

Etienne Balan

List of Publications by Year in descending order

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116
papers

4,464
citations

76326

40
h-index

123424

61
g-index

116
all docs

116
docs citations

116
times ranked

4331
citing authors

#	ARTICLE	IF	CITATIONS
1	Theoretical OH stretching vibrations in dravite. <i>European Journal of Mineralogy</i> , 2022, 34, 239-251.	1.3	4
2	Local mode interpretation of the OH overtone spectrum of 1:1 phyllosilicates. <i>European Journal of Mineralogy</i> , 2021, 33, 209-220.	1.3	8
3	Impact of UV Radiation on the Raman Signal of Cystine: Implications for the Detection of S-rich Organics on Mars. <i>Astrobiology</i> , 2021, 21, 566-574.	3.0	8
4	First-principles modeling of the infrared spectrum of antigorite. <i>European Journal of Mineralogy</i> , 2021, 33, 389-400.	1.3	6
5	Structural, textural, and chemical controls on the OH stretching vibrations in serpentine-group minerals. <i>European Journal of Mineralogy</i> , 2021, 33, 447-462.	1.3	11
6	Tropical Weathering History Recorded in the Silicon Isotopes of Lateritic Weathering Profiles. <i>Geophysical Research Letters</i> , 2021, 48, e2021GL092957.	4.0	7
7	First-principles modeling of the infrared spectrum of Fe- and Al-bearing lizardite. <i>European Journal of Mineralogy</i> , 2021, 33, 647-657.	1.3	4
8	Vibrational spectroscopic study of three Mg-Ni mineral series in white and greenish clay infillings of the New Caledonian Ni-silicate ores. <i>European Journal of Mineralogy</i> , 2021, 33, 743-763.	1.3	0
9	Dating kaolinite from the Neogene Içá Formation and overlying laterites, central Amazonia, Brazil: Constraints for a stratigraphic correlation. <i>Palaeogeography, Palaeoclimatology, Palaeoecology</i> , 2020, 554, 109818.	2.3	5
10	Kaolinite dating from Acrisol and Ferralsol: A new key to understanding the landscape evolution in NW Amazonia (Brazil). <i>Geoderma</i> , 2020, 370, 114354.	5.1	9
11	Influence of the nature of the gas phase on the degradation of RNA during fossilization processes. <i>Applied Clay Science</i> , 2020, 191, 105616.	5.2	8
12	Structure and theoretical infrared spectra of OH defects in quartz. <i>European Journal of Mineralogy</i> , 2020, 32, 311-323.	1.3	19
13	Theoretical infrared spectra of OH defects in corundum (Al_2O_3). <i>European Journal of Mineralogy</i> , 2020, 32, 457-467.	1.3	11
14	Low-temperature infrared spectrum and atomic-scale structure of hydrous defects in diopside. <i>European Journal of Mineralogy</i> , 2020, 32, 505-520.	1.3	6
15	First-principles modeling of chlorine isotope fractionation between chloride-bearing molecules and minerals. <i>Chemical Geology</i> , 2019, 525, 424-434.	3.3	21
16	Line-broadening and anharmonic effects in the attenuated total reflectance infrared spectra of calcite. <i>European Journal of Mineralogy</i> , 2019, 31, 73-81.	1.3	4
17	Assessing bone transformation in late Miocene and Pliocene-Pleistocene deposits of Kenya and South Africa. <i>Archaeometry</i> , 2019, 61, 1129-1143.	1.3	11
18	Atomic scale transformation of bone in controlled aqueous alteration experiments. <i>Palaeogeography, Palaeoclimatology, Palaeoecology</i> , 2019, 526, 80-95.	2.3	12

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19	Unraveling weathering episodes in Tertiary regoliths by kaolinite dating (Western Ghats, India). <i>Gondwana Research</i> , 2019, 69, 89-105.	6.0	18
20	Equilibrium isotopic fractionation between aqueous Zn and minerals from first-principles calculations. <i>Chemical Geology</i> , 2018, 483, 342-350.	3.3	26
21	Combined dating of goethites and kaolinites from ferruginous duricrusts. Deciphering the Late Neogene erosion history of Central Amazonia. <i>Chemical Geology</i> , 2018, 479, 136-150.	3.3	35
22	Theoretical isotopic fractionation between structural boron in carbonates and aqueous boric acid and borate ion. <i>Geochimica Et Cosmochimica Acta</i> , 2018, 222, 117-129.	3.9	33
23	New constraints on Xe incorporation mechanisms in olivine from first-principles calculations. <i>Geochimica Et Cosmochimica Acta</i> , 2018, 222, 146-155.	3.9	14
24	Macroscopic electrostatic effects in ATR-FTIR spectra of modern and archeological bones. <i>American Mineralogist</i> , 2018, 103, 326-329.	1.9	12
25	Boron isotopic fractionation during adsorption by calcite " Implication for the seawater pH proxy. <i>Geochimica Et Cosmochimica Acta</i> , 2018, 240, 255-273.	3.9	19
26	Equilibrium Fractionation of Non-traditional Isotopes: a Molecular Modeling Perspective. <i>Reviews in Mineralogy and Geochemistry</i> , 2017, 82, 27-63.	4.8	71
27	Effect of iron and trivalent cations on OH defects in olivine. <i>American Mineralogist</i> , 2017, 102, 302-311.	1.9	39
28	Reaction mechanisms in swelling clays under ionizing radiation: influence of the water amount and of the nature of the clay mineral. <i>RSC Advances</i> , 2017, 7, 526-534.	3.6	47
29	Theoretical Raman spectrum and anharmonicity of tetrahedral OH defects in hydrous forsterite. <i>European Journal of Mineralogy</i> , 2017, 29, 201-212.	1.3	15
30	Infrared spectroscopic study of sulfate-bearing calcite from deep-sea bamboo coral. <i>European Journal of Mineralogy</i> , 2017, 29, 397-408.	1.3	13
31	van der Waals Contribution to the Relative Stability of Aqueous Zn(2+) Coordination States. <i>Journal of Chemical Theory and Computation</i> , 2017, 13, 3340-3347.	5.3	10
32	Hydrogen isotope determination by TC/EA technique in application to volcanic glass as a window into secondary hydration. <i>Journal of Volcanology and Geothermal Research</i> , 2017, 348, 49-61.	2.1	35
33	Site-specific equilibrium isotopic fractionation of oxygen, carbon and calcium in apatite. <i>Geochimica Et Cosmochimica Acta</i> , 2017, 219, 57-73.	3.9	13
34	First-Principles Vibrational Electron Energy Loss Spectroscopy of $\langle \text{mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"} \langle \text{mml:mi} \rangle \hat{I}^2 \langle \text{mml:mi} \rangle \langle \text{mml:math} \rangle$ -Guanine. <i>Physical Review Letters</i> , 2017, 119, 027402.	7.8	19
35	New Insights in the Ontogeny and Taphonomy of the Devonian Acanthodian <i>Triazeugacanthus affinis</i> From the Miguasha Fossil-Lagerstätte, Eastern Canada. <i>Minerals (Basel, Switzerland)</i> , 2016, 6, 1.	2.0	51
36	First-principles study of boron speciation in calcite and aragonite. <i>Geochimica Et Cosmochimica Acta</i> , 2016, 193, 119-131.	3.9	52

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37	Equilibrium zinc isotope fractionation in Zn-bearing minerals from first-principles calculations. <i>Chemical Geology</i> , 2016, 443, 87-96.	3.3	68
38	Modeling the attenuated total reflectance infrared (ATR-FTIR) spectrum of apatite. <i>Physics and Chemistry of Minerals</i> , 2016, 43, 615-626.	0.8	25
39	Reaction Mechanisms in Talc under Ionizing Radiation: Evidence of a High Stability of H ⁺ Atoms. <i>Journal of Physical Chemistry C</i> , 2016, 120, 2087-2095.	3.1	25
40	Evolution of the macromolecular structure of sporopollenin during thermal degradation. <i>Heliyon</i> , 2015, 1, e00034.	3.2	48
41	Strong electric fields at a prototypical oxide/water interface probed by ab initio molecular dynamics: MgO(001). <i>Physical Chemistry Chemical Physics</i> , 2015, 17, 20382-20390.	2.8	39
42	Equilibrium magnesium isotope fractionation between aqueous Mg ²⁺ and carbonate minerals: Insights from path integral molecular dynamics. <i>Geochimica Et Cosmochimica Acta</i> , 2015, 163, 126-139.	3.9	55
43	Reduced partition function ratios of iron and oxygen in goethite. <i>Geochimica Et Cosmochimica Acta</i> , 2015, 151, 19-33.	3.9	38
44	Identification of hydrogen defects linked to boron substitution in synthetic forsterite and natural olivine. <i>American Mineralogist</i> , 2014, 99, 2138-2141.	1.9	28
45	Equilibrium fractionation of H and O isotopes in water from path integral molecular dynamics. <i>Geochimica Et Cosmochimica Acta</i> , 2014, 135, 203-216.	3.9	25
46	Probing atomic scale transformation of fossil dental enamel using Fourier transform infrared and nuclear magnetic resonance spectroscopy: A case study from the Tugen Hills (Rift Gregory, Kenya). <i>Acta Biomaterialia</i> , 2014, 10, 3952-3958.	8.3	24
47	Theoretical study of the local charge compensation and spectroscopic properties of B-type carbonate defects in apatite. <i>Physics and Chemistry of Minerals</i> , 2014, 41, 347-359.	0.8	11
48	Infrared spectroscopic properties of goethite: anharmonic broadening, long-range electrostatic effects and Al substitution. <i>Physics and Chemistry of Minerals</i> , 2014, 41, 289-302.	0.8	24
49	Contribution of interstitial OH groups to the incorporation of water in forsterite. <i>Physics and Chemistry of Minerals</i> , 2014, 41, 105-114.	0.8	20
50	First-principles modeling of sulfate incorporation and ³⁴ S/ ³² S isotopic fractionation in different calcium carbonates. <i>Chemical Geology</i> , 2014, 374-375, 84-91.	3.3	26
51	Clumped fluoride-hydroxyl defects in forsterite: Implications for the upper-mantle. <i>Earth and Planetary Science Letters</i> , 2014, 390, 287-295.	4.4	42
52	Kaolin-Group Minerals: From Hydrogen-Bonded Layers to Environmental Recorders. <i>Elements</i> , 2014, 10, 183-188.	0.5	26
53	Theoretical infrared spectrum of partially protonated cationic vacancies in forsterite. <i>European Journal of Mineralogy</i> , 2014, 26, 203-210.	1.3	13
54	First-principles study of OH defects in zircon. <i>Physics and Chemistry of Minerals</i> , 2013, 40, 547-554.	0.8	12

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55	Low-temperature evolution of OH bands in synthetic forsterite, implication for the nature of H defects at high pressure. <i>Physics and Chemistry of Minerals</i> , 2013, 40, 499-510.	0.8	30
56	Theoretical study of OH-defects in pure enstatite. <i>Physics and Chemistry of Minerals</i> , 2013, 40, 41-50.	0.8	18
57	Infrared signatures of OH-defects in wadsleyite: A first-principles study. <i>American Mineralogist</i> , 2013, 98, 2132-2143.	1.9	13
58	A carbonate-fluoride defect model for carbonate-rich fluorapatite. <i>American Mineralogist</i> , 2013, 98, 1066-1069.	1.9	69
59	First-principles investigation of equilibrium isotopic fractionation of O- and Si-isotopes between refractory solids and gases in the solar nebula. <i>Earth and Planetary Science Letters</i> , 2012, 319-320, 118-127.	4.4	39
60	Comment on "New data on equilibrium iron isotope fractionation among sulfides: Constraints on mechanisms of sulfide formation in hydrothermal and igneous systems" by V.B. Polyakov and D.M. Soutanov. <i>Geochimica Et Cosmochimica Acta</i> , 2012, 87, 356-359.	3.9	21
61	First-principles simulation of arsenate adsorption on the (111) surface of hematite. <i>Geochimica Et Cosmochimica Acta</i> , 2012, 86, 182-185.	3.9	40
62	Radiation-induced defects in clay minerals: A review. <i>Nuclear Instruments & Methods in Physics Research B</i> , 2012, 277, 112-120.	1.4	32
63	Experimental and theoretical study of the vibrational properties of diaspore (α -AlOOH). <i>Physics and Chemistry of Minerals</i> , 2012, 39, 93-102.	0.8	22
64	Insights into the high-pressure behavior of kaolinite from infrared spectroscopy and quantum-mechanical calculations. <i>Physics and Chemistry of Minerals</i> , 2012, 39, 143-151.	0.8	16
65	Spectroscopic investigation and theoretical modeling of kaolinite-group minerals and other low-temperature phases. <i>Comptes Rendus - Geoscience</i> , 2011, 343, 177-187.	1.2	12
66	Deciphering the weathering processes using environmental mineralogy and geochemistry: Towards an integrated model of laterite and podzol genesis in the Upper Amazon Basin. <i>Comptes Rendus - Geoscience</i> , 2011, 343, 188-198.	1.2	35
67	Line-broadening effects in the powder infrared spectrum of apatite. <i>Physics and Chemistry of Minerals</i> , 2011, 38, 111-122.	0.8	68
68	V oxidation state in Fe-Ti oxides by high-energy resolution fluorescence-detected X-ray absorption spectroscopy. <i>Physics and Chemistry of Minerals</i> , 2011, 38, 449-458.	0.8	65
69	Theoretical infrared spectrum of OH-defects in forsterite. <i>European Journal of Mineralogy</i> , 2011, 23, 285-292.	1.3	69
70	Electronic structure and local environment of substitutional V ³⁺ in grossular garnet Ca ₃ Al ₂ (SiO ₄) ₃ : K-edge X-ray absorption spectroscopy and first-principles modeling. <i>American Mineralogist</i> , 2010, 95, 1161-1171.	1.9	20
71	Preservation assessment of Miocene-Pliocene tooth enamel from Tugen Hills (Kenyan Rift Valley) through FTIR, chemical and stable-isotope analyses. <i>Journal of Archaeological Science</i> , 2010, 37, 1690-1699.	2.4	57
72	First-principles study of the structural and isotopic properties of Al- and OH-bearing hematite. <i>Geochimica Et Cosmochimica Acta</i> , 2010, 74, 3948-3962.	3.9	32

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73	First-principles calculation of H/D isotopic fractionation between hydrous minerals and water. <i>Geochimica Et Cosmochimica Acta</i> , 2010, 74, 3874-3882.	3.9	55
74	Low-temperature infrared spectroscopic study of OH-stretching modes in kaolinite and dickite. <i>American Mineralogist</i> , 2010, 95, 1257-1266.	1.9	45
75	Incorporation of water in iron-free ringwoodite: A first-principles study. <i>American Mineralogist</i> , 2009, 94, 83-89.	1.9	44
76	Induced modifications of kaolinite under ionizing radiation: an infrared spectroscopic study. <i>Physics and Chemistry of Minerals</i> , 2009, 36, 291-299.	0.8	25
77	Theoretical investigation of the anomalous equilibrium fractionation of multiple sulfur isotopes during adsorption. <i>Earth and Planetary Science Letters</i> , 2009, 284, 88-93.	4.4	20
78	Structural control over equilibrium silicon and oxygen isotopic fractionation: A first-principles density-functional theory study. <i>Chemical Geology</i> , 2009, 258, 28-37.	3.3	128
79	Iron isotope fractionation between pyrite (FeS ₂), hematite (Fe ₂ O ₃) and siderite (FeCO ₃): A first-principles density functional theory study. <i>Geochimica Et Cosmochimica Acta</i> , 2009, 73, 6565-6578.	3.9	173
80	Surface modes in the infrared spectrum of hydrous minerals: the OH stretching modes of bayerite. <i>Physics and Chemistry of Minerals</i> , 2008, 35, 279-285.	0.8	55
81	Theoretical infrared absorption coefficient of OH groups in minerals. <i>American Mineralogist</i> , 2008, 93, 950-953.	1.9	54
82	X-ray linear dichroism in cubic compounds: The case of Cr^{3+} . <i>Physical Review B</i> , 2008, 78, .	3.2	50
83	First-principles calculation of the infrared spectrum of hematite. <i>American Mineralogist</i> , 2008, 93, 1019-1027.	1.9	61
84	The determination of Ti ₂ O ₃ in titania slags: a comparison of different methods of analysis. <i>Institutions of Mining and Metallurgy Transactions Section C: Mineral Processing and Extractive Metallurgy</i> , 2008, 117, 166-170.	0.6	1
85	Dissolution of radiation-damaged zircon in lateritic soils. <i>American Mineralogist</i> , 2007, 92, 1978-1989.	1.9	43
86	Inheritance & vs. /& neof ormation of kaolinite during lateritic soil formation: a case study in the middle Amazon Basin. <i>Clays and Clay Minerals</i> , 2007, 55, 253-259.	1.3	30
87	Equilibrium isotopic fractionation in the kaolinite, quartz, water system: Prediction from first-principles density-functional theory. <i>Geochimica Et Cosmochimica Acta</i> , 2007, 71, 3170-3181.	3.9	180
88	Elasticity of serpentines and extensive serpentinization in subduction zones. <i>Geophysical Research Letters</i> , 2007, 34, .	4.0	42
89	Structure, reactivity and spectroscopic properties of minerals from lateritic soils: insights from ab initio calculations. <i>European Journal of Soil Science</i> , 2007, 58, 870-881.	3.9	6
90	Anharmonicity of inner-OH stretching modes in hydrous phyllosilicates: assessment from first-principles frozen-phonon calculations. <i>Physics and Chemistry of Minerals</i> , 2007, 34, 621-625.	0.8	62

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91	The oxidation state of vanadium in titanomagnetite from layered basic intrusions. <i>American Mineralogist</i> , 2006, 91, 953-956.	1.9	61
92	First-principles study of the OH-stretching modes of gibbsite. <i>American Mineralogist</i> , 2006, 91, 115-119.	1.9	115
93	Radiation damage induced by krypton ions in sintered $\hat{\pm}$ -Al ₂ O ₃ . <i>Radiation Protection Dosimetry</i> , 2006, 119, 222-225.	0.8	13
94	Transformation of haematite and Al-poor goethite to Al-rich goethite and associated yellowing in a ferrallitic clay soil profile of the middle Amazon Basin (Manaus, Brazil). <i>European Journal of Soil Science</i> , 2005, 56, 575-588.	3.9	53
95	First-principles study of OH-stretching modes in kaolinite, dickite, and nacrite. <i>American Mineralogist</i> , 2005, 90, 50-60.	1.9	83
96	Formation and evolution of lateritic profiles in the middle Amazon basin: Insights from radiation-induced defects in kaolinite. <i>Geochimica Et Cosmochimica Acta</i> , 2005, 69, 2193-2204.	3.9	54
97	Incomplete retention of radiation damage in zircon from Sri Lanka. <i>American Mineralogist</i> , 2004, 89, 219-231.	1.9	193
98	Radiation-induced Defects in Nonradioactive Natural Minerals: Mineralogical and Environmental Significance. <i>Materials Research Society Symposia Proceedings</i> , 2003, 792, 22.	0.1	1
99	The aperiodic states of zircon: an ab initio molecular dynamics study. <i>American Mineralogist</i> , 2003, 88, 1769-1777.	1.9	28
100	Radiation-induced defects in dickites from the El Berrocal granitic system (Spain): relation with past occurrence of natural radioelements. <i>European Journal of Mineralogy</i> , 2003, 15, 629-640.	1.3	23
101	The effect of radiation damage on local structure in the crystalline fraction of ZrSiO ₄ : Investigating the ²⁹ Si NMR response to pressure in zircon and reidite. <i>American Mineralogist</i> , 2003, 88, 1663-1667.	1.9	61
102	Multiple Ionic-Plasmon Resonances in Naturally Occurring Multiwall Nanotubes: Infrared Spectra of Chrysotile Asbestos. <i>Physical Review Letters</i> , 2002, 89, 177401.	7.8	34
103	First-principles calculation of the infrared spectrum of lizardite. <i>American Mineralogist</i> , 2002, 87, 1286-1290.	1.9	66
104	Native Cd ⁺ in sedimentary fluorapatite. <i>European Journal of Mineralogy</i> , 2002, 14, 1087-1094.	1.3	8
105	Incorporation of Cr ³⁺ in dickite: a spectroscopic study. <i>Physics and Chemistry of Minerals</i> , 2002, 29, 273-279.	0.8	22
106	Lateritic and redoximorphic features in a faulted landscape near Manaus, Brazil. <i>European Journal of Soil Science</i> , 2002, 53, 203-217.	3.9	36
107	Surface chemistry of weathered zircons. <i>Chemical Geology</i> , 2001, 181, 13-22.	3.3	47
108	Metamictization and chemical durability of detrital zircon. <i>American Mineralogist</i> , 2001, 86, 1025-1033.	1.9	124

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109	First principles study of water adsorption on the (100) surface of zircon: Implications for zircon dissolution. <i>American Mineralogist</i> , 2001, 86, 910-914.	1.9	10
110	Behavior of Paramagnetic Iron during the Thermal Transformations of Kaolinite. <i>Journal of the American Ceramic Society</i> , 2001, 84, 1017-1024.	3.8	36
111	First-principles modeling of the infrared spectrum of kaolinite. <i>American Mineralogist</i> , 2001, 86, 1321-1330.	1.9	201
112	Quantitative Measurement of Paramagnetic Fe ³⁺ in Kaolinite. <i>Clays and Clay Minerals</i> , 2000, 48, 439-445.	1.3	39
113	Structural Fe ³⁺ in Natural Kaolinites: New Insights from Electron Paramagnetic Resonance Spectra Fitting at X and Q-Band Frequencies. <i>Clays and Clay Minerals</i> , 1999, 47, 605-616.	1.3	78
114	⁵⁷ Fe Mössbauer spectroscopy of tektites. <i>Physics and Chemistry of Minerals</i> , 1999, 26, 530-538.	0.8	99
115	Iron bands, fragipans and duripans in the northeastern plateaus of Brazil – properties and genesis. <i>Canadian Journal of Soil Science</i> , 1998, 78, 519-530.	1.2	15
116	Application of Vibrational Spectroscopy to the Characterization of Phyllosilicates and other Industrial Minerals. , 0, , 171-226.		7