Afrooz Barnoush

List of Publications by Year
in descending order

96 papers	3,138 citations	147566 31 h-index	174990 52 g-index
97 all docs	97 docs citations	97 times ranked	2225 citing authors

#	Article	IF	Citations
1	Assessment of hydrogen embrittlement on advanced high strength steels revealed by in-situ electrochemical micro-cantilever bending test. International Journal of Hydrogen Energy, 2022, 47, 10112-10121.	3.8	8
2	Role of grain boundaries in hydrogen embrittlement of alloy 725: single and bi-crystal microcantilever bending study. International Journal of Hydrogen Energy, 2022, 47, 12771-12781.	3.8	7
3	Evaluation of the cementite morphology influence on the hydrogen induced crack nucleation and propagation path in carbon steels. International Journal of Hydrogen Energy, 2022, 47, 14121-14129.	3.8	6
4	Hydrogen assisted intergranular cracking of alloy 725: The effect of boron and copper alloying. Corrosion Science, 2022, 203, 110331.	3.0	8
5	In situ electrochemical nanoindentation of a nickel (111) single crystal: hydrogen effect on pop-in behaviour. International Journal of Materials Research, 2022, 97, 1224-1229.	0.1	4
6	Experimental and Numerical Investigation of Hydrogen Embrittlement Effect on Microdamage Evolution of Advanced High-Strength Dual-Phase Steel. Metals and Materials International, 2021, 27, 2276-2291.	1.8	26
7	Antagonist softening and hardening effects of hydrogen investigated using nanoindentation on cyclically pre-strained nickel single crystal. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2021, 803, 140480.	2.6	7
8	The influence of hydrogen on cyclic plasticity of <001> oriented nickel single crystal. Part I: Dislocation organisations and internal stresses. International Journal of Plasticity, 2020, 126, 102611.	4.1	14
9	Macro- and microscale investigations of hydrogen embrittlement in X70 pipeline steel by in-situ and ex-situ hydrogen charging tensile tests and in-situ electrochemical micro-cantilever bending test. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2020, 772, 138762.	2.6	27
10	The role of graphene oxide interlayer on corrosion barrier and bioactive properties of electrophoretically deposited ZrO2â€“10Âat. % SiO2 composite coating on 316ÂL stainless steel. Materials Science and Engineering C, 2020, 117, 111342.	3.8	14
11	Hydrogen-enhanced intergranular failure of sulfur-doped nickel grain boundary: In situ electrochemical micro-cantilever bending vs.ÂDFT. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2020, 794, 139967.	2.6	27
12	The effect of hydrogen on the crack initiation site of TRIP-assisted steels during in-situ hydrogen plasma micro-tensile testing: Leading to an improved ductility?. Materials Characterization, 2020, 167, 110493.	1.9	14
13	3D-Focused ion beam tomography and quantitative porosity evaluation of ZrO2-SiO2 composite coating; amorphous SiO2 as a porosity tailoring agent. Applied Surface Science, 2020, 511, 145567.	3.1	15
14	The Effect of Hydrogen on the Nanoindentation Behavior of Heat Treated 718 Alloy. Metals, 2020, 10, 1451.	1.0	2
15	Atomic defects in monolayer ordered double transition metal carbide (Mo₂TiC₂T_x) MXene and CO₂ adsorption. Journal of Materials Chemistry C, 2020, 8, 4771-4779.	2.7	73
16	Temperature-dependent mechanical properties of Ti_{n+1}C_nO₂ (<i>n</i> = 1, 2) MXene monolayers: a first-principles study. Physical Chemistry Chemical Physics, 2020, 22, 3414-3424.	1.3	35
17	In-situ observation of martensitic transformation in an interstitial metastable high-entropy alloy during cathodic hydrogen charging. Scripta Materialia, 2019, 173, 56-60.	2.6	35
18	Hydrogen susceptibility of an interstitial equimolar high-entropy alloy revealed by in-situ electrochemical microcantilever bending test. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2019, 762, 138114.	2.6	21

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19	In-situ microscale examination of hydrogen effect on fracture toughness: A case study on B2 and D03 ordered iron aluminides intermetallic alloys. Engineering Fracture Mechanics, 2019, 217, 106551.	2.0	10
20	Electrophoretic deposition and corrosion performance of Zirconia-Silica composite coating applied on surface treated 316L stainless steel: Toward improvement of interface structure. Surface and Coatings Technology, 2019, 380, 125015.	2.2	15
21	Effect of electrochemical charging on the hydrogen embrittlement susceptibility of alloy 718. Acta Materialia, 2019, 179, 36-48.	3.8	55
22	Hydrogen enhanced fatigue crack growth rates in a ferritic Fe-3â€¯wt%Si alloy and a X70 pipeline steel. Engineering Fracture Mechanics, 2019, 219, 106641.	2.0	33
23	CO₂ Adsorption and Activation on the (110) Chalcopyrite Surfaces: AÂDispersion-Corrected DFT + <i>U</i> Study. ACS Omega, 2019, 4, 15935-15946.	1.6	6
24	Insight into hydrogen effect on a duplex medium-Mn steel revealed by in-situ nanoindentation test. International Journal of Hydrogen Energy, 2019, 44, 20545-20551.	3.8	37
25	Temperature-dependent properties of magnetic CuFeS2 from first-principles calculations: Structure, mechanics, and thermodynamics. AIP Advances, 2019, 9, 065021.	0.6	11
26	Rheological properties of super critical CO2 with Al2O3: Material type, size and temperature effect. Journal of Molecular Liquids, 2019, 289, 111037.	2.3	11
27	In situ small-scale mechanical testing under extreme environments. MRS Bulletin, 2019, 44, 471-477.	1.7	33
28	Neutron diffraction study of temperature-dependent elasticity of B19â€² NiTi---Elinvar effect and elastic softening. Acta Materialia, 2019, 173, 281-291.	3.8	24
29	Stabilization of 2D graphene, functionalized graphene, and Ti2CO2 (MXene) in super-critical CO2: a molecular dynamics study. Physical Chemistry Chemical Physics, 2019, 21, 12968-12976.	1.3	13
30	Small scale testing approach to reveal specific features of slip behavior in BCC metals. Acta Materialia, 2019, 174, 142-152.	3.8	5
31	Hydrogen-enhanced fatigue crack growth in a single-edge notched tensile specimen under in-situ hydrogen charging inside an environmental scanning electron microscope. Acta Materialia, 2019, 170, 87-99.	3.8	50
32	Assessment of the potential of hydrogen plasma charging as compared to conventional electrochemical hydrogen charging on dual phase steel. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2019, 754, 613-621.	2.6	33
33	Hydrogen-enhanced fatigue crack growth behaviors in a ferritic Fe-3wt%Si steel studied by fractography and dislocation structure analysis. International Journal of Hydrogen Energy, 2019, 44, 5030-5042.	3.8	16
34	Effect of hydrogen-induced surface steps on the nanomechanical behavior of a CoCrFeMnNi high-entropy alloy revealed by in-situ electrochemical nanoindentation. Intermetallics, 2019, 114, 106605.	1.8	30
35	Effect of hydrogen on nanomechanical properties in Fe-22Mn-0.6C TWIP steel revealed by in-situ electrochemical nanoindentation. Acta Materialia, 2019, 166, 618-629.	3.8	57
36	Plasticity in cryogenic brittle fracture of ferritic steels: Dislocation versus twinning. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2019, 744, 335-339.	2.6	14

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37	Calcareous scales deposited in the organic coating defects during artificial seawater cathodic protection: Effect of zinc cations. Journal of Alloys and Compounds, 2019, 784, 744-755.	2.8	26
38	Effect of nickel on hydrogen permeation in ferritic/pearlitic low alloy steels. International Journal of Hydrogen Energy, 2018, 43, 3845-3861.	3.8	39
39	Hydrogen embrittlement effect observed by in-situ hydrogen plasma charging on a ferritic alloy. Scripta Materialia, 2018, 151, 24-27.	2.6	36
40	In situ micromechanical testing in environmental scanning electron microscope: A new insight into hydrogen-assisted cracking. Acta Materialia, 2018, 144, 257-268.	3.8	32
41	Hydrogen embrittlement revealed via novel in situ fracture experiments using notched micro-cantilever specimens. Acta Materialia, 2018, 142, 236-247.	3.8	94
42	Vacancy effects on the mechanical behavior of B2-FeAl intermetallics. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2018, 712, 88-96.	2.6	12
43	Hydrogen Enhanced Fatigue Crack Growth Rates in a Ferritic Fe-3wt%Si Alloy. Procedia Structural Integrity, 2018, 13, 1514-1520.	0.3	4
44	Rheological properties of super critical CO2 with CuO: Multi-scale computational modeling. Journal of Chemical Physics, 2018, 149, 224702.	1.2	12
45	Hydrogen-assisted fatigue crack growth in ferritic steels â€“ a fractographic study. MATEC Web of Conferences, 2018, 165, 03004.	0.1	2
46	In situ small-scale hydrogen embrittlement testing made easy: An electrolyte for preserving surface integrity at nano-scale during hydrogen charging. International Journal of Hydrogen Energy, 2018, 43, 12516-12529.	3.8	18
47	In situ electrochemical microcantilever bending test: A new insight into hydrogen enhanced cracking. Scripta Materialia, 2017, 132, 17-21.	2.6	76
48	Effect of hydrogen on dislocation nucleation in alloy 718. International Journal of Hydrogen Energy, 2017, 42, 15933-15942.	3.8	36
49	Hydrogen enhanced cracking studies on Feâ€“3wt%Si single and bi-crystal microcantilevers. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2017, 375, 20160410.	1.6	5
50	Hydrogen-enhanced cracking revealed by in situ micro-cantilever bending test inside environmental scanning electron microscope. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2017, 375, 20170106.	1.6	9
51	Materials and corrosion trends in offshore and subsea oil and gas production. Npj Materials Degradation, 2017, 1, .	2.6	80
52	In-situ micro-cantilever bending test in environmental scanning electron microscope: Real time observation of hydrogen enhanced cracking. Scripta Materialia, 2017, 127, 19-23.	2.6	56
53	A Review on the Properties of Iron Aluminide Intermetallics. Crystals, 2016, 6, 10.	1.0	147
54	Fracture assessment of graphite components weakened by rounded V-notches and subjected to static multiaxial loading. Procedia Structural Integrity, 2016, 2, 1805-1812.	0.3	3

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55	Fracture assessment of polymethyl methacrylate using sharp notched disc bend specimens under mixed mode I + III loading. Physical Mesomechanics, 2016, 19, 355-364.	1.0	68
56	Mechanical behavior of iron aluminides: A comparison of nanoindentation, compression and bending of micropillars. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2016, 652, 370-376.	2.6	12
57	Effect of hydrogen on the hardness of different phases in super duplex stainless steel. International Journal of Hydrogen Energy, 2016, 41, 704-712.	3.8	37
58	Correlation between the hydrogen chemical potential and pop-in load during in situ electrochemical nanoindentation. Scripta Materialia, 2015, 108, 76-79.	2.6	28
59	Micromechanical Testing of Fracture Initiation Sites in Welded High-Strength Low-Alloy Steel. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2014, 45, 1996-2003.	1.1	5
60	Chemically Induced Phase Transformation in Austenite by Focused Ion Beam. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2014, 45, 1189-1198.	1.1	24
61	Microstructural Analysis of Electrochemical Coated Openâ€Cell Metal Foams by <scp>EBSD</scp> and Nanoindentation. Advanced Engineering Materials, 2014, 16, 15-20.	1.6	27
62	An Overview of the Hydrogen Embrittlement of Iron Aluminides. , 2014, 3, 2016-2023.		17
63	Oxygen argon plasma treatment effect on hydrogen uptake in austenitic stainless steels. International Journal of Hydrogen Energy, 2014, 39, 14120-14131.	3.8	9
64	Effect of chromium on the electrochemical properties of iron aluminide intermetallics. Corrosion Science, 2014, 78, 223-232.	3.0	28
65	Hydrogen effect on dislocation nucleation in a ferritic alloy Feâ€“15Cr as observed per nanoindentation. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2014, 604, 86-91.	2.6	12
66	Cr effect on hydrogen embrittlement of Fe3Al-based iron aluminide intermetallics: Surface or bulk effect. Acta Materialia, 2014, 69, 210-223.	3.8	39
67	Orientation Relationships and Texture of the Iron-Nitride Phase Constituents in Pulsed Plasma Nitriding. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2013, 44, 4700-4708.	1.1	2
68	Alpha alumina synthesis by laser treatment of bi-phasic nanowires. Applied Surface Science, 2013, 278, 82-85.	3.1	7
69	Nanomechanical characterization of the hydrogen effect on pulsed plasma nitrided super duplex stainless steel. International Journal of Hydrogen Energy, 2013, 38, 15520-15531.	3.8	23
70	Hydrogen Effect on Nanomechanical Properties of the Nitrided Steel. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2013, 44, 766-775.	1.1	13
71	Small-scale structural and mechanical characterization of the nitrided layer in martensitic steel. Tribology International, 2013, 61, 109-115.	3.0	10
72	An insight into the role of the grain boundary in plastic deformation by means of a bicrystalline pillar compression test and atomistic simulation. Acta Materialia, 2013, 61, 7454-7465.	3.8	57

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73	Effect of chromium on elastic and plastic deformation of Fe3Al intermetallics. Intermetallics, 2013, 41, 28-34.	1.8	26
74	Atomistic Study of Hydrogen Effect on Dislocation Nucleation at Crack Tip. Advanced Engineering Materials, 2013, 15, 1146-1151.	1.6	10
75	Novel methods for micromechanical examination of hydrogen and grain boundary effects on dislocations. Philosophical Magazine, 2012, 92, 3216-3230.	0.7	18
76	Effect of substitutional solid solution on dislocation nucleation in Fe₃Al intermetallic alloys. Philosophical Magazine, 2012, 92, 3257-3268.	0.7	17
77	Mechanics of modern test methods and quantitative-accelerated testing for hydrogen embrittlement. , 2012, , 237-273.		6
78	Nanomechanical evaluation of the protectiveness of nitrided layers against hydrogen embrittlement. Corrosion Science, 2012, 62, 51-60.	3.0	17
79	Correlation between dislocation density and nanomechanical response during nanoindentation. Acta Materialia, 2012, 60, 1268-1277.	3.8	116
80	Resolving the hydrogen effect on dislocation nucleation and mobility by electrochemical nanoindentation. Scripta Materialia, 2012, 66, 414-417.	2.6	100
81	Impact of selective oxidation during inline annealing prior to hot-dip galvanizing on Zn wetting and hydrogen-induced delayed cracking of austenitic FeMnC steel. Surface and Coatings Technology, 2011, 206, 542-552.	2.2	32
82	Microstructural characterization of pulsed plasma nitrided 316L stainless steel. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2011, 529, 425-434.	2.6	56
83	Calculation of all cubic single-crystal elastic constants from single atomistic simulation: Hydrogen effect and elastic constants of nickel. Computer Physics Communications, 2011, 182, 1621-1625.	3.0	26
84	Investigation of the role of grain boundary on the mechanical properties of metals. Journal of Physics: Conference Series, 2010, 240, 012017.	0.3	13
85	Direct observation of hydrogen-enhanced plasticity in super duplex stainless steel by means of in situ electrochemical methods. Scripta Materialia, 2010, 62, 242-245.	2.6	48
86	Correlation between dislocation density and pop-in phenomena in aluminum studied by nanoindentation and electron channeling contrast imaging. Scripta Materialia, 2010, 63, 465-468.	2.6	61
87	Recent developments in the study of hydrogen embrittlement: Hydrogen effect on dislocation nucleation. Acta Materialia, 2010, 58, 5274-5285.	3.8	331
88	Examination of hydrogen embrittlement in FeAl by means of in situ electrochemical micropillar compression and nanoindentation techniques. Intermetallics, 2010, 18, 1385-1389.	1.8	48
89	In situ electrochemical nanoindentation of FeAl (100) single crystal: Hydrogen effect on dislocation nucleation. Journal of Materials Research, 2009, 24, 1105-1113.	1.2	32
90	Hydrogen embrittlement of aluminum in aqueous environments examined by in situ electrochemical nanoindentation. Scripta Materialia, 2008, 58, 747-750.	2.6	38

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91	In situ electrochemical nanoindentation: A technique for local examination of hydrogen embrittlement. Corrosion Science, 2008, 50, 259-267.	3.0	91
92	Mechanical Properties of Nanomaterials Examined with a NI-AFM. Zeitschrift Fur Physikalische Chemie, 2008, 222, 499-525.	1.4	13
93	Effect of Hydrogen and Grain Boundaries on Dislocation Nucleation and Multiplication Examined with a NI-AFM. , 2008, , 253-269.		17
94	Mechanical Properties of Nanomaterials Examined with a NI-AFM. , 2008, , 275-301.		0
95	In situ electrochemical nanoindentation of a nickel (111) single crystal: hydrogen effect on pop-in behaviour. International Journal of Materials Research, 2006, 97, 1224-1229.	0.1	22
96	Electrochemical nanoindentation: A new approach to probe hydrogen/deformation interaction. Scripta Materialia, 2006, 55, 195-198.	2.6	99