Mathieu Choukroun

List of Publications by Year
in descending order

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84 papers	2,456 citations	172457 29 h-index	214800 47 g-index
87 all docs	87 docs citations	87 times ranked	2254 citing authors

#	Article	IF	Citations
1	Subsurface properties and early activity of comet 67P/Churyumov-Gerasimenko. Science, 2015, 347, aaa0709.	12.6	217
2	Ganymede×³s internal structure including thermodynamics of magnesium sulfate oceans in contact with ice. Planetary and Space Science, 2014, 96, 62-70.	1.7	121
3	Stability of methane clathrate hydrates under pressure: Influence on outgassing processes of methane on Titan. Icarus, 2010, 205, 581-593.	2.5	107
4	Phase Behaviour of Ices and Hydrates. Space Science Reviews, 2010, 153, 185-218.	8.1	98
5	Thermodynamic model for water and high-pressure ices up to 2.2GPa and down to the metastable domain. Journal of Chemical Physics, 2007, 127, 124506.	3.0	93
6	Is Titan's shape caused by its meteorology and carbon cycle?. Geophysical Research Letters, 2012, 39, .	4.0	84
7	Subsurface Water Oceans on Icy Satellites: Chemical Composition and Exchange Processes. Space Science Reviews, 2010, 153, 485-510.	8.1	83
8	MIRO observations of subsurface temperatures of the nucleus of 67P/Churyumov-Gerasimenko. Astronomy and Astrophysics, 2015, 583, A29.	5.1	81
9	Titanâ€™s surface at 2.18-cm wavelength imaged by the Cassini RADAR radiometer: Results and interpretations through the first ten years of observation. Icarus, 2016, 270, 443-459.	2.5	79
10	Long-term monitoring of the outgassing and composition of comet 67P/Churyumov-Gerasimenko with the Rosetta/MIRO instrument. Astronomy and Astrophysics, 2019, 630, A19.	5.1	78
11	The Rosetta mission orbiter science overview: the comet phase. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2017, 375, 20160262.	3.4	74
12	Hf isotopes of MARID (mica-amphibole-rutile-ilmenite-diopside) rutile trace metasomatic processes in the lithospheric mantle. Geology, 2005, 33, 45.	4.4	62
13	Spatial and diurnal variation of water outgassing on comet 67P/Churyumov-Gerasimenko observed from Rosetta/MIRO in August 2014. Astronomy and Astrophysics, 2015, 583, A5.	5.1	61
14	Dust-to-Gas and Refractory-to-Ice Mass Ratios of Comet 67P/Churyumov-Gerasimenko from Rosetta Observations. Space Science Reviews, 2020, 216, 1.	8.1	61
15	Distribution of water around the nucleus of comet 67P/Churyumov-Gerasimenko at 3.4 AU from the Sun as seen by the MIRO instrument on Rosetta. Astronomy and Astrophysics, 2015, 583, A3.	5.1	60
16	Thermodynamic data and modeling of the water and ammonia-water phase diagrams up to 2.2 GPa for planetary geophysics. Journal of Chemical Physics, 2010, 133, 144502.	3.0	59
17	Geophysical evolution of Saturnâ€™s satellite Phoebe, a large planetesimal in the outer Solar System. Icarus, 2012, 219, 86-109.	2.5	53
18	Unexpected and significant findings in comet 67P/Churyumovâ€“Gerasimenko: an interdisciplinary view. Monthly Notices of the Royal Astronomical Society, 2016, 462, S2-S8.	4.4	53

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19	Phase equilibria in the H2Oâ€“CO2 system between 250â€“330K and 0â€“1.7GPa: Stability of the CO2 hydrates and H2O-ice VI at CO2 saturation. Geochimica Et Cosmochimica Acta, 2013, 119, 322-339.	3.9	49
20	Raman study of methane clathrate hydrates under pressure: new evidence for the metastability of structure II. Journal of Raman Spectroscopy, 2007, 38, 440-451.	2.5	48
21	Dark side of comet 67P/Churyumov-Gerasimenko in Aug.â€“Oct. 2014. Astronomy and Astrophysics, 2015, 583, A28.	5.1	42
22	Measurements of thermal properties of icy Mars regolith analogs. Journal of Geophysical Research, 2012, 117, .	3.3	41
23	Prospects for mineralogy on Titan. American Mineralogist, 2018, 103, 343-349.	1.9	35
24	Composition and Evolution of Frozen Chloride Brines under the Surface Conditions of Europa. ACS Earth and Space Chemistry, 2017, 1, 14-23.	2.7	33
25	A HOT GAP AROUND JUPITER'S ORBIT IN THE SOLAR NEBULA. Astrophysical Journal, 2012, 748, 92.	4.5	32
26	Preferential formation of sodium salts from frozen sodium-ammonium-chloride-carbonate brines â€“ Implications for Ceresâ€™ bright spots. Planetary and Space Science, 2017, 141, 73-77.	1.7	31
27	The Acetylene-Ammonia Co-crystal on Titan. ACS Earth and Space Chemistry, 2018, 2, 366-375.	2.7	30
28	The Microstructural Evolution of Water Ice in the Solar System Through Sintering. Journal of Geophysical Research E: Planets, 2019, 124, 243-277.	3.6	30
29	CHEMISTRY OF FROZEN SODIUMâ€“MAGNESIUMâ€“SULFATEâ€“CHLORIDE BRINES: IMPLICATIONS FOR SURFACE EXPRESSION OF EUROPAâ€™S OCEAN COMPOSITION. Astrophysical Journal Letters, 2016, 816, L26.	8.3	29
30	Clathrate Hydrates: Implications for Exchange Processes in the Outer Solar System. Astrophysics and Space Science Library, 2013, , 409-454.	2.7	27
31	The solubility of ⁴⁰Ar and ⁸⁴Kr in liquid hydrocarbons: Implications for Titan's geological evolution. Geophysical Research Letters, 2013, 40, 2935-2940.	4.0	26
32	The Origin and Evolution of Titan. , 2009, , 35-59.		25
33	Evolution of Titan and implications for its hydrocarbon cycle. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2009, 367, 617-631.	3.4	25
34	Formation of a New Benzeneâ€“Ethane Co-Crystalline Structure Under Cryogenic Conditions. Journal of Physical Chemistry A, 2014, 118, 4087-4094.	2.5	23
35	Reconciling main belt asteroid spectral flux density measurements with a self-consistent thermophysical model. Icarus, 2013, 226, 1086-1102.	2.5	22
36	Equilibrium composition between liquid and clathrate reservoirs on Titan. Icarus, 2014, 239, 39-45.	2.5	22

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37	The science planning process on the Rosetta mission. Acta Astronautica, 2017, 133, 244-257.	3.2	22
38	Experimental determination of the kinetics of formation of the benzeneâ€ethane coâ€crystal and implications for Titan. Geophysical Research Letters, 2014, 41, 5396-5401.	4.0	21
39	Insights into Europa's ocean composition derived from its surface expression. Icarus, 2019, 321, 857-865.	2.5	21
40	A Co-Crystal between Acetylene and Butane: A Potentially Ubiquitous Molecular Mineral on Titan. ACS Earth and Space Chemistry, 2019, 3, 2808-2815.	2.7	19
41	Rapid Formation of Clathrate Hydrate From Liquid Ethane and Water Ice on Titan. Geophysical Research Letters, 2020, 47, e2019GL086265.	4.0	19
42	Kinetic effect on the freezing of ammonium-sodium-carbonate-chloride brines and implications for the origin of Ceresâ€™ bright spots. Icarus, 2019, 320, 150-158.	2.5	18
43	Production of Sulfur Allotropes in Electron Irradiated Jupiter Trojans Ice Analogs. Astrophysical Journal, 2017, 846, 148.	4.5	17
44	The rheology of cryovolcanic slurries: Motivation and phenomenology of methanol-water slurries with implications for Titan. Icarus, 2009, 202, 607-619.	2.5	15
45	Probing Europa's subsurface ocean composition from surface salt minerals using in-situ techniques. Icarus, 2020, 349, 113746.	2.5	15
46	Atmospheric control of the cooling rate of impact melts and cryolavas on Titanâ€™s surface. Icarus, 2010, 208, 887-895.	2.5	14
47	Pressure measurements within optical cells using diamond sensors: accuracy of the method below 1ÂGPa. High Pressure Research, 2005, 25, 255-265.	1.2	13
48	ELECTRON IRRADIATION AND THERMAL PROCESSING OF MIXED-ICES OF POTENTIAL RELEVANCE TO JUPITER TROJAN ASTEROIDS. Astrophysical Journal, 2016, 820, 141.	4.5	13
49	Properties and Behavior of the Acetonitrileâ€“Acetylene Co-Crystal under Titan Surface Conditions. ACS Earth and Space Chemistry, 2020, 4, 1375-1385.	2.7	13
50	Experimental Study on the Effect of Ammonia on the Phase Behavior of Tetrahydrofuran Clathrates. Journal of Physical Chemistry B, 2014, 118, 13371-13377.	2.6	12
51	Phase Diagram of the Ternary Waterâ€“Tetrahydrofuranâ€“Ammonia System at Low Temperatures. Implications for Clathrate Hydrates and Outgassing on Titan. ACS Earth and Space Chemistry, 2018, 2, 135-146.	2.7	12
52	Development and characteristics of Mechanical Porous Ambient Comet Simulants as comet surface analogs. Planetary and Space Science, 2017, 147, 6-13.	1.7	11
53	Low-temperature specific heat capacity measurements and application to Mars thermal modeling. Icarus, 2019, 321, 824-840.	2.5	11
54	Strength Evolution of Ice Plume Deposit Analogs of Enceladus and Europa. Geophysical Research Letters, 2020, 47, e2020GL088953.	4.0	10

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55	Cryolava flow destabilization of crustal methane clathrate hydrate on Titan. Icarus, 2016, 274, 23-32.	2.5	9
56	Sampling Plume Deposits on Enceladusâ€™ Surface to Explore Ocean Materials and Search for Traces of Life or Biosignatures. Planetary Science Journal, 2021, 2, 100.	3.6	8
57	Raman Signatures and Thermal Expansivity of Acetylene Clathrate Hydrate. Journal of Physical Chemistry A, 2019, 123, 7051-7056.	2.5	7
58	No compelling evidence for clathrate hydrate formation under interstellar medium conditions over laboratory time scales. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 14407-14408.	7.1	7
59	Anisotropic thermal expansion of the acetyleneâ€“ammonia co-crystal under Titan's conditions. Journal of Applied Crystallography, 2020, 53, 1524-1530.	4.5	7
60	Specific Heat Capacity Measurements of Selected Meteorites for Planetary Surface Temperature Modeling. Journal of Geophysical Research E: Planets, 2021, 126, .	3.6	7
61	Phase Behavior of Clathrate Hydrates in the Ternary H₂Oâ€“NH₃â€“Cyclopentane System. ACS Earth and Space Chemistry, 2020, 4, 526-534.	2.7	6
62	Cage occupancy of methane clathrate hydrates in the ternary H2Oâ€“NH3â€“CH4 system. Chemical Communications, 2020, 56, 12391-12394.	4.1	4
63	AMBITION â€“ comet nucleus cryogenic sample return. Experimental Astronomy, 2022, 54, 1077-1128.	3.7	4
64	A combination millimeter-wave Doppler radar and THz spectrometer for planetary science. , 2016, , .		3
65	A W-band comet-jet Doppler radar prototype. , 2018, , .		3
66	Sampling Tool Concepts for Enceladus Lander In-Situ Analysis. , 2019, , .		3
67	Effect of H₂S on the Near-infrared Spectrum of Irradiation Residue and Applications to the Kuiper Belt Object (486958) Arrokoth. Astrophysical Journal Letters, 2021, 914, L31.	8.3	3
68	Vertical compositional variations of liquid hydrocarbons in Titanâ€™s alkanofers. Astronomy and Astrophysics, 2021, 653, A80.	5.1	3
69	Sub-millimeter observation of water vapor at 557GHz in Comet C/2002 T7 (LINEAR). Icarus, 2014, 239, 141-153.	2.5	2
70	A simple gas introduction system for cryogenic powder X-ray diffraction. Journal of Applied Crystallography, 2021, 54, 1268-1270.	4.5	2
71	Discrete element modeling of planetary ice analogs: mechanical behavior upon sintering. Granular Matter, 2022, 24, 1.	2.2	2
72	Concept for a new frontiers mission to Ganymede: A Planetary Science Summer School study. , 2011, , .		1

#	Article	IF	Citations
73	FMCW radars at 95 and 183 GHz for planetary and earth science remote sensing. , 2016, , .		1
74	Long range-Doppler Demonstration of a 95 GHz FMCW Radar. , 2018, , .		1
75	Chapter 9 Sample Handling and Instruments for the In Situ Exploration of Ice-Rich Planets. , 2016, , 229-270.		1
76	Subsurface Water Oceans on Icy Satellites: Chemical Composition and Exchange Processes. Space Sciences Series of ISSI, 2010, , 483-508.	0.0	1
77	Reply to the â€˜Comment on Cage occupancy of methane clathrate hydrates in the ternary H₂Oâ€“NH₃â€“CH₄ systemâ€™ by S. Alavi and J. Ripmeester, Chem. Commun., 2022, 58, DOI: 10.1039/D1CC06526B. Chemical Communications, 2022, 58, 4099-4102.	4.1	1
78	Cryovolcanic Features. , 2014, , 1-10.		0
79	Prospects for organic minerals on Saturn's moon Titan. Acta Crystallographica Section A: Foundations and Advances, 2017, 73, C1300-C1300.	0.1	0
80	Titan Lakes Simulation System (TiLSS): A cryogenic experimental setup to simulate Titanâ€™s liquid hydrocarbon surfaces. Review of Scientific Instruments, 2018, 89, 124502.	1.3	0
81	The Dual-Rasp Sampling System Design with Closed Pneumatic Sample Transfer. , 2021, , .		0
82	Phase Behaviour of Ices and Hydrates. Space Sciences Series of ISSI, 2010, , 183-216.	0.0	0
83	Cryovolcanic Features. , 2015, , 487-494.		0
84	A submm-wave comet explorer for water isotopic composition measurements. , 2018, , .		0