prospector thermal neutrons. Journal of Geophysical Research, 2003, 108, .	3.3	19
82	The Putative Cerean Exosphere. Astrophysical Journal, 2017, 850, 85.	4.5	19
83	A roadmap for planetary caves science and exploration. Nature Astronomy, 2021, 5, 524-525.	10.1	19
84	Mars odyssey neutron sensing of the south residual polar cap. Geophysical Research Letters, 2003, 30, .	4.0	18
85	Asteroid (4) Vesta II: Exploring a geologically and geochemically complex world with the Dawn Mission. Chemie Der Erde, 2015, 75, 273-285.	2.0	18
86	<title>Effect of surfaces on the performance of CdZnTe detectors</title>. , 2001, , .		17
87	Martian polar processes. , 2008, , 578-598.		17
88	Recharge mechanism of near-equatorial hydrogen on Mars: Atmospheric redistribution or sub-surface aquifer. Geophysical Research Letters, 2004, 31, .	4.0	16
89	Title is missing!. Journal of Radioanalytical and Nuclear Chemistry, 2001, 248, 295-300.	1.5	15
90	Surface and Downhole Prospecting Tools for Planetary Exploration: Tests of Neutron and Gamma Ray Probes. Astrobiology, 2008, 8, 639-652.	3.0	14

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91	Kâ€Thâ€i systematics and new threeâ€component mixing model of HED meteorites: Prospective study for interpretation of gammaâ€ray and neutron spectra for the Dawn mission. Meteoritics and Planetary Science, 2010, 45, 1170-1190.	1.6	14
92	Physics-based generation of gamma-ray response functions for CdZnTe detectors. Journal of Radioanalytical and Nuclear Chemistry, 1998, 233, 257-264.	1.5	13
93	Distinguishing the Origin of Asteroid (16) Psyche. Space Science Reviews, 2022, 218, 17.	8.1	13
94	Vesta, vestoids, and the HED meteorites: Interconnections and differences based on Dawn Framing Camera observations. Journal of Geophysical Research E: Planets, 2013, 118, 1991-2003.	3.6	11
95	Igneous lithologies on asteroid (4) Vesta mapped using gamma-ray and neutron data. Icarus, 2017, 286, 35-45.	2.5	11
96	A Probabilistic Approach to Determination of Ceres' Average Surface Composition From Dawn Visibleâ€Infrared Mapping Spectrometer and Gamma Ray and Neutron Detector Data. Journal of Geophysical Research E: Planets, 2020, 125, e2020JE006606.	3.6	11
97	Remote Sensing of Chemical Elements Using Nuclear Spectroscopy. , 2014, , 1161-1183.		10
98	Remote Chemical Sensing Using Nuclear Spectroscopy. , 2007, , 765-786.		9
99	Compositional variability on the surface of 1 Ceres revealed through GRaND measurements of highâ€energy gamma rays. Meteoritics and Planetary Science, 2018, 53, 1805-1819.	1.6	9
100	Search for water outgassing of (1) Ceres near perihelion. Astronomy and Astrophysics, 2019, 628, A22.	5.1	9
101	Concepts for the Future Exploration of Dwarf Planet Ceresâ€™ Habitability. Planetary Science Journal, 2022, 3, 41.	3.6	9
102	Dawnâ€™s Gamma Ray and Neutron Detector. , 2011, , 371-459.		8
103	Spacecraft instrument technology and cosmochemistry. Proceedings of the National Academy of Sciences of the United States of America, 2011, 108, 19177-19182.	7.1	8
104	Unique, Antique Vesta. Elements, 2014, 10, 39-44.	0.5	8
105	Fundamental Science and Engineering Questions in Planetary Cave Exploration. Journal of Geophysical Research E: Planets, 2022, 127, .	3.6	8
106	Mapping the elemental composition of Ceres and Vesta: Dawn"s gamma ray and neutron detector. , 2004, , .		7
107	<title>Characterization of a large-volume multi-element CdZnTe detector</title>. , 2000, 4141, 1.		6
108	DPA-Based Fast Neutron Dosimeter for the Space Environment. IEEE Transactions on Nuclear Science, 2013, 60, 830-836.	2.0	6

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109	The CO2 Cycle. , 2017, , 374-404.		5
110	Simulation of Compton camera imaging with a specific purpose Monte Carlo code. Applied Radiation and Isotopes, 2000, 53, 673-680.	1.5	4
111	Deciphering Redox State for a Metal-Rich World. Space Science Reviews, 2022, 218, 6.	8.1	4
112	Determining the Relative Cratering Ages of Regions of Psycheâ€™s Surface. Space Science Reviews, 2022, 218, 1.	8.1	4
113	Space neutron spectrometer design with SSPM-based instrumentation. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 2011, 652, 342-346.	1.6	3
114	<title>Evaluation of the Compton camera method for spectroscopic imaging with ambient-temperature detector technology</title>. , 1999, , .		2
115	Comparison of neutron sensitive scintillators for use with a solid-state optical detector. , 2009, , .		2
116	Integration of a 6LilnSe2 thermal neutron detector into a CubeSat instrument. Journal of Astronomical Telescopes, Instruments, and Systems, 2016, 2, 046001.	1.8	2
117	Neutron, Gamma-Ray, and X-Ray Spectroscopy of Planetary Bodies. , 2019, , 588-603.		2
118	Replenishment of Nearâ€Surface Water Ice by Impacts Into Ceres' Volatileâ€Rich Crust: Observations by Dawn's Gamma Ray and Neutron Detector. Geophysical Research Letters, 2021, 48, e2021GL094223.	4.0	2
119	Neutron, Gamma-Ray, and X-Ray Spectroscopy. , 2019, , 191-238.		1
120	Ceres, a wet planet: The view after Dawn. Chemie Der Erde, 2022, 82, 125745.	2.0	1
121	<title>High-energy characterization of two large-volume multielement CdZnTe detectors</title>. , 2001, , .		0
122	<title>Combined gamma-ray and neutron detector for measuring the chemical composition of airless planetary bodies</title>. , 2001, , .		0
123	Neutron detectors based on CMOS solid state photomultipliers. Proceedings of SPIE, 2008, , .	0.8	0
124	Surface Composition of Vesta: Issues and Integrated Approach. , 2011, , 117-139.		0
125	Carbon and Organic Matter on Ceres. , 2022, , 121-133.		0