

Arnaud Buch

List of Publications by Year in descending order

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89
papers

8,107
citations

117625

34
h-index

54911

84
g-index

90
all docs

90
docs citations

90
times ranked

4938
citing authors

#	ARTICLE	IF	CITATIONS
1	A Habitable Fluvio-Lacustrine Environment at Yellowknife Bay, Gale Crater, Mars. <i>Science</i> , 2014, 343, 1242777.	12.6	687
2	Mineralogy of a Mudstone at Yellowknife Bay, Gale Crater, Mars. <i>Science</i> , 2014, 343, 1243480.	12.6	508
3	Mars's™ Surface Radiation Environment Measured with the Mars Science Laboratory's™ Curiosity Rover. <i>Science</i> , 2014, 343, 1244797.	12.6	475
4	The Sample Analysis at Mars Investigation and Instrument Suite. <i>Space Science Reviews</i> , 2012, 170, 401-478.	8.1	435
5	Organic molecules in the Sheepbed Mudstone, Gale Crater, Mars. <i>Journal of Geophysical Research E: Planets</i> , 2015, 120, 495-514.	3.6	375
6	Organic matter preserved in 3-billion-year-old mudstones at Gale crater, Mars. <i>Science</i> , 2018, 360, 1096-1101.	12.6	369
7	Volatile, Isotope, and Organic Analysis of Martian Fines with the Mars Curiosity Rover. <i>Science</i> , 2013, 341, 1238937.	12.6	367
8	X-ray Diffraction Results from Mars Science Laboratory: Mineralogy of Rocknest at Gale Crater. <i>Science</i> , 2013, 341, 1238932.	12.6	327
9	Abundance and Isotopic Composition of Gases in the Martian Atmosphere from the Curiosity Rover. <i>Science</i> , 2013, 341, 263-266.	12.6	327
10	Martian Fluvial Conglomerates at Gale Crater. <i>Science</i> , 2013, 340, 1068-1072.	12.6	326
11	Volatile and Organic Compositions of Sedimentary Rocks in Yellowknife Bay, Gale Crater, Mars. <i>Science</i> , 2014, 343, 1245267.	12.6	323
12	Evidence for perchlorates and the origin of chlorinated hydrocarbons detected by SAM at the Rocknest aeolian deposit in Gale Crater. <i>Journal of Geophysical Research E: Planets</i> , 2013, 118, 1955-1973.	3.6	306
13	Curiosity at Gale Crater, Mars: Characterization and Analysis of the Rocknest Sand Shadow. <i>Science</i> , 2013, 341, 1239505.	12.6	280
14	Elemental Geochemistry of Sedimentary Rocks at Yellowknife Bay, Gale Crater, Mars. <i>Science</i> , 2014, 343, 1244734.	12.6	246
15	Isotope Ratios of H, C, and O in CO ₂ and H ₂ O of the Martian Atmosphere. <i>Science</i> , 2013, 341, 260-263.	12.6	241
16	Soil Diversity and Hydration as Observed by ChemCam at Gale Crater, Mars. <i>Science</i> , 2013, 341, 1238670.	12.6	215
17	The Mars Organic Molecule Analyzer (MOMA) Instrument: Characterization of Organic Material in Martian Sediments. <i>Astrobiology</i> , 2017, 17, 655-685.	3.0	185
18	Evidence for indigenous nitrogen in sedimentary and aeolian deposits from the Curiosity rover investigations at Gale crater, Mars. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2015, 112, 4245-4250.	7.1	172

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19	Formation of Amino Acids and Nucleotide Bases in a Titan Atmosphere Simulation Experiment. <i>Astrobiology</i> , 2012, 12, 809-817.	3.0	158
20	The Petrochemistry of Jake_M: A Martian Mugarite. <i>Science</i> , 2013, 341, 1239463.	12.6	134
21	Low Upper Limit to Methane Abundance on Mars. <i>Science</i> , 2013, 342, 355-357.	12.6	103
22	Chemical Characterization of Titan's Tholins: Solubility, Morphology and Molecular Structure Revisited. <i>Journal of Physical Chemistry A</i> , 2009, 113, 11195-11203.	2.5	81
23	Titan's atmosphere: An optimal gas mixture for aerosol production?. <i>Icarus</i> , 2010, 209, 704-714.	2.5	79
24	Nitrile gas chemistry in Titan's atmosphere. <i>Icarus</i> , 2011, 213, 625-635.	2.5	73
25	Sulfur-bearing phases detected by evolved gas analysis of the Rocknest aeolian deposit, Gale Crater, Mars. <i>Journal of Geophysical Research E: Planets</i> , 2014, 119, 373-393.	3.6	65
26	A new extraction technique for in situ analyses of amino and carboxylic acids on Mars by gas chromatography mass spectrometry. <i>Planetary and Space Science</i> , 2006, 54, 1592-1599.	1.7	54
27	MOMA: the challenge to search for organics and biosignatures on Mars. <i>International Journal of Astrobiology</i> , 2016, 15, 239-250.	1.6	52
28	Can laboratory tholins mimic the chemistry producing Titan's aerosols? A review in light of ACP experimental results. <i>Planetary and Space Science</i> , 2013, 77, 91-103.	1.7	51
29	First Detections of Dichlorobenzene Isomers and Trichloromethylpropane from Organic Matter Indigenous to Mars Mudstone in Gale Crater, Mars: Results from the Sample Analysis at Mars Instrument Onboard the Curiosity Rover. <i>Astrobiology</i> , 2020, 20, 292-306.	3.0	50
30	The influence of mineralogy on recovering organic acids from Mars analogue materials using the silylation-derivatization experiment on the Sample Analysis at Mars (SAM) instrument suite. <i>Planetary and Space Science</i> , 2012, 67, 1-13.	1.7	49
31	Search for evidence of life in space: Analysis of enantiomeric organic molecules by N,N-dimethylformamide dimethylacetal derivative dependant Gas Chromatography-Mass Spectrometry. <i>Journal of Chromatography A</i> , 2010, 1217, 731-740.	3.7	48
32	Nitrogen incorporation in Titan's tholins inferred by high resolution orbitrap mass spectrometry and gas chromatography-mass spectrometry. <i>Earth and Planetary Science Letters</i> , 2014, 404, 33-42.	4.4	39
33	Titan's cold case files - Outstanding questions after Cassini-Huygens. <i>Planetary and Space Science</i> , 2018, 155, 50-72.	1.7	37
34	Development of a gas chromatography compatible Sample Processing System (SPS) for the in-situ analysis of refractory organic matter in martian soil: preliminary results. <i>Advances in Space Research</i> , 2009, 43, 143-151.	2.6	36
35	Production yields of organics of astrobiological interest from H ₂ O-NH ₃ hydrolysis of Titan's tholins. <i>Planetary and Space Science</i> , 2012, 61, 114-123.	1.7	34
36	Recovery of Fatty Acids from Mineralogic Mars Analogs by TMAH Thermochemolysis for the Sample Analysis at Mars Wet Chemistry Experiment on the Curiosity Rover. <i>Astrobiology</i> , 2019, 19, 522-546.	3.0	33

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37	Thermochemolysis in search for organics in extraterrestrial environments. <i>Journal of Analytical and Applied Pyrolysis</i> , 2009, 85, 454-459.	5.5	31
38	Magnesium sulfate as a key mineral for the detection of organic molecules on Mars using pyrolysis. <i>Journal of Geophysical Research E: Planets</i> , 2016, 121, 61-74.	3.6	31
39	In situ analysis of the Martian soil by gas chromatography: Decoding of complex chromatograms of organic molecules of exobiological interest. <i>Journal of Chromatography A</i> , 2005, 1071, 255-261.	3.7	29
40	Organic molecules revealed in Mars's Bagnold Dunes by Curiosity's derivatization experiment. <i>Nature Astronomy</i> , 2022, 6, 129-140.	10.1	29
41	The fate of aerosols on the surface of Titan. <i>Faraday Discussions</i> , 2010, 147, 419.	3.2	28
42	Titan's atmosphere simulation experiment using continuum UV-VUV synchrotron radiation. <i>Journal of Geophysical Research E: Planets</i> , 2013, 118, 778-788.	3.6	27
43	In situ analysis of martian regolith with the SAM experiment during the first mars year of the MSL mission: Identification of organic molecules by gas chromatography from laboratory measurements. <i>Planetary and Space Science</i> , 2016, 129, 88-102.	1.7	27
44	Solvent extraction of organic molecules of exobiological interest for in situ analysis of the Martian soil. <i>Journal of Chromatography A</i> , 2003, 999, 165-174.	3.7	25
45	Sublimation extraction coupled with gas chromatography-mass spectrometry: A new technique for future in situ analyses of purines and pyrimidines on Mars. <i>Planetary and Space Science</i> , 2006, 54, 1584-1591.	1.7	25
46	Prototype of the gas chromatograph-mass spectrometer to investigate volatile species in the lunar soil for the Luna-Resurs mission. <i>Planetary and Space Science</i> , 2015, 111, 126-133.	1.7	25
47	Analysis of carbon and nitrogen signatures with laser-induced breakdown spectroscopy; the quest for organics under Mars-like conditions. <i>Spectrochimica Acta, Part B: Atomic Spectroscopy</i> , 2017, 131, 8-17.	2.9	25
48	SOLVENT EXTRACTION OF NICKEL(II) BY MIXTURE OF 2-ETHYLHEXANAL OXIME AND BIS(2-ETHYLHEXYL) PHOSPHORIC ACID. <i>Solvent Extraction and Ion Exchange</i> , 2002, 20, 49-66.	2.0	24
49	Evaluation of the Tenax trap in the Sample Analysis at Mars instrument suite on the Curiosity rover as a potential hydrocarbon source for chlorinated organics detected in Gale Crater. <i>Journal of Geophysical Research E: Planets</i> , 2015, 120, 1446-1459.	3.6	23
50	Formation of analogs of cometary nitrogen-rich refractory organics from thermal degradation of tholin and HCN polymer. <i>Icarus</i> , 2015, 250, 53-63.	2.5	23
51	Abiotic Input of Fixed Nitrogen by Bolide Impacts to Gale Crater During the Hesperian: Insights From the Mars Science Laboratory. <i>Journal of Geophysical Research E: Planets</i> , 2019, 124, 94-113.	3.6	23
52	A laboratory pilot for in situ analysis of refractory organic matter in Martian soil by gas chromatography-mass spectrometry. <i>Advances in Space Research</i> , 2007, 39, 337-344.	2.6	22
53	Enantiomeric separation of volatile organics by gas chromatography for the in situ analysis of extraterrestrial materials: Kinetics and thermodynamics investigation of various chiral stationary phases. <i>Journal of Chromatography A</i> , 2013, 1306, 59-71.	3.7	22
54	Influence of CO on Titan atmospheric reactivity. <i>Icarus</i> , 2014, 238, 221-229.	2.5	22

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55	Development of HPLC-Orbitrap method for identification of N-bearing molecules in complex organic material relevant to planetary environments. <i>Icarus</i> , 2016, 275, 259-266.	2.5	21
56	Low-Temperature Alkaline pH Hydrolysis of Oxygen-Free Titan Tholins: Carbonates' Impact. <i>Astrobiology</i> , 2017, 17, 8-26.	3.0	19
57	Thiosubstituted Organophosphorus Acids as Selective Extractants for Ag(I) from Acidic Thiourea Solutions. <i>Solvent Extraction and Ion Exchange</i> , 2008, 26, 128-144.	2.0	18
58	The search for organic compounds with TMAH thermochemolysis: From Earth analyses to space exploration experiments. <i>TrAC - Trends in Analytical Chemistry</i> , 2020, 127, 115896.	11.4	18
59	Extraction of cadmium (II) from phosphoric acid media using the di(2-ethylhexyl)dithiophosphoric acid (D2EHDTPA): Feasibility of a continuous extraction-stripping process. <i>Hydrometallurgy</i> , 2009, 95, 135-140.	4.3	17
60	Chemical composition of Pluto aerosol analogues. <i>Icarus</i> , 2020, 346, 113774.	2.5	17
61	Titan's organic aerosols: Molecular composition and structure of laboratory analogues inferred from pyrolysis gas chromatography mass spectrometry analysis. <i>Icarus</i> , 2016, 277, 442-454.	2.5	16
62	Application of TMAH thermochemolysis to the detection of nucleobases: Application to the MOMA and SAM space experiment. <i>Talanta</i> , 2019, 204, 802-811.	5.5	14
63	Role of the Tenax® Adsorbent in the Interpretation of the EGA and GC-MS Analyses Performed With the Sample Analysis at Mars in Gale Crater. <i>Journal of Geophysical Research E: Planets</i> , 2019, 124, 2819-2851.	3.6	13
64	Search for organics in extraterrestrial environments by in situ gas chromatography analysis. <i>Advances in Space Research</i> , 2005, 36, 195-200.	2.6	12
65	Molecular and isotopic behavior of insoluble organic matter of the Orgueil meteorite upon heating. <i>Geochimica Et Cosmochimica Acta</i> , 2019, 263, 235-247.	3.9	12
66	SOLVENT EXTRACTION OF NICKEL(II) BY 2-ETHYLHEXANAL OXIME FROM VARIOUS AQUEOUS SOLUTIONS. <i>Solvent Extraction and Ion Exchange</i> , 2001, 19, 277-299.	2.0	11
67	Investigating the effects of gamma radiation on selected chemicals for use in biosignature detection instruments on the surface of Jupiter's moon Europa. <i>Planetary and Space Science</i> , 2019, 175, 1-12.	1.7	11
68	Influence of Calcium Perchlorate on Organics Under SAM-Like Pyrolysis Conditions: Constraints on the Nature of Martian Organics. <i>Journal of Geophysical Research E: Planets</i> , 2020, 125, e2019JE006359.	3.6	11
69	Influence of Calcium Perchlorate on the Search for Organics on Mars with Tetramethylammonium Hydroxide Thermochemolysis. <i>Astrobiology</i> , 2021, 21, 279-297.	3.0	10
70	Testing the capabilities of the Mars Organic Molecule Analyser (MOMA) chromatographic columns for the separation of organic compounds on Mars. <i>Planetary and Space Science</i> , 2020, 186, 104903.	1.7	9
71	Thermal degradation of organics for pyrolysis in space: Titan's atmospheric aerosol case study. <i>Icarus</i> , 2015, 248, 205-212.	2.5	8
72	Extraction of Cadmium from Phosphoric Acid Media by Di(2-ethylhexyl) Dithiophosphoric Acid. <i>Solvent Extraction and Ion Exchange</i> , 2008, 26, 420-434.	2.0	7

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73	Performance of the SAM gas chromatographic columns under simulated flight operating conditions for the analysis of chlorohydrocarbons on Mars. <i>Journal of Chromatography A</i> , 2019, 1598, 183-195.	3.7	7
74	European Molecular Indicators of Life Investigation (EMILI) for a Future Europa Lander Mission. <i>Frontiers in Space Technologies</i> , 2022, 2, .	1.4	7
75	Gas chromatography-mass spectrometry of hexafluoroacetone derivatives: First time utilization of a gaseous phase derivatizing agent for analysis of extraterrestrial amino acids. <i>Journal of Chromatography A</i> , 2012, 1245, 158-166.	3.7	6
76	Synthesis of 3D Dendritic Gold Nanostructures Assisted by a Templated Growth Process: Application to the Detection of Traces of Molecules. <i>Langmuir</i> , 2020, 36, 11015-11027.	3.5	6
77	Influence of Calcium Perchlorate on the Search for Martian Organic Compounds with MTBSTFA/DMF Derivatization. <i>Astrobiology</i> , 2021, 21, 1137-1156.	3.0	6
78	Evidence for perchlorates and the origin of chlorinated hydrocarbons detected by SAM at the rocknest aeolian deposit in gale crater. <i>Journal of Geophysical Research E: Planets</i> , 2013, , n/a-n/a.	3.6	6
79	The Sample Analysis at Mars Investigation and Instrument Suite. , 2012, , 401-478.		5
80	Enceladus as a potential oasis for life: Science goals and investigations for future explorations. <i>Experimental Astronomy</i> , 2022, 54, 809-847.	3.7	5
81	Kinetics of nickel(II) extraction by 2-ethylhexanal oxime in ammonium nitrate solutions. <i>Separation and Purification Technology</i> , 2008, 60, 120-127.	7.9	3
82	Miniaturized gas chromatography for space exploration: A 50 years history. , 2017, , .		3
83	Thermal stability of adsorbents used for gas chromatography in space exploration. <i>Journal of Chromatography A</i> , 2021, 1644, 462087.	3.7	3
84	Design of Multistage Extraction System for Simultaneous Separation of Silver and Gold from Thiourea Solutions. <i>Chemical Engineering and Processing: Process Intensification</i> , 2021, 164, 108391.	3.6	2
85	Reply to Comment by F. Kenig, L. Chou, and D. J. Wardrop on "Evaluation of the Tenax Trap in the Sample Analysis at Mars Instrument Suite on the Curiosity Rover as a Potential Hydrocarbon Source for Chlorinated Organics Detected in Gale Crater" by Miller et al., 2015. <i>Journal of Geophysical Research E: Planets</i> , 2019, 124, 648-650.	3.6	1
86	Mars-Like Soils in the Yungay Area, the Driest Core of the Atacama Desert in Northern Chile. <i>Cellular Origin and Life in Extreme Habitats</i> , 2004, , 211-216.	0.3	1
87	Photochemistry simulation of planetary atmosphere using synchrotron radiation at soleil. Application to Titan's atmosphere. <i>EAS Publications Series</i> , 2012, 58, 199-203.	0.3	0
88	Operations of the Sample Analysis at Mars instrument suite onboard the Curiosity rover. , 2018, , .		0
89	Optical and electrochemical activity of gold flower-shape crystals. <i>Annales De Chimie: Science Des Materiaux</i> , 2016, 40, 43-50.	0.4	0