Patrik Schmutz

List of Publications by Year
in descending order

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77 papers	4,884 citations	159585 30 h-index	91884 69 g-index
80 all docs	80 docs citations	80 times ranked	4268 citing authors

#	Article	IF	Citations
1	Impedance Characterization and Modeling of Electrodes for Biomedical Applications. IEEE Transactions on Biomedical Engineering, 2005, 52, 1295-1302.	4.2	541
2	Characterization of AA2024â€T3 by Scanning Kelvin Probe Force Microscopy. Journal of the Electrochemical Society, 1998, 145, 2285-2295.	2.9	385
3	The influence of yttrium (Y) on the corrosion of Mgâ€“Y binary alloys. Corrosion Science, 2010, 52, 3687-3701.	6.6	299
4	Calculated phase diagrams and the corrosion of die-cast Mgâ€“Al alloys. Corrosion Science, 2009, 51, 602-619.	6.6	296
5	Corrosion Study of AA2024â€T3 by Scanning Kelvin Probe Force Microscopy and In Situ Atomic Force Microscopy Scratching. Journal of the Electrochemical Society, 1998, 145, 2295-2306.	2.9	275
6	An exploratory study of the corrosion of Mg alloys during interrupted salt spray testing. Corrosion Science, 2009, 51, 1277-1292.	6.6	238
7	Characterization of Corrosion Interfaces by the Scanning Kelvin Probe Force Microscopy Technique. Journal of the Electrochemical Society, 2001, 148, B163.	2.9	237
8	A first quantitative XPS study of the surface films formed, by exposure to water, on Mg and on the Mgâ€“Al intermetallics: Al3Mg2 and Mg17Al12. Corrosion Science, 2009, 51, 1115-1127.	6.6	234
9	Active Corrosion Protection in Ce-Modified Hydrotalcite Conversion Coatings. Corrosion, 2002, 58, 3-14.	1.1	165
10	The influence of MgSi particle reactivity and dissolution processes on corrosion in Alâ€“Mgâ€“Si alloys. Electrochimica Acta, 2008, 54, 844-855.	5.2	162
11	Analytical characterization of the corrosion mechanisms of WCâ€“Co by electrochemical methods and inductively coupled plasma mass spectroscopy. Corrosion Science, 2007, 49, 2002-2020.	6.6	128
12	Electrochemical Behavior of Thin Film Analogs of Mg(Zn,â€ŠCu,â€ŠAl)[sub 2]. Journal of the Electrochemical Society, 2001, 148, B348.	2.9	112
13	Influence of Dichromate Ions on Corrosion Processes on Pure Magnesium. Journal of the Electrochemical Society, 2003, 150, B99.	2.9	111
14	Modelling of anodic dissolution of pure aluminium in sodium chloride. Electrochimica Acta, 2009, 54, 4514-4524.	5.2	108
15	Influence of Dichromate Ions on Corrosion of Pure Aluminum and AA2024â€T3 in NaCl Solution Studied by AFM Scratching. Journal of the Electrochemical Society, 1999, 146, 4461-4472.	2.9	98
16	Calculated phase diagrams, iron tolerance limits, and corrosion of Mg-Al alloys. Jom, 2008, 60, 39-44.	1.9	78
17	Electrochemical reactivity, surface composition and corrosion mechanisms of the complex metallic alloy Al3Mg2. Corrosion Science, 2010, 52, 562-578.	6.6	78
18	Cost-effective sol-gel synthesis of porous CuO nanoparticle aggregates with tunable specific surface area. Scientific Reports, 2019, 9, 11758.	3.3	76

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19	Localised corrosion initiation and microstructural characterisation of an Al 2024 alloy with a higher Cu to Mg ratio. Corrosion Science, 2012, 55, 313-325.	6.6	72
20	Formation of Chromate Conversion Coatings on Al-Cu-Mg Intermetallic Compounds and Alloys. Journal of the Electrochemical Society, 2000, 147, 4494.	2.9	70
21	Influence of trace impurities on the in vitro and in vivo degradation of biodegradable Mgâ€“5Znâ€“0.3Ca alloys. Acta Biomaterialia, 2015, 23, 347-353.	8.3	67
22	ToF-SIMS depth profile of the surface film on pure magnesium formed by immersion in pure water and the identification of magnesium hydride. Corrosion Science, 2009, 51, 1883-1886.	6.6	66
23	Corrosion behaviour of an Mgâ€“Yâ€“RE alloy used in biomedical applications studied by electrochemical techniques. Comptes Rendus Chimie, 2008, 11, 1043-1054.	0.5	63
24	The role of zinc in the biocorrosion behavior of resorbable Mgâ€’Znâ€’Ca alloys. Acta Biomaterialia, 2019, 100, 398-414.	8.3	63
25	In-situ microgravimetric studies of passive alloys: potential sweep and potential step experiments with Feâ€“25Cr and Feâ€“17Crâ€“33Mo in acid and alkaline solution. Corrosion Science, 1999, 41, 2143-2163.	6.6	57
26	ICP-MS, SKPFM, XPS, and Microcapillary Investigation of the Local Corrosion Mechanisms of WCâ€“Co Hardmetal. Journal of the Electrochemical Society, 2008, 155, C415.	2.9	51
27	Modelling the early stage time dependence of localised corrosion in aluminium alloys. Electrochimica Acta, 2013, 88, 821-831.	5.2	49
28	Microelectrochemical Studies of Pit Initiation on High Purity and Ultra High Purity Aluminum. Advanced Engineering Materials, 2005, 7, 339-348.	3.5	45
29	In situ monitoring of corrosion processes within the bulk of AlMgSi alloys using X-ray microtomography. Corrosion Science, 2008, 50, 3455-3466.	6.6	42
30	Passivation of Alâ€“Crâ€“Fe and Alâ€“Cuâ€“Feâ€“Cr complex metallic alloys in 1M H2SO4 and 1M NaOH solutions. Corrosion Science, 2011, 53, 1825-1837.	6.6	42
31	Investigation of the exfoliation-like attack mechanism in relation to Alâ€“Mgâ€“Si alloy microstructure. Corrosion Science, 2008, 50, 2085-2093.	6.6	31
32	Electrochemical quartz crystal microbalance study of the transient response of passive Feî—¸25Cr alloy. Electrochimica Acta, 1999, 45, 899-911.	5.2	29
33	Biocorrosion Zoomed In: Evidence for Dealloying of Nanometric Intermetallic Particles in Magnesium Alloys. Advanced Materials, 2019, 31, e1903080.	21.0	29
34	Phase formation, stability, and oxidation in (Ti, Zr, Hf)NiSn halfâ€Heusler compounds. Physica Status Solidi (A) Applications and Materials Science, 2014, 211, 1259-1266.	1.8	28
35	Concepts for chemical state analysis at constant probing depth by labâ€based XPS/HAXPES combining soft and hard Xâ€ray sources. Surface and Interface Analysis, 2020, 52, 802-810.	1.8	28
36	Quantitative element mapping of Mg alloys by laser ablation ICP-MS and EPMA. Applied Surface Science, 2005, 252, 127-132.	6.1	27

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37	Passivation and localised corrosion susceptibility of new Alâ€“Crâ€“Fe complex metallic alloys in acidic NaCl electrolytes. Electrochimica Acta, 2011, 56, 10524-10532.	5.2	24
38	Electronic and structural characterization of barrier-type amorphous aluminium oxide. Electrochimica Acta, 2017, 224, 503-516.	5.2	24
39	Locally Addressable Electrochemical Patterning Technique (LAEPT) applied to poly(L-lysine)-graft-poly(ethylene glycol) adlayers on titanium and silicon oxide surfaces. Biotechnology and Bioengineering, 2005, 91, 285-295.	3.3	22
40	STM and XPS investigation of the oxidation of the Al4(Cr,Fe) quasicrystal approximant. Applied Surface Science, 2013, 283, 276-282.	6.1	19
41	In Situ Microtomographically Monitored and Electrochemically Controlled Corrosion Initiation and Propagation in AlMgSi Alloy AA6016. Journal of the Electrochemical Society, 2009, 156, C1.	2.9	18
42	The influence of heat treatment and plastic deformation on the bioâ€degradation of a Mgâ€Yâ€RE alloy. Journal of Biomedical Materials Research - Part A, 2010, 92A, 409-418.	4.0	17
43	Hard X-ray Photoelectron Spectroscopy (HAXPES) characterisation of electrochemical passivation oxide layers on Alâ€“Crâ€“Fe complex metallic alloys (CMAs). Electrochemistry Communications, 2014, 46, 13-17.	4.7	16
44	Study of the hydrogen uptake in deformed steel using the microcapillary cell technique. Corrosion Science, 2019, 155, 55-66.	6.6	16
45	Investigation of corrosion behavior of biodegradable magnesium alloys using an online-micro-flow capillary flow injection inductively coupled plasma mass spectrometry setup with electrochemical control. Spectrochimica Acta, Part B: Atomic Spectroscopy, 2011, 66, 536-545.	2.9	15
46	Flow microcapillary plasma mass spectrometry-based investigation of new Alâ€“Crâ€“Fe complex metallic alloy passivation. Talanta, 2014, 120, 230-238.	5.5	15
47	Corrosion of AZ91 - Influence of the Î²-Phase Morphology. Materials Science Forum, 0, 618-619, 473-478.	0.3	14
48	Effects of size reduction on the structure and magnetic properties of coreâ€“shell Ni3Si/silica nanoparticles prepared by electrochemical synthesis. Journal of Alloys and Compounds, 2014, 584, 119-127.	5.5	14
49	Local, element-specific and time-resolved dissolution processes on a Mgâ€“Yâ€“RE alloy â€“ Influence of inorganic species and buffering systems. Corrosion Science, 2013, 75, 201-211.	6.6	13
50	Polymer-metal interface formation and film growth on plasma and ion-treated polymer surfaces. Surface and Interface Analysis, 1993, 20, 416-420.	1.8	12
51	Online hyphenation of potentiostat to a microflow-capillary FI-ICP-MS for simultaneous in situ electrochemical, time and element resolved characterization of local corrosion processesâ€”an application for Zr-bulk metallic glass. Journal of Analytical Atomic Spectrometry, 2009, 24, 1161.	3.0	12
52	Adsorption of oriented carborane dipoles on a silver surface. Physica Status Solidi (B): Basic Research, 2016, 253, 591-600.	1.5	12
53	A methodology for characterizing the electrochemical stability of DLC coated interlayers and interfaces. Surface and Coatings Technology, 2019, 375, 402-413.	4.8	12
54	A combinatorial guide to phase formation and surface passivation of tungsten titanium oxide prepared by thermal oxidation. Acta Materialia, 2020, 186, 95-104.	7.9	12

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55	Passive oxide film characterisation on Al-Cr-Fe and Al-Cu-Fe-Cr complex metallic alloys in neutral to alkaline electrolytes by photo- and electrochemical methods. Electrochimica Acta, 2014, 139, 289-301.	5.2	11
56	Electrophoretic Deposition of Nanoporous Oxide Coatings from Concentrated CuO Nanoparticle Dispersions. Langmuir, 2020, 36, 8075-8085.	3.5	11
57	The role of Si incorporation on the anodic growth of barrier-type Al oxide. Materials Science and Engineering B: Solid-State Materials for Advanced Technology, 2017, 226, 120-131.	3.5	9
58	Anodizing of Self-Passivating W_xTi_{1â€“x} Precursors for W_xTi_{1â€“x}O_n Oxide Alloys with Tailored Stability. ACS Applied Materials & Interfaces, 2019, 11, 9510-9518.	8.0	8
59	Elucidating the Rateâ€Limiting Processes in Highâ€Temperature Sodiumâ€Metal Chloride Batteries. Advanced Science, 2022, 9, e2201019.	11.2	8
60	Substrate Purity Effect on the Defect Formation and Properties of Amorphous Anodic Barrier Al₂O₃. Journal of the Electrochemical Society, 2018, 165, C422-C431.	2.9	7
61	The Role of Inclusions in the Corrosion Resistance of Hydrostatically Extruded Steel Products. Solid State Phenomena, 2006, 114, 189-198.	0.3	6
62	A Microelectrochemical Investigation of Alloy C22 in Chloride Solutions below the Critical Pitting Temperature. Journal of the Electrochemical Society, 2007, 154, C114.	2.9	6
63	Silicon Corrosion in Neutral Media: The Influence of Confined Geometries and Crevice Corrosion in Simulated Physiological Solutions. Journal of the Electrochemical Society, 2019, 166, C125-C133.	2.9	6
64	Enhancing the insulating and dielectric properties of barrier anodic Al2O3 on high purity aluminum. Applied Surface Science, 2020, 505, 144522.	6.1	6
65	A Preliminary Quantitative XPS Study of the Surface Films Formed on Pure Magnesium and on Magnesium-Aluminium Intermetallics by Exposure to High-Purity Water. Materials Science Forum, 0, 618-619, 255-262.	0.3	5
66	Fluorhydroxyapatite Coatings Obtained by Flame-Spraying Deposition. International Journal of Applied Ceramic Technology, 2011, 8, 566-571.	2.1	5
67	Differential apoptotic response of MC3T3-E1 pre-osteoblasts to biodegradable magnesium alloys in an in vitro direct culture model. Journal of Materials Science: Materials in Medicine, 2017, 28, 155.	3.6	5
68	Real space crystallography of a complex metallic alloy: high-angle annular dark-field scanning transmission electron microscopy of o-Al₄(Cr,Fe). Journal of Applied Crystallography, 2014, 47, 1026-1031.	4.5	5
69	Electrochemical Characterization of Submicrometer Structures. ECS Transactions, 2006, 3, 29-37.	0.5	4
70	Mitigating the detrimental effects of galvanic corrosion by nanoscale composite architecture design. Npj Materials Degradation, 2022, 6, .	5.8	4
71	Effect of Chromate on Open-Circuit Pit Growth in Aluminum Thin Films. Corrosion, 2002, 58, 137-144.	1.1	2
72	Influence of Composition and Roughness on Localized Corrosion of Al-Mg-Si Alloys Characterized by Microelectrochemistry. Materials Science Forum, 2006, 519-521, 635-640.	0.3	2

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73	Analytical Characterization of the Corrosion Mechanisms of WC-Co by Electrochemical Methods and Inductively-Coupled Plasma Mass Spectroscopy. ECS Transactions, 2006, 1, 251-262.	0.5	2
74	Passivation/precipitation mechanisms of Al-Cr-Fe Complex Metallic Alloys in acidic chloride containing electrolyte. Electrochimica Acta, 2015, 179, 411-422.	5.2	2
75	Electrochemically Controlled Corrosion Initiation and Propagation in AlMgSi alloys In-situ Monitored Using X-ray Microtomography. ECS Transactions, 2008, 11, 23-38.	0.5	1
76	The Influence of Heat Treatment and Plastic Deformation on the Bio-Degradation of a Mgâ€“Yâ€“RE Alloy. Materials Science Forum, 0, 618-619, 71-74.	0.3	1
77	High-resolution neutron imaging: a new approach to characterize water in anodic aluminum oxides. Materials Today Advances, 2020, 8, 100121.	5.2	0