

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
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90
all docs

90
docs citations

90
times ranked

4938
citing authors

#	ARTICLE	IF	CITATIONS
1	Organic molecules revealed in Mars's Bagnold Dunes by Curiosity's derivatization experiment. <i>Nature Astronomy</i> , 2022, 6, 129-140.	10.1	29
2	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
3	European Molecular Indicators of Life Investigation (EMILI) for a Future Europa Lander Mission. <i>Frontiers in Space Technologies</i> , 2022, 2, .	1.4	7
4	Influence of Calcium Perchlorate on the Search for Organics on Mars with Tetramethylammonium Hydroxide Thermochemistry. <i>Astrobiology</i> , 2021, 21, 279-297.	3.0	10
5	Thermal stability of adsorbents used for gas chromatography in space exploration. <i>Journal of Chromatography A</i> , 2021, 1644, 462087.	3.7	3
6	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
7	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
8	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
9	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
10	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
11	Chemical composition of Pluto aerosol analogues. <i>Icarus</i> , 2020, 346, 113774.	2.5	17
12	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
13	The search for organic compounds with TMAH thermochemistry: From Earth analyses to space exploration experiments. <i>TrAC - Trends in Analytical Chemistry</i> , 2020, 127, 115896.	11.4	18
14	Recovery of Fatty Acids from Mineralogic Mars Analogs by TMAH Thermochemistry for the Sample Analysis at Mars Wet Chemistry Experiment on the Curiosity Rover. <i>Astrobiology</i> , 2019, 19, 522-546.	3.0	33
15	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
16	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
17	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
18	Application of TMAH thermochemistry to the detection of nucleobases: Application to the MOMA and SAM space experiment. <i>Talanta</i> , 2019, 204, 802-811.	5.5	14

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19	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
20	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
21	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
22	Titan's cold case files - Outstanding questions after Cassini-Huygens. <i>Planetary and Space Science</i> , 2018, 155, 50-72.	1.7	37
23	Operations of the Sample Analysis at Mars instrument suite onboard the Curiosity rover. , 2018, , .		0
24	Organic matter preserved in 3-billion-year-old mudstones at Gale crater, Mars. <i>Science</i> , 2018, 360, 1096-1101.	12.6	369
25	Low-Temperature Alkaline pH Hydrolysis of Oxygen-Free Titan Tholins: Carbonates' Impact. <i>Astrobiology</i> , 2017, 17, 8-26.	3.0	19
26	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
27	The Mars Organic Molecule Analyzer (MOMA) Instrument: Characterization of Organic Material in Martian Sediments. <i>Astrobiology</i> , 2017, 17, 655-685.	3.0	185
28	Miniaturized gas chromatography for space exploration: A 50 years history. , 2017, , .		3
29	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
30	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
31	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
32	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
33	MOMA: the challenge to search for organics and biosignatures on Mars. <i>International Journal of Astrobiology</i> , 2016, 15, 239-250.	1.6	52
34	Optical and electrochemical activity of gold flower-shape crystals. <i>Annales De Chimie: Science Des Matériaux</i> , 2016, 40, 43-50.	0.4	0
35	Organic molecules in the Sheepbed Mudstone, Gale Crater, Mars. <i>Journal of Geophysical Research E: Planets</i> , 2015, 120, 495-514.	3.6	375
36	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

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37	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
38	Evidence for indigenous nitrogen in sedimentary and aeolian deposits from the <i>Curiosity</i> 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
39	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
40	Thermal degradation of organics for pyrolysis in space: Titan's atmospheric aerosol case study. <i>Icarus</i> , 2015, 248, 205-212.	2.5	8
41	Volatile and Organic Compositions of Sedimentary Rocks in Yellowknife Bay, Gale Crater, Mars. <i>Science</i> , 2014, 343, 1245267.	12.6	323
42	A Habitable Fluvio-Lacustrine Environment at Yellowknife Bay, Gale Crater, Mars. <i>Science</i> , 2014, 343, 1242777.	12.6	687
43	Mineralogy of a Mudstone at Yellowknife Bay, Gale Crater, Mars. <i>Science</i> , 2014, 343, 1243480.	12.6	508
44	Mars' Surface Radiation Environment Measured with the Mars Science Laboratory's Curiosity Rover. <i>Science</i> , 2014, 343, 1244797.	12.6	475
45	Elemental Geochemistry of Sedimentary Rocks at Yellowknife Bay, Gale Crater, Mars. <i>Science</i> , 2014, 343, 1244734.	12.6	246
46	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
47	Influence of CO on Titan atmospheric reactivity. <i>Icarus</i> , 2014, 238, 221-229.	2.5	22
48	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
49	X-ray Diffraction Results from Mars Science Laboratory: Mineralogy of Rocknest at Gale Crater. <i>Science</i> , 2013, 341, 1238932.	12.6	327
50	Curiosity at Gale Crater, Mars: Characterization and Analysis of the Rocknest Sand Shadow. <i>Science</i> , 2013, 341, 1239505.	12.6	280
51	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
52	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
53	Abundance and Isotopic Composition of Gases in the Martian Atmosphere from the Curiosity Rover. <i>Science</i> , 2013, 341, 263-266.	12.6	327
54	Volatile, Isotope, and Organic Analysis of Martian Fines with the Mars Curiosity Rover. <i>Science</i> , 2013, 341, 1238937.	12.6	367

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55	Isotope Ratios of H, C, and O in CO ₂ and H ₂ O of the Martian Atmosphere. Science, 2013, 341, 260-263.	12.6	241
56	Titan's atmosphere simulation experiment using continuum UV-VUV synchrotron radiation. Journal of Geophysical Research E: Planets, 2013, 118, 778-788.	3.6	27
57	Martian Fluvial Conglomerates at Gale Crater. Science, 2013, 340, 1068-1072.	12.6	326
58	The Petrochemistry of Jake_M: A Martian Mugearite. Science, 2013, 341, 1239-463.	12.6	134
59	Soil Diversity and Hydration as Observed by ChemCam at Gale Crater, Mars. Science, 2013, 341, 1238-670.	12.6	215
60	Low Upper Limit to Methane Abundance on Mars. Science, 2013, 342, 355-357.	12.6	103
61	Evidence for perchlorates and the origin of chlorinated hydrocarbons detected by SAM at the Rocknest aeolian deposit in Gale Crater. Journal of Geophysical Research E: Planets, 2013, 118, 1955-1973.	3.6	306
62	Evidence for perchlorates and the origin of chlorinated hydrocarbons detected by SAM at the rocknest aeolian deposit in gale crater. Journal of Geophysical Research E: Planets, 2013, , n/a-n/a.	3.6	6
63	Photochemistry simulation of planetary atmosphere using synchrotron radiation at soleil. Application to Titan's atmosphere. EAS Publications Series, 2012, 58, 199-203.	0.3	0
64	Formation of Amino Acids and Nucleotide Bases in a Titan Atmosphere Simulation Experiment. Astrobiology, 2012, 12, 809-817.	3.0	158
65	The Sample Analysis at Mars Investigation and Instrument Suite. Space Science Reviews, 2012, 170, 401-478.	8.1	435
66	Gas chromatography-mass spectrometry of hexafluoroacetone derivatives: First time utilization of a gaseous phase derivatizing agent for analysis of extraterrestrial amino acids. Journal of Chromatography A, 2012, 1245, 158-166.	3.7	6
67	Production yields of organics of astrobiological interest from H ₂ O-NH ₃ hydrolysis of Titan's tholins. Planetary and Space Science, 2012, 61, 114-123.	1.7	34
68	The influence of mineralogy on recovering organic acids from Mars analogue materials using the ¹⁸ O-potential derivatization experiment on the Sample Analysis at Mars (SAM) instrument suite. Planetary and Space Science, 2012, 67, 1-13.	1.7	49
69	The Sample Analysis at Mars Investigation and Instrument Suite. , 2012, , 401-478.		5
70	Nitrile gas chemistry in Titan's atmosphere. Icarus, 2011, 213, 625-635.	2.5	73
71	Titan's atmosphere: An optimal gas mixture for aerosol production?. Icarus, 2010, 209, 704-714.	2.5	79
72	Search for evidence of life in space: Analysis of enantiomeric organic molecules by N,N-dimethylformamide dimethylacetal derivative dependant Gas Chromatography-Mass Spectrometry. Journal of Chromatography A, 2010, 1217, 731-740.	3.7	48

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73	The fate of aerosols on the surface of Titan. <i>Faraday Discussions</i> , 2010, 147, 419.	3.2	28
74	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
75	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
76	Thermochemolysis in search for organics in extraterrestrial environments. <i>Journal of Analytical and Applied Pyrolysis</i> , 2009, 85, 454-459.	5.5	31
77	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
78	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
79	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
80	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
81	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
82	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
83	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
84	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
85	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
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	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
88	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
89	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