

Werner Ecker

List of Publications by Year in descending order

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93
papers

1,555
citations

279798

23
h-index

361022

35
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94
all docs

94
docs citations

94
times ranked

1051
citing authors

#	ARTICLE	IF	CITATIONS
1	X-ray nanodiffraction reveals strain and microstructure evolution in nanocrystalline thin films. Scripta Materialia, 2012, 67, 748-751.	5.2	103
2	X-ray analysis of residual stress gradients in TiN coatings by a Laplace space approach and cross-sectional nanodiffraction: a critical comparison. Journal of Applied Crystallography, 2013, 46, 1378-1385.	4.5	78
3	Finite element study of the influence of hard coatings on hard metal tool loading during milling. Surface and Coatings Technology, 2016, 304, 134-141.	4.8	57
4	X-ray nanodiffraction reveals stress distribution across an indented multilayered CrN/Cr thin film. Acta Materialia, 2015, 85, 24-31.	7.9	53
5	In-situ Observation of Cross-Sectional Microstructural Changes and Stress Distributions in Fracturing TiN Thin Film during Nanoindentation. Scientific Reports, 2016, 6, 22670.	3.3	52
6	Critical assessment of the determination of residual stress profiles in thin films by means of the ion beam layer removal method. Thin Solid Films, 2014, 564, 321-330.	1.8	51
7	Experimental and numerical investigations of the Ni_3Al and Ni_3Ti precipitation kinetics in Alloy 718. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2018, 723, 314-323.	5.6	50
8	Microstructural based hydrogen diffusion and trapping models applied to Fe-C-X alloys. Journal of Alloys and Compounds, 2020, 826, 154057.	5.5	50
9	Model-based interpretation of thermal desorption spectra of Fe-C-Ti alloys. Journal of Alloys and Compounds, 2019, 789, 647-657.	5.5	47
10	The influence of alloying on Zn liquid metal embrittlement in steels. Acta Materialia, 2020, 195, 750-760.	7.9	45
11	Hydrogen Trapping in bcc Iron. Materials, 2020, 13, 2288.	2.9	42
12	Lateral gradients of phases, residual stress and hardness in a laser heated Ti0.52Al0.48N coating on hard metal. Surface and Coatings Technology, 2012, 206, 4502-4510.	4.8	37
13	Hydrogen-enhanced decohesion mechanism of the special $\frac{1}{2}\langle 10\bar{1}2 \rangle [100]$ grain boundary in Ni with Mo and C solutes. Computational Materials Science, 2019, 167, 100-110.	3.0	37
14	Grain boundary segregation in Ni-base alloys: A combined atom probe tomography and first principles study. Acta Materialia, 2021, 221, 117354.	7.9	37
15	FE temperature- and residual stress prediction in milling inserts and correlation with experimentally observed damage mechanisms. Journal of Materials Processing Technology, 2018, 256, 98-108.	6.3	36
16	A microstructural based creep model applied to alloy 718. International Journal of Plasticity, 2018, 105, 62-73.	8.8	36
17	Kinetics of interaction of impurity interstitials with dislocations revisited. Progress in Materials Science, 2019, 101, 172-206.	32.8	34
18	Thermodynamic and mechanical stability of Ni ₃ X-type intermetallic compounds. Intermetallics, 2019, 114, 106604.	3.9	33

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19	Thermal crack formation in TiCN/Al ₂ O ₃ bilayer coatings grown by thermal CVD on WC-Co substrates with varied Co content. <i>Surface and Coatings Technology</i> , 2020, 392, 125687.	4.8	32
20	Hydrogen-enhanced intergranular failure of sulfur-doped nickel grain boundary: In situ electrochemical micro-cantilever bending vs. ADF-TEM. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2020, 794, 139967.	5.6	27
21	Cyclic heat-up and damage-relevant substrate plastification of single- and bilayer coated milling inserts evaluated numerically. <i>Surface and Coatings Technology</i> , 2019, 360, 39-49.	4.8	26
22	Effect of alloying elements on hydrogen enhanced decohesion in bcc iron. <i>Computational Materials Science</i> , 2021, 188, 110215.	3.0	25
23	Residual stress and microstructure depth gradients in nitrided iron-based alloys revealed by dynamical cross-sectional transmission X-ray microdiffraction. <i>Acta Materialia</i> , 2015, 87, 100-110.	7.9	24
24	Stress relaxation through thermal crack formation in CVD TiCN coatings grown on WC-Co with different Co contents. <i>International Journal of Refractory Metals and Hard Materials</i> , 2020, 86, 105102.	3.8	24
25	On the local evaluation of the hydrogen susceptibility of cold-formed and heat treated advanced high strength steel (AHSS) sheets. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2021, 800, 140276.	5.6	24
26	Effect of shot peening on residual stresses and crack closure in CVD coated hard metal cutting inserts. <i>International Journal of Refractory Metals and Hard Materials</i> , 2019, 82, 174-182.	3.8	23
27	Cycled hydrogen permeation through Armco iron – A joint experimental and modeling approach. <i>Corrosion Science</i> , 2020, 176, 109017.	6.6	23
28	Shot peening-induced plastic deformation of individual phases within a coated WC-Co hard metal composite material including stress-strain curves for WC as a function of temperature. <i>Surface and Coatings Technology</i> , 2019, 380, 125026.	4.8	18
29	Nanoscale evolution of stress concentrations and crack morphology in multilayered CrN coating during indentation: Experiment and simulation. <i>Materials and Design</i> , 2020, 188, 108478.	7.0	18
30	Local hydrogen accumulation after cold forming and heat treatment in punched advanced high strength steel sheets. <i>Journal of Alloys and Compounds</i> , 2021, 856, 158226.	5.5	18
31	Hydrogen segregation near a crack tip in nickel. <i>Scripta Materialia</i> , 2021, 194, 113697.	5.2	18
32	Tensile stresses in fine blanking tools and their relevance to tool fracture behavior. <i>International Journal of Machine Tools and Manufacture</i> , 2018, 126, 44-50.	13.4	17
33	Verification of the generalised chemical potential for stress-driven hydrogen diffusion in nickel. <i>Philosophical Magazine Letters</i> , 2020, 100, 513-523.	1.2	16
34	LES-VOF Simulation and POD Analysis of the Gas Jet Wiping Process in Continuous Galvanizing Lines. <i>Steel Research International</i> , 2018, 89, 1700362.	1.8	15
35	Residual stress and microstructure evolution in steel tubes for different cooling conditions – Simulation and verification. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2019, 747, 73-79.	5.6	14
36	An SEM compatible plasma cell for <i>in situ</i> studies of hydrogen-material interaction. <i>Review of Scientific Instruments</i> , 2020, 91, 043705.	1.3	13

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37	Differences in evolution of temperature, plastic deformation and wear in milling tools when up-milling and down-milling Ti6Al4V. <i>Journal of Manufacturing Processes</i> , 2022, 77, 75-86.	5.9	12
38	Thermal fatigue behaviour of hot-work tool steels: heat check nucleation and growth. <i>International Journal of Microstructure and Materials Properties</i> , 2008, 3, 182.	0.1	11
39	Cross-sectional stress distribution in Al x Ga 1-x N heterostructure on Si(111) substrate characterized by ion beam layer removal method and precession electron diffraction. <i>Materials and Design</i> , 2016, 106, 476-481.	7.0	11
40	Strength ranking for interfaces between a TiN hard coating and microstructural constituents of high speed steel determined by micromechanical testing. <i>Materials and Design</i> , 2021, 204, 109690.	7.0	11
41	Addressing H-Material Interaction in Fast Diffusion Materials – A Feasibility Study on a Complex Phase Steel. <i>Materials</i> , 2020, 13, 4677.	2.9	10
42	Strain ratcheting limit stresses as a function of microstructure of WC-Co hardmetals under uniaxial cyclic loads under a stress ratio of $R = \frac{\sigma_{min}}{\sigma_{max}}$ at elevated temperatures. <i>International Journal of Refractory Metals and Hard Materials</i> , 2022, 102, 105699.	3.8	10
43	Creep behaviour of WC-12wt% Co hardmetals with different WC grain sizes tested in uniaxial tensile and compression step-loading tests at 700°C and 800°C. <i>International Journal of Refractory Metals and Hard Materials</i> , 2021, 100, 105633.	3.8	10
44	The effect of solute atoms on the bulk and grain boundary cohesion in Ni: Implications for hydrogen embrittlement. <i>Materialia</i> , 2022, 21, 101293.	2.7	10
45	Verification of a continuum mechanical explanation of plasticity-induced crack closure under plain strain conditions by means of finite element analysis. <i>Engineering Fracture Mechanics</i> , 2012, 96, 762-765.	4.3	9
46	A physical reason for asymmetric creep deformation behaviour of WC-Co hardmetal under tension and compression loading at 700°C and 800°C. <i>International Journal of Refractory Metals and Hard Materials</i> , 2021, 97, 105526.	3.8	9
47	Size Effects in Residual Stress Formation during Quenching of Cylinders Made of Hot-Work Tool Steel. <i>Advances in Materials Science and Engineering</i> , 2015, 2015, 1-7.	1.8	8
48	Error Analysis for Finite Element Simulation of Orthogonal Cutting and its Validation Via Quick Stop Experiments. <i>Machining Science and Technology</i> , 2015, 19, 460-478.	2.5	8
49	Analysis of shape, orientation and interface properties of Mo ₂ C precipitates in Fe using ab-initio and finite element method calculations. <i>Acta Materialia</i> , 2021, 204, 116478.	7.9	8
50	Experimentelle und numerische Untersuchung des induktiven Anlassens eines Vergütungsstahles*. <i>HTM - Journal of Heat Treatment and Materials</i> , 2017, 72, 199-204.	0.2	8
51	Hydrogen assisted intergranular cracking of alloy 725: The effect of boron and copper alloying. <i>Corrosion Science</i> , 2022, 203, 110331.	6.6	8
52	Using Finite Element Simulation to Optimize the Heat Treatment of Tire Protection Chains. <i>Journal of Materials Engineering and Performance</i> , 2014, 23, 1288-1295.	2.5	7
53	Numerical calibration of a yield limit function for rock materials by means of the Brazilian test and the uniaxial compression test. <i>International Journal of Rock Mechanics and Minings Sciences</i> , 2015, 74, 24-29.	5.8	7
54	Thermo-chemical Fluid Flow Simulation in Hot-Dip Galvanizing: The Evaluation of Dross Build-Up Formation. <i>Metallurgical and Materials Transactions B: Process Metallurgy and Materials Processing Science</i> , 2019, 50, 834-845.	2.1	7

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55	Correlative cross-sectional characterization of nitrided, carburized and shot-peened steels: synchrotron micro-X-ray diffraction analysis of stress, microstructure and phase gradients. Journal of Materials Research and Technology, 2021, 11, 1396-1410.	5.8	7
56	Validated Multi-Physical Finite Element Modelling of the Spot Welding Process of the Advanced High Strength Steel DP1200HD. Materials, 2021, 14, 5411.	2.9	7
57	Damage indicators for early fatigue damage assessment in WC-Co hardmetals under uniaxial cyclic loads at a stress ratio of $RA=1$ at elevated temperatures. International Journal of Refractory Metals and Hard Materials, 2022, 103, 105749.	3.8	7
58	Cu-SiO ₂ hybrid bonding simulation including surface roughness and viscoplastic material modeling: A critical comparison of 2D and 3D modeling approach. Microelectronics Reliability, 2018, 86, 1-9.	1.7	6
59	Dark-field X-ray microscopy reveals mosaicity and strain gradients across sub-surface TiC and TiN particles in steel matrix composites. Scripta Materialia, 2020, 187, 402-406.	5.2	6
60	Micromechanics-based damage model for liquid-assisted healing. International Journal of Damage Mechanics, 2021, 30, 123-144.	4.2	6
61	Liquid Metal Embrittlement of Advanced High Strength Steel: Experiments and Damage Modeling. Materials, 2021, 14, 5451.	2.9	6
62	Analysis of Sn-Bi Solders: X-ray Micro Computed Tomography Imaging and Microstructure Characterization in Relation to Properties and Liquid Phase Healing Potential. Materials, 2021, 14, 153.	2.9	6
63	Thermodynamic trapping and diffusion model for multiple species in systems with multiple sorts of traps. Acta Materialia, 2022, 233, 117940.	7.9	6
64	Resolving alternating stress gradients and dislocation densities across Al _x Ga _{1-x} N multilayer structures on Si(111). Applied Physics Letters, 2017, 111, 162103.	3.3	5
65	Influence of localized cyclic substrate plastification on residual stress, load stress and cracking near the interface between hard coating and WC-Co hard metal substrate. International Journal of Refractory Metals and Hard Materials, 2019, 82, 113-120.	3.8	5
66	An atomistic view on Oxygen, antisites and vacancies in the $\langle \text{TiAl} \rangle$ phase. Computational Materials Science, 2021, 197, 110655.	3.0	5
67	On the transition of failure control from material-intrinsic defects to defects forming during monotonically increasing and cyclic mechanical loading in WC-Co hard metal at elevated temperature. Acta Materialia, 2022, 235, 118087.	7.9	5
68	Numerical Simulation of Crack Growth in Polyethylene Composites by Means of the Cohesive Zone Model. Macromolecular Symposia, 2012, 311, 1-8.	0.7	4
69	Inverse Model for the Control of Induction Heat Treatments. Materials, 2019, 12, 2826.	2.9	4
70	Nanoscale stress distributions and microstructural changes at scratch track cross-sections of a deformed brittle-ductile CrN-Cr bilayer. Materials and Design, 2020, 195, 109023.	7.0	4
71	Elasto-Viscoplastic Material Model of a Directly-Cast Low-Carbon Steel at High Temperatures. Materials, 2020, 13, 2281.	2.9	4
72	Effect of solder joint size and composition on liquid-assisted healing. Microelectronics Reliability, 2021, 119, 114066.	1.7	4

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73	Model-Based Residual Stress Design in Multiphase Seamless Steel Tubes. <i>Materials</i> , 2020, 13, 439.	2.9	4
74	Simulation and experimental characterization of microporosity during solidification in Sn-Bi alloys. <i>Materials and Design</i> , 2021, 212, 110258.	7.0	4
75	Fatigue damage mechanisms and damage evolution near cyclically loaded edges. <i>Bulletin of the Polish Academy of Sciences: Technical Sciences</i> , 2010, 58, .	0.8	3
76	Finite element modeling of the residual stress evolution in forged and direct-aged alloy 718 turbine disks during manufacturing and its experimental validation. <i>AIP Conference Proceedings</i> , 2017, , .	0.4	3
77	Matching in-situ and ex-situ recorded stress gradients in an Al _x Ga _{1-x} N Heterostructure: Complementary wafer curvature analyses in time and space. <i>Scripta Materialia</i> , 2018, 147, 50-54.	5.2	3
78	Numerical study on local effects of composition and geometry in self-healing solders. , 2019, , .		3
79	Hybrid modeling of induction hardening processes. <i>Applications in Engineering Science</i> , 2021, 5, 100030.	0.8	3
80	Combined experimental and numerical analysis of critical loading conditions for hard metal tool damage in titanium milling. <i>Journal of Manufacturing Processes</i> , 2022, 77, 125-137.	5.9	3
81	Calibration and Validation of an Elasto-Viscoplastic Material Model for a Hot Work Tool Steel Used in Pressure Casting Dies. <i>Key Engineering Materials</i> , 2007, 345-346, 685-688.	0.4	2
82	Interaction of Heat Checks in Aluminum Pressure Casting Dies and their Effect on Fatigue Life. <i>Key Engineering Materials</i> , 0, 488-489, 626-629.	0.4	2
83	Different Microstructures in the HAZ of Double Submerged Arc Welded Pipelines and How They Influence the Fatigue Crack Growth. , 2013, , .		2
84	Healing solders: A numerical investigation of damage-healing experiments. , 2020, , .		2
85	Calibration and Validation of an Elasto-Viscoplastic Material Model for a Hot Work Tool Steel Used in Pressure Casting Dies. <i>Key Engineering Materials</i> , 0, , 685-688.	0.4	2
86	Defect initiation and accumulation kinetics in hard-coated WC-Co hardmetal under multi-axial loads at elevated temperature in a novel ball-in-cone test setup. <i>International Journal of Refractory Metals and Hard Materials</i> , 2022, 104, 105785.	3.8	2
87	The cyclic elasto-viscoplastic behavior of a high-speed steel under forging conditions - experiments and simulations. <i>Procedia Engineering</i> , 2011, 10, 1991-1996.	1.2	1
88	Deep drawing of press hardening steels. <i>Journal of Physics: Conference Series</i> , 2018, 1063, 012038.	0.4	1
89	Selected Topics on Integrated Computational Material, Process, and Product Engineering. <i>BHM-Zeitschrift Fuer Rohstoffe Geotechnik Metallurgie Werkstoffe Maschinen-Und Anlagentechnik</i> , 2022, 167, 10-14.	1.0	1
90	Methodology for Advanced Tool Load Analysis. <i>BHM-Zeitschrift Fuer Rohstoffe Geotechnik Metallurgie Werkstoffe Maschinen-Und Anlagentechnik</i> , 2014, 159, 380-384.	1.0	0

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91	Experimental and computational approach to evaluate the effect of leveling on the change of tensile properties of heavy steel plates. AIP Conference Proceedings, 2017, , .	0.4	0
92	Lap shear test for solder materials: Local stress states and their effect on deformation and damage. Microelectronics Reliability, 2020, 109, 113655.	1.7	0
93	Modelling of Void Collapse with Molecular Dynamics in Pure Sn. Proceedings (mdpi), 2020, 56, .	0.2	0