

# Werner Ecker

## List of Publications by Year in descending order

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93  
papers

1,555  
citations

279798

23  
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361022

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94  
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94  
docs citations

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times ranked

1051  
citing authors

#	ARTICLE	IF	CITATIONS
1	Strain ratcheting limit stresses as a function of microstructure of WC-Co hardmetals under uniaxial cyclic loads under a stress ratio of $R\hat{A}=\hat{A}^{\sim}\hat{a}^{\sim}\hat{z}$ at elevated temperatures. International Journal of Refractory Metals and Hard Materials, 2022, 102, 105699.	3.8	10
2	Damage indicators for early fatigue damage assessment in WC-Co hardmetals under uniaxial cyclic loads at a stress ratio of $R\hat{A}=\hat{A}^{\sim}\hat{a}^{\sim}\hat{z}$ at elevated temperatures. International Journal of Refractory Metals and Hard Materials, 2022, 103, 105749.	3.8	7
3	The effect of solute atoms on the bulk and grain boundary cohesion in Ni: Implications for hydrogen embrittlement. Materialia, 2022, 21, 101293.	2.7	10
4	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. International Journal of Refractory Metals and Hard Materials, 2022, 104, 105785.	3.8	2
5	Differences in evolution of temperature, plastic deformation and wear in milling tools when up-milling and down-milling Ti6Al4V. Journal of Manufacturing Processes, 2022, 77, 75-86.	5.9	12
6	Combined experimental and numerical analysis of critical loading conditions for hard metal tool damage in titanium milling. Journal of Manufacturing Processes, 2022, 77, 125-137.	5.9	3
7	Selected Topics on Integrated Computational Material, Process, and Product Engineering. BHM-Zeitschrift Fuer Rohstoffe Geotechnik Metallurgie Werkstoffe Maschinen-Und Anlagentechnik, 2022, 167, 10-14.	1.0	1
8	Hydrogen assisted intergranular cracking of alloy 725: The effect of boron and copper alloying. Corrosion Science, 2022, 203, 110331.	6.6	8
9	Thermodynamic trapping and diffusion model for multiple species in systems with multiple sorts of traps. Acta Materialia, 2022, 233, 117940.	7.9	6
10	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
11	Analysis of shape, orientation and interface properties of $\text{Mo}_2\text{C}$ precipitates in Fe using ab-initio and finite element method calculations. Acta Materialia, 2021, 204, 116478.	7.9	8
12	Effect of alloying elements on hydrogen enhanced decohesion in bcc iron. Computational Materials Science, 2021, 188, 110215.	3.0	25
13	Local hydrogen accumulation after cold forming and heat treatment in punched advanced high strength steel sheets. Journal of Alloys and Compounds, 2021, 856, 158226.	5.5	18
14	Micromechanics-based damage model for liquid-assisted healing. International Journal of Damage Mechanics, 2021, 30, 123-144.	4.2	6
15	On the local evaluation of the hydrogen susceptibility of cold-formed and heat treated advanced high strength steel (AHSS) sheets. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2021, 800, 140276.	5.6	24
16	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
17	Hybrid modeling of induction hardening processes. Applications in Engineering Science, 2021, 5, 100030.	0.8	3
18	Hydrogen segregation near a crack tip in nickel. Scripta Materialia, 2021, 194, 113697.	5.2	18

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19	Effect of solder joint size and composition on liquid-assisted healing. <i>Microelectronics Reliability</i> , 2021, 119, 114066.	1.7	4
20	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
21	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
22	Validated Multi-Physical Finite Element Modelling of the Spot Welding Process of the Advanced High Strength Steel DP1200HD. <i>Materials</i> , 2021, 14, 5411.	2.9	7
23	An atomistic view on Oxygen, antisites and vacancies in the $\text{TiAl}$ phase. <i>Computational Materials Science</i> , 2021, 197, 110655.	3.0	5
24	Liquid Metal Embrittlement of Advanced High Strength Steel: Experiments and Damage Modeling. <i>Materials</i> , 2021, 14, 5451.	2.9	6
25	Grain boundary segregation in Ni-base alloys: A combined atom probe tomography and first principles study. <i>Acta Materialia</i> , 2021, 221, 117354.	7.9	37
26	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
27	Analysis of Sn-Bi Solders: X-ray Micro Computed Tomography Imaging and Microstructure Characterization in Relation to Properties and Liquid Phase Healing Potential. <i>Materials</i> , 2021, 14, 153.	2.9	6
28	Simulation and experimental characterization of microporosity during solidification in Sn-Bi alloys. <i>Materials and Design</i> , 2021, 212, 110258.	7.0	4
29	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
30	Cycled hydrogen permeation through Armco iron – A joint experimental and modeling approach. <i>Corrosion Science</i> , 2020, 176, 109017.	6.6	23
31	Nanoscale stress distributions and microstructural changes at scratch track cross-sections of a deformed brittle-ductile CrN-Cr bilayer. <i>Materials and Design</i> , 2020, 195, 109023.	7.0	4
32	Hydrogen-enhanced intergranular failure of sulfur-doped nickel grain boundary: In situ electrochemical micro-cantilever bending vs. ADFT. <i>Materials Science &amp; Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2020, 794, 139967.	5.6	27
33	Dark-field X-ray microscopy reveals mosaicity and strain gradients across sub-surface TiC and TiN particles in steel matrix composites. <i>Scripta Materialia</i> , 2020, 187, 402-406.	5.2	6
34	Healing solders: A numerical investigation of damage-healing experiments. , 2020, , .		2
35	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
36	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

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37	Elasto-Viscoplastic Material Model of a Directly-Cast Low-Carbon Steel at High Temperatures. <i>Materials</i> , 2020, 13, 2281.	2.9	4
38	Hydrogen Trapping in bcc Iron. <i>Materials</i> , 2020, 13, 2288.	2.9	42
39	Lap shear test for solder materials: Local stress states and their effect on deformation and damage. <i>Microelectronics Reliability</i> , 2020, 109, 113655.	1.7	0
40	The influence of alloying on Zn liquid metal embrittlement in steels. <i>Acta Materialia</i> , 2020, 195, 750-760.	7.9	45
41	Microstructural based hydrogen diffusion and trapping models applied to Fe-C X alloys. <i>Journal of Alloys and Compounds</i> , 2020, 826, 154057.	5.5	50
42	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
43	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
44	Thermal crack formation in TiCN/Al <sub>2</sub> O <sub>3</sub> 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
45	Model-Based Residual Stress Design in Multiphase Seamless Steel Tubes. <i>Materials</i> , 2020, 13, 439.	2.9	4
46	Modelling of Void Collapse with Molecular Dynamics in Pure Sn. <i>Proceedings (mdpi)</i> , 2020, 56, .	0.2	0
47	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
48	Thermodynamic and mechanical stability of Ni <sub>3</sub> X-type intermetallic compounds. <i>Intermetallics</i> , 2019, 114, 106604.	3.9	33
49	Inverse Model for the Control of Induction Heat Treatments. <i>Materials</i> , 2019, 12, 2826.	2.9	4
50	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
51	Hydrogen-enhanced decohesion mechanism of the special $\frac{1}{2}\langle 110 \rangle$ grain boundary in Ni with Mo and C solutes. <i>Computational Materials Science</i> , 2019, 167, 100-110.	3.0	37
52	Numerical study on local effects of composition and geometry in self-healing solders. , 2019, , .		3
53	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
54	Model-based interpretation of thermal desorption spectra of Fe-C-Ti alloys. <i>Journal of Alloys and Compounds</i> , 2019, 789, 647-657.	5.5	47

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55	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
56	Kinetics of interaction of impurity interstitials with dislocations revisited. Progress in Materials Science, 2019, 101, 172-206.	32.8	34
57	Cyclic heat-up and damage-relevant substrate plastification of single- and bilayer coated milling inserts evaluated numerically. Surface and Coatings Technology, 2019, 360, 39-49.	4.8	26
58	Residual stress and microstructure evolution in steel tubes for different cooling conditions – Simulation and verification. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2019, 747, 73-79.	5.6	14
59	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
60	Experimental and numerical investigations of the $\text{Mn}_3\text{C}$ and $\text{Mn}_2\text{C}$ precipitation kinetics in Alloy 718. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2018, 723, 314-323.	5.6	50
61	Tensile stresses in fine blanking tools and their relevance to tool fracture behavior. International Journal of Machine Tools and Manufacture, 2018, 126, 44-50.	13.4	17
62	Matching in-situ and ex-situ recorded stress gradients in an $\text{Al}_x\text{Ga}_{1-x}\text{N}$ Heterostructure: Complementary wafer curvature analyses in time and space. Scripta Materialia, 2018, 147, 50-54.	5.2	3
63	A microstructural based creep model applied to alloy 718. International Journal of Plasticity, 2018, 105, 62-73.	8.8	36
64	LES-VOF Simulation and POD Analysis of the Gas Jet Wiping Process in Continuous Galvanizing Lines. Steel Research International, 2018, 89, 1700362.	1.8	15
65	Deep drawing of press hardening steels. Journal of Physics: Conference Series, 2018, 1063, 012038.	0.4	1
66	Cu-SiO <sub>2</sub> 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
67	Resolving alternating stress gradients and dislocation densities across $\text{Al}_x\text{Ga}_{1-x}\text{N}$ multilayer structures on Si(111). Applied Physics Letters, 2017, 111, 162103.	3.3	5
68	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
69	Finite element modeling of the residual stress evolution in forged and direct-aged alloy 718 turbine disks during manufacturing and its experimental validation. AIP Conference Proceedings, 2017, , .	0.4	3
70	Experimentelle und numerische Untersuchung des induktiven Anlassens eines Vergütungsstahles*. HTM - Journal of Heat Treatment and Materials, 2017, 72, 199-204.	0.2	8
71	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
72	Cross-sectional stress distribution in $\text{Al}_x\text{Ga}_{1-x}\text{N}$ heterostructure on Si(111) substrate characterized by ion beam layer removal method and precession electron diffraction. Materials and Design, 2016, 106, 476-481.	7.0	11

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73	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
74	Size Effects in Residual Stress Formation during Quenching of Cylinders Made of Hot-Work Tool Steel. Advances in Materials Science and Engineering, 2015, 2015, 1-7.	1.8	8
75	Error Analysis for Finite Element Simulation of Orthogonal Cutting and its Validation Via Quick Stop Experiments. Machining Science and Technology, 2015, 19, 460-478.	2.5	8
76	Residual stress and microstructure depth gradients in nitrided iron-based alloys revealed by dynamical cross-sectional transmission X-ray microdiffraction. Acta Materialia, 2015, 87, 100-110.	7.9	24
77	Numerical calibration of a yield limit function for rock materials by means of the Brazilian test and the uniaxial compression test. International Journal of Rock Mechanics and Minings Sciences, 2015, 74, 24-29.	5.8	7
78	X-ray nanodiffraction reveals stress distribution across an indented multilayered CrN/Cr thin film. Acta Materialia, 2015, 85, 24-31.	7.9	53
79	Methodology for Advanced Tool Load Analysis. BHM-Zeitschrift Fuer Rohstoffe Geotechnik Metallurgie Werkstoffe Maschinen-Und Anlagentechnik, 2014, 159, 380-384.	1.0	0
80	Using Finite Element Simulation to Optimize the Heat Treatment of Tire Protection Chains. Journal of Materials Engineering and Performance, 2014, 23, 1288-1295.	2.5	7
81	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
82	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
83	Different Microstructures in the HAZ of Double Submerged Arc Welded Pipelines and How They Influence the Fatigue Crack Growth. , 2013, , .		2
84	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
85	Verification of a continuum mechanical explanation of plasticity-induced crack closure under plain strain conditions by means of finite element analysis. Engineering Fracture Mechanics, 2012, 96, 762-765.	4.3	9
86	X-ray nanodiffraction reveals strain and microstructure evolution in nanocrystalline thin films. Scripta Materialia, 2012, 67, 748-751.	5.2	103
87	Numerical Simulation of Crack Growth in Polyethylene Composites by Means of the Cohesive Zone Model. Macromolecular Symposia, 2012, 311, 1-8.	0.7	4
88	The cyclic elasto-viscoplastic behavior of a high-speed steel under forging conditions - experiments and simulations. Procedia Engineering, 2011, 10, 1991-1996.	1.2	1
89	Fatigue damage mechanisms and damage evolution near cyclically loaded edges. Bulletin of the Polish Academy of Sciences: Technical Sciences, 2010, 58, .	0.8	3
90	Thermal fatigue behaviour of hot-work tool steels: heat check nucleation and growth. International Journal of Microstructure and Materials Properties, 2008, 3, 182.	0.1	11

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91	Calibration and Validation of an Elasto-Viscoplastic Material Model for a Hot Work Tool Steel Used in Pressure Casting Dies. Key Engineering Materials, 2007, 345-346, 685-688.	0.4	2
92	Interaction of Heat Checks in Aluminum Pressure Casting Dies and their Effect on Fatigue Life. Key Engineering Materials, 0, 488-489, 626-629.	0.4	2
93	Calibration and Validation of an Elasto-Viscoplastic Material Model for a Hot Work Tool Steel Used in Pressure Casting Dies. Key Engineering Materials, 0, , 685-688.	0.4	2