Bobby Kannan Mathan

List of Publications by Year
in descending order

89 papers	4,185 citations	101496 36 h-index	114418 63 g-index
91 all docs	91 docs citations	91 times ranked	3511 citing authors

#	Article	IF	Citations
1	In vitro degradation and mechanical integrity of calcium-containing magnesium alloys in modified-simulated body fluid. Biomaterials, 2008, 29, 2306-2314.	5.7	491
2	Advances in functionalized polymer coatings on biodegradable magnesium alloys â€“ A review. Acta Biomaterialia, 2018, 79, 23-36.	4.1	338
3	Calciumâ€Ion Batteries: Current Stateâ€ofâ€theâ€Art and Future Perspectives. Advanced Materials, 2018, 30, e1801702.	11.1	294
4	Influence of surface roughness on the corrosion behaviour of magnesium alloy. Materials & Design, 2011, 32, 2350-2354.	5.1	203
5	Stress corrosion cracking of rare-earth containing magnesium alloys ZE41, QE22 and Elektron 21 (EV31A) compared with AZ80. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2008, 480, 529-539.	2.6	155
6	Self-Assembled Porous Tantalum Oxide Prepared in H[sub 2]SO[sub 4]/HF Electrolytes. Electrochemical and Solid-State Letters, 2005, 8, J10.	2.2	146
7	Polylactic acid coating on a biodegradable magnesium alloy: An in vitro degradation study by electrochemical impedance spectroscopy. Thin Solid Films, 2012, 520, 6841-6844.	0.8	97
8	Evaluating the stress corrosion cracking susceptibility of Mgâ€“Alâ€“Zn alloy in modified-simulated body fluid for orthopaedic implant application. Scripta Materialia, 2008, 59, 175-178.	2.6	94
9	Biodegradation behavior of micro-arc oxidation coating on magnesium alloy-from a protein perspective. Bioactive Materials, 2020, 5, 398-409.	8.6	92
10	Corrosion resistance of in-situ growth of nano-sized Mg(OH)2 on micro-arc oxidized magnesium alloy AZ31â€"Influence of EDTA. Journal of Materials Science and Technology, 2019, 35, 1088-1098.	5.6	86
11	In-vitro degradation behaviour of WE54 magnesium alloy in simulated body fluid. Materials Letters, 2011, 65, 748-750.	1.3	83
12	A study on the SCC susceptibility of friction stir welded AZ31 Mg sheet. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2007, 460-461, 243-250.	2.6	79
13	Influence of zinc on the microstructure, mechanical properties and inÂvitro corrosion behavior of magnesiumâ€“zinc binary alloys. Journal of Alloys and Compounds, 2015, 648, 291-296.	2.8	78
14	Enhancing stress corrosion cracking resistance in Alâ€“Znâ€“Mgâ€“Cuâ€“Zr alloy through inhibiting recrystallization. Engineering Fracture Mechanics, 2010, 77, 249-256.	2.0	76
15	Pitting-induced hydrogen embrittlement of magnesiumâ€“aluminium alloy. Materials & Design, 2012, 42, 321-326.	5.1	68
16	Comparative studies on the corrosion properties of a Feâ€“Mnâ€“Alâ€“Si steel and an interstitial-free steel. Corrosion Science, 2008, 50, 2879-2884.	3.0	67
17	Hydrogen-induced-cracking in magnesium alloy under cathodic polarization. Scripta Materialia, 2007, 57, 579-581.	2.6	62
18	Biodiesel production via simultaneous transesterification and esterification reactions over SrOâ€“ZnO/Al2O3 as a bifunctional catalyst using high acidic waste cooking oil. Chemical Engineering Research and Design, 2020, 162, 238-248.	2.7	62

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19	Influence of microstructure on the in-vitro degradation behaviour of magnesium alloys. Materials Letters, 2010, 64, 739-742.	1.3	59
20	Effect of surface roughness on the in vitro degradation behaviour of a biodegradable magnesium-based alloy. Applied Surface Science, 2013, 279, 343-348.	3.1	59
21	Ultrathin film coating of hydroxyapatite (HA) on a magnesiumâ€“calcium alloy using RF magnetron sputtering for bioimplant applications. Materials Letters, 2015, 152, 280-282.	1.3	59
22	<i>In vitro</i> mechanical integrity of hydroxyapatite coated magnesium alloy. Biomedical Materials (Bristol), 2011, 6, 045003.	1.7	57
23	Enhancing the performance of calcium phosphate coating on a magnesium alloy for bioimplant applications. Materials Letters, 2012, 76, 109-112.	1.3	57
24	Electrochemical deposition of calcium phosphates on magnesium and its alloys for improved biodegradation performance: A review. Surface and Coatings Technology, 2016, 301, 36-41.	2.2	54
25	Stress corrosion cracking behavior of Nd:YAG laser butt welded AZ31 Mg sheet. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2007, 444, 220-226.	2.6	53
26	Potentiostatic pulse-deposition of calcium phosphate on magnesium alloy for temporary implant applications â€" An in vitro corrosion study. Materials Science and Engineering C, 2013, 33, 675-679.	3.8	50
27	Biocompatibility and biodegradation studies of a commercial zinc alloy for temporary mini-implant applications. Scientific Reports, 2017, 7, 15605.	1.6	50
28	Dealloying corrosion of anodic and nanometric Mg41Nd5 in solid solution-treated Mg-3Nd-1Li-0.2Zn alloy. Journal of Materials Science and Technology, 2021, 83, 161-178.	5.6	49
29	Novel Sustainable Route for Synthesis of Hydroxyapatite Biomaterial from Biowastes. ACS Sustainable Chemistry and Engineering, 2017, 5, 2237-2245.	3.2	47
30	Corrosion resistance of nanostructured magnesium hydroxide coating on magnesium alloy AZ31: influence of EDTA. Rare Metals, 2019, 38, 520-531.	3.6	45
31	Advances in hydroxyapatite coatings on biodegradable magnesium and its alloys. Journal of Magnesium and Alloys, 2022, 10, 1154-1170.	5.5	45
32	Performance of pulsed constant current silicate-based PEO coating on pure magnesium in simulated body fluid. Materials Letters, 2013, 106, 18-21.	1.3	43
33	Influence of Heat Treatment and Scandium Addition on the Electrochemical Polarization Behavior of Al-Zn-Mg-Cu-Zr Alloy. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2007, 38, 2843-2852.	1.1	42
34	Influence of circumferential notch and fatigue crack on the mechanical integrity of biodegradable magnesiumâ€based alloy in simulated body fluid. Journal of Biomedical Materials Research - Part B Applied Biomaterials, 2011, 96B, 303-309.	1.6	40
35	Polyoxadiazole-based coating for corrosion protection of magnesium alloy. Surface and Coatings Technology, 2008, 202, 4598-4601.	2.2	38
36	In vitro degradation behaviour of a friction stir processed magnesium alloy. Journal of Materials Science: Materials in Medicine, 2011, 22, 2397-2401.	1.7	38

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37	Corrosion and Wear Resistance of Microâ€Arc Oxidation Composite Coatings on Magnesium Alloy AZ31â€"The Influence of Inclusions of Carbon Spheres. Advanced Engineering Materials, 2019, 21, 1900446.	1.6	38
38	Biodegradable polymer for sealing porous PEO layer on pure magnesium: An in vitro degradation study. Applied Surface Science, 2014, 301, 463-467.	3.1	37
39	Improving the packing density of calcium phosphate coating on a magnesium alloy for enhanced degradation resistance. Journal of Biomedical Materials Research - Part A, 2013, 101A, 1248-1254.	2.1	34
40	Advances in bioorganic molecules inspired degradation and surface modifications on Mg and its alloys. Journal of Magnesium and Alloys, 2022, 10, 670-688.	5.5	33
41	Hybrid coating on a magnesium alloy for minimizing the localized degradation for load-bearing biodegradable mini-implant applications. Materials Chemistry and Physics, 2013, 142, 350-354.	2.0	30
42	Aqueous corrosion performance of nanostructured bainitic steel. Materials & Design, 2014, 54, 67-71.	5.1	30
43	Influence of living cells (L929) on the biodegradation of magnesiumâ€"calcium alloy. Colloids and Surfaces B: Biointerfaces, 2015, 126, 603-606.	2.5	26
44	Dual layer inorganic coating on magnesium for delaying the biodegradation for bone fixation implants. Materials Letters, 2014, 124, 188-191.	1.3	25
45	Low elastic modulus Tiâ€"Ta alloys for load-bearing permanent implants: Enhancing the biodegradation resistance by electrochemical surface engineering. Materials Science and Engineering C, 2015, 46, 226-231.	3.8	25
46	Biocompatibility and in Vitro Degradation Behavior of Magnesiumâ€"Calcium Alloy Coated with Calcium Phosphate Using an Unconventional Electrolyte. ACS Biomaterials Science and Engineering, 2016, 2, 56-64.	2.6	24
47	Determination of true stress corrosion cracking susceptibility index of a high strength Al alloy using glycerin as the non-corrosive atmosphere. Scripta Materialia, 2004, 51, 1075-1079.	2.6	23
48	Corrosion behavior of twinningâ€induced plasticity (TWIP) steel. Materials and Corrosion - Werkstoffe Und Korrosion, 2013, 64, 231-235.	0.8	23
49	Environmentally assisted cracking behavior of peak-aged 7010 aluminum alloy containing scandium. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2005, 36, 3257-3262.	1.1	22
50	Conversion of biowastes to biomaterial: An innovative waste management approach. Waste Management, 2017, 67, 67-72.	3.7	22
51	Understanding the influence of HEPES buffer concentration on the biodegradation of pure magnesium: An electrochemical study. Materials Chemistry and Physics, 2017, 197, 47-56.	2.0	20
52	Role of coarse intermetallic particles on the environmentally assisted cracking behavior of peak aged and over aged Alâ€"Znâ€"Mgâ€"Cuâ€"Zr alloy during slow strain rate testing. Journal of Materials Science, 2007, 42, 5458-5464.	1.7	18
53	Electrochemical surface engineering of magnesium metal by plasma electrolytic oxidation and calcium phosphate deposition: biocompatibility and <i>in vitro</i> degradation studies. RSC Advances, 2018, 8, 29189-29200.	1.7	18
54	A mechanistic <i>in vitro</i> study of the microgalvanic degradation of secondary phase particles in magnesium alloys. Journal of Biomedical Materials Research - Part A, 2015, 103, 990-1000.	2.1	17

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55	Biocompatibility and Degradation of a Low Elastic Modulus Ti-35Nb-3Zr Alloy: Nanosurface Engineering for Enhanced Degradation Resistance. ACS Biomaterials Science and Engineering, 2017, 3, 509-517.	2.6	17
56	Biodegradability of Î²-Mg17Al12 phase in simulated body fluid. Materials Letters, 2012, 82, 54-56.	1.3	16
57	Influence of the cathodic activity of magnesium alloys on the electrochemical deposition of calcium phosphate. Materials Letters, 2014, 130, 184-187.	1.3	16
58	A mechanistic study of <i>in vitro</i> degradation of magnesium alloy using electrochemical techniques. Journal of Biomedical Materials Research - Part A, 2010, 93A, 1050-1055.	2.1	15
59	Stress corrosion cracking (SCC) of aluminium alloys. , 2011, , 307-340.		15
60	Ion Implantation of Calcium and Zinc in Magnesium for Biodegradable Implant Applications. Metals, 2018, 8, 30.	1.0	15
61	Hydrogen permeation in twinning-induced plasticity (TWIP) steel. International Journal of Hydrogen Energy, 2018, 43, 22685-22693.	3.8	14
62	Antipsychotic drug waste: A potential corrosion inhibitor for mild steel in the oil and gas industry. Waste Management, 2022, 145, 38-47.	3.7	13
63	Stress corrosion cracking (SCC) of magnesium alloys. , 2011, , 341-380.		11
64	Plasma electrolytic oxidation/micro-arc oxidation ofÂmagnesium and its alloys. , 2015, , 193-234.		11
65	Self-dissolution assisted coating on magnesium metal for biodegradable bone fixation devices. Materials Research Express, 2014, 1, 045406.	0.8	10
66	Hydrogen Permeation in Nanostructured Bainitic Steel. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2016, 47, 4896-4903.	1.1	10
67	Calcium Phosphate Deposition on Magnesium Alloy for Bioimplant Applications. Materials Science Forum, 2010, 654-656, 2196-2199.	0.3	9
68	Galvanostatic polymerisation of aniline on steel: Improving the coating performance in chloride-containing environment. Synthetic Metals, 2013, 180, 54-58.	2.1	8
69	Selective Dissolution of Retained Austenite in Nanostructured Bainitic Steels. Advanced Engineering Materials, 2014, 16, 442-444.	1.6	8
70	Biodegradable polymeric coatings for surface modification of magnesium-based biomaterials. , 2015, , 355-376.		8
71	Effect of cathodic hydrogen-charging current density on the hydrogen diffusivity in nanostructured bainitic steels. Materials Science and Technology, 2017, 33, 1548-1552.	0.8	8
72	Stress corrosion cracking (SCC) of copper and copper-based alloys. , 2011, , 409-426.		7

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73	Electropolymerisation of Aniline on AZ91 Magnesium Alloy: The Effect of Coating Electrolyte Corrosiveness. Metals, 2017, 7, 533.	1.0	7
74	In vitro degradation and biocompatibility of vitamin C loaded Ca-P coating on a magnesium alloy for bioimplant applications. Corrosion Communications, 2022, 6, 16-28.	2.7	7
75	Corrosion resistance of Mg-Al-LDH steam coating on AZ80 Mg alloy: Effects of citric acid pretreatment and intermetallic compounds. Journal of Magnesium and Alloys, 2023, 11, 2967-2979.	5.5	6
76	Optimising parameters for galvanostatic polyaniline coating on nanostructured bainitic steel. Surface Engineering, 2016, 32, 607-614.	1.1	5
77	Biodegradable 3D porous zinc alloy scaffold for bone fracture fixation devices. Medical Devices & Sensors, 2020, 3, e10108.	2.7	5
78	Enhancing the Localized Corrosion Resistance of High Strength 7010 Al-Alloy. Advanced Materials Research, 0, 138, 1-6.	0.3	4
79	A tripleâ€layered hybrid coating with selfâ€organized microporous polymer film on magnesium for biodegradable implant applications. Medical Devices & Sensors, 2020, 3, e10070.	2.7	4
80	ENVIRONMENTALLY-ASSISTED CRACKING OF ENGINEERING MATERIALS - AN INSIGHT. Corrosion Reviews, 2009, 27, 147-180.	1.0	3
81	Effects of process parameters on the adhesive strength of copper electrodeposits in a bench-scale electrowinning cell. Institutions of Mining and Metallurgy Transactions Section C: Mineral Processing and Extractive Metallurgy, 2016, 125, 10-16.	0.6	3
82	Electrochemical Corrosion Behaviour of ZE41 and QE22 Magnesium Alloys. Materials Science Forum, 0, 690, 385-388.	0.3	2
83	Hydrogen depth profiles and microhardness of electrochemically hydrogen-charged nanostructured bainitic steels. International Journal of Hydrogen Energy, 2019, 44, 14064-14069.	3.8	2
84	Recent Approaches for Enhancing Corrosion Resistance of PEO/MAO-Coated Mg and Its Alloys. , 2022, , 465-488.		2
85	Laser assisted surface modification of AZ91 alloy: Microstructural and electrochemical study. Transactions of the Indian Institute of Metals, 2008, 61, 121-124.	0.7	1
86	Nanoscience and biomaterial corrosion control. , 2012, , 375-392.		1
87	Electrochemical Corrosion Behaviour of WE54 Magnesium Alloy. Materials Science Forum, 2013, 765, 644-647.	0.3	1
88	Magnesium Alloys as Biodegradable Implants. Materials Science Forum, 2009, 618-619, 83-86.	0.3	0
89	Role of Recrystallized Grains on the Environment-Assisted Cracking of Aluminium-Alloy. Materials Science Forum, 2013, 753, 489-492.	0.3	0