

# Walter Lengauer

## List of Publications by Citations

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109  
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114  
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3,635  
ext. citations

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L-index

#	Paper	IF	Citations
109	Ti(C,N) cermets [Metallurgy and properties. <i>International Journal of Refractory Metals and Hard Materials</i> , <b>1995</b> , 13, 343-351	4.1	484
108	Solid state properties of group IVb carbonitrides. <i>Journal of Alloys and Compounds</i> , <b>1995</b> , 217, 137-147	5.7	163
107	Critical review on the elastic properties of transition metal carbides, nitrides and carbonitrides. <i>Journal of Alloys and Compounds</i> , <b>1998</b> , 265, 215-233	5.7	148
106	Lattice parameters and thermal expansion of Ti(C <sub>x</sub> N <sub>1-x</sub> ), Zr(C <sub>x</sub> N <sub>1-x</sub> ), Hf(C <sub>x</sub> N <sub>1-x</sub> ) and TiN <sub>1-x</sub> from 298 to 1473 K as investigated by high-temperature X-ray diffraction. <i>Journal of Alloys and Compounds</i> , <b>1994</b> , 215, 121-126	5.7	131
105	Hardness and elastic properties of Ti(C <sub>x</sub> N <sub>1-x</sub> ), Zr(C <sub>x</sub> N <sub>1-x</sub> ) and Hf(C <sub>x</sub> N <sub>1-x</sub> ). <i>Journal of Alloys and Compounds</i> , <b>2000</b> , 309, L5-L9	5.7	113
104	Advances in modern nitrogen-containing hardmetals and cermets. <i>International Journal of Refractory Metals and Hard Materials</i> , <b>2000</b> , 18, 153-161	4.1	98
103	Fundamentals of liquid phase sintering for modern cermets and functionally graded cemented carbonitrides (FGCC). <i>International Journal of Refractory Metals and Hard Materials</i> , <b>2000</b> , 18, 307-322	4.1	98
102	Functionally graded hardmetals. <i>Journal of Alloys and Compounds</i> , <b>2002</b> , 338, 194-212	5.7	85
101	Reactive diffusion and phase equilibria in the V-C, Nb-C, Ta-C and Ta-N systems. <i>Acta Materialia</i> , <b>1998</b> , 46, 651-666	8.4	79
100	Effects of vacancy ordering on structure and properties of vanadium carbide. <i>Journal of Alloys and Compounds</i> , <b>1997</b> , 261, 192-197	5.7	74
99	The titanium-nitrogen system: A study of phase reactions in the subnitride region by means of diffusion couples. <i>Acta Metallurgica Et Materialia</i> , <b>1991</b> , 39, 2985-2996		65
98	Formation of boride layers at the Fe-10% Cr alloy/Boron interface. <i>Journal of Alloys and Compounds</i> , <b>2005</b> , 398, 113-122	5.7	63
97	Phase transformations in non-stoichiometric vanadium carbide. <i>Journal of Physics Condensed Matter</i> , <b>1999</b> , 11, 163-184	1.8	57
96	Properties of bulk TiN <sub>1-x</sub> prepared by nitrogen diffusion into titanium metal. <i>Journal of Alloys and Compounds</i> , <b>1992</b> , 186, 293-307	5.7	57
95	Solid-state properties of hot-pressed TiB <sub>2</sub> ceramics. <i>International Journal of Refractory Metals and Hard Materials</i> , <b>2005</b> , 23, 350-357	4.1	56
94	Fabrication and properties of extrusion-based 3D-printed hardmetal and cermet components. <i>International Journal of Refractory Metals and Hard Materials</i> , <b>2019</b> , 82, 141-149	4.1	54
93	Effect of submicron Ti(C,N) on the microstructure and the mechanical properties of Ti(C,N)-based cermets. <i>International Journal of Refractory Metals and Hard Materials</i> , <b>2011</b> , 29, 716-723	4.1	50

92	Phase equilibria and multiphase reaction diffusion in the Cr-C and Cr-N systems. <i>Journal of Phase Equilibria and Diffusion</i> , <b>1999</b> , 20, 35-44		48
91	Phase reactions in the Nb-N system below 1400°C. <i>Acta Materialia</i> , <b>2000</b> , 48, 2633-2638	8.4	46
90	Ti(C,N)-Based Cermets: Critical Review of Achievements and Recent Developments. <i>Solid State Phenomena</i> , <b>2018</b> , 274, 53-100	0.4	46
89	Investigations in the scandium-nitrogen system. <i>Journal of Solid State Chemistry</i> , <b>1988</b> , 76, 412-415	3.3	45
88	Rietveld analysis of the ordering in V <sub>8</sub> C <sub>7</sub> . <i>Journal of Alloys and Compounds</i> , <b>1998</b> , 269, 60-62	5.7	40
87	Diffusion and solubility of Cr in WC. <i>Journal of Alloys and Compounds</i> , <b>2010</b> , 489, 408-414	5.7	37
86	Solid-state solubilities of grain-growth inhibitors in WC-Co and WC-MC-Co hardmetals. <i>Journal of Alloys and Compounds</i> , <b>2016</b> , 675, 407-415	5.7	36
85	Phase equilibria in the systems Ti-C-N, Zr-C-N and Hf-C-N. <i>Journal of Alloys and Compounds</i> , <b>1995</b> , 217, 128-136	5.7	36
84	Tailoring hardness and toughness gradients in functional gradient hardmetals (FGHMs). <i>International Journal of Refractory Metals and Hard Materials</i> , <b>2006</b> , 24, 155-161	4.1	34
83	Physical and mechanical properties of cubic VN. <i>Journal of the Less Common Metals</i> , <b>1985</b> , 109, 351-359		34
82	Preparation of binary single-phase line compounds via diffusion couples: The subnitride phases Hf <sub>3</sub> N <sub>2</sub> and Hf <sub>4</sub> N <sub>3</sub> . <i>Acta Metallurgica Et Materialia</i> , <b>1993</b> , 41, 3505-3514		33
81	Formation of molybdenum nitrides by ammonia nitridation of MoCl <sub>5</sub> . <i>Journal of Crystal Growth</i> , <b>1988</b> , 87, 295-298	1.6	30
80	Preparation and properties of compact cubic NbN. <i>Monatshefte Für Chemie</i> , <b>1986</b> , 117, 275-286	1.4	29
79	Formation of boride layers at the Fe-5% Cr alloy-Boron interface. <i>Journal of Materials Science</i> , <b>2006</b> , 41, 4948-4960	4.3	27
78	Multiphase reaction diffusion in transition metal-carbon and transition metal-nitrogen systems. <i>Journal of Alloys and Compounds</i> , <b>1995</b> , 229, 80-92	5.7	27
77	Lattice parameters and thermal expansion of VN from 298-1000 K. <i>Monatshefte Für Chemie</i> , <b>1986</b> , 117, 713-719	1.4	26
76	The crystal structure of a new phase in the titanium-nitrogen system. <i>Journal of the Less Common Metals</i> , <b>1986</b> , 120, 153-159		26
75	The hafnium-nitrogen system: Phase equilibria and nitrogen diffusivities obtained from diffusion couples. <i>Acta Materialia</i> , <b>1996</b> , 44, 3331-3338	8.4	25

74	Structural phase transition at 205 K in stoichiometric vanadium nitride. <i>Physical Review B</i> , <b>1988</b> , 38, 12903-12912	3.1	25
73	Electron-probe microanalysis of light elements in multiphase diffusion couples. <i>Mikrochimica Acta</i> , <b>1997</b> , 126, 279-288	5.8	23
72	Electronic structure of stoichiometric and substoichiometric vanadium nitride from photoelectron spectroscopy. <i>Solid State Communications</i> , <b>1989</b> , 72, 419-423	1.6	23
71	Diffusion parameters of grain-growth inhibitors in WC based hardmetals with Co, Fe/Ni and Fe/Co/Ni binder alloys. <i>International Journal of Refractory Metals and Hard Materials</i> , <b>2015</b> , 49, 67-74	4.1	22
70	Functionally graded WC(Ti,C,N)(Ta,Nb)Co hardmetals: Metallurgy and performance. <i>International Journal of Refractory Metals and Hard Materials</i> , <b>2013</b> , 36, 38-45	4.1	22
69	Near-surface microstructural modification of (Ti,W)(C,N)/Co hardmetals by nitridation. <i>International Journal of Refractory Metals and Hard Materials</i> , <b>2002</b> , 20, 195-200	4.1	22
68	Solubilities of grain-growth inhibitors in WC-Co-based cemented carbides: Thermodynamic calculations compared to experimental data. <i>International Journal of Refractory Metals and Hard Materials</i> , <b>2016</b> , 61, 121-127	4.1	21
67	Cobalt capping: Why is sintered hardmetal sometimes covered with binder?. <i>International Journal of Refractory Metals and Hard Materials</i> , <b>2010</b> , 28, 466-471	4.1	21
66	Characterization of nitrogen distribution profiles in fcc transition metal nitrides by means of Tc measurements. <i>Surface and Interface Analysis</i> , <b>1990</b> , 15, 377-382	1.5	21
65	The crystal structure of $\epsilon$ -Ti <sub>3</sub> N <sub>2</sub> : An additional new phase in the Ti-N system. <i>Journal of the Less Common Metals</i> , <b>1986</b> , 125, 127-134		21
64	Nitridation sintering of WC(Ti,C,N)(Ta,Nb)Co hardmetals. <i>International Journal of Refractory Metals and Hard Materials</i> , <b>2013</b> , 36, 22-30	4.1	20
63	High-temperature reactive phase formation in the Nb-N system. <i>Journal of Alloys and Compounds</i> , <b>1998</b> , 269, 233-237	5.7	20
62	Quantitative Mass Spectrometry of Decarburisation and Denitridation of Cemented Carbonitrides During Sintering. <i>Mikrochimica Acta</i> , <b>2001</b> , 136, 83-89	5.8	20
61	The Ti-Mo-C-N system: Stability of the (Ti, Mo)(C, N) <sub>1-x</sub> phase. <i>Journal of Alloys and Compounds</i> , <b>1995</b> , 228, 96-101	5.7	20
60	Experimental investigation and thermodynamic assessment of the Co-Be-Ni-W system. <i>International Journal of Refractory Metals and Hard Materials</i> , <b>2016</b> , 54, 60-69	4.1	19
59	Multiphase layer growth kinetics in finite gas/solid diffusion couples. <i>Acta Materialia</i> , <b>1996</b> , 44, 4835-4844	4.4	18
58	Alloyed W(Co,Ni,Fe)C phases for reaction sintering of hardmetals. <i>International Journal of Refractory Metals and Hard Materials</i> , <b>2010</b> , 28, 638-645	4.1	16
57	Interfacial interaction of solid nickel with liquid bismuth and Bi-base alloys. <i>Journal of Alloys and Compounds</i> , <b>2005</b> , 389, 61-74	5.7	16

56	WDS-EPMA nitrogen profile determination in TiN/Ti diffusion couples using homotypic standard materials. <i>Mikrochimica Acta</i> , <b>1992</b> , 107, 303-310	5.8	16
55	Diffusional control of the near-surface microstructure in functional gradient hardmetals. <i>Materialwissenschaft Und Werkstofftechnik</i> , <b>2005</b> , 36, 460-466	0.9	15
54	Order-disorder phase transformations and specific heat of nonstoichiometric vanadium carbide. <i>Physics of the Solid State</i> , <b>1999</b> , 41, 474-480	0.8	15
53	Determination of nitrogen and carbon in refractory nitrides and carbonitrides by means of Dumas gas chromatography. <i>Mikrochimica Acta</i> , <b>1992</b> , 107, 337-343	5.8	15
52	Non-metal diffusion coefficients for the TaC and TaN systems. <i>Acta Materialia</i> , <b>1998</b> , 46, 3477-3483	8.4	14
51	Sintering, characterisation, and analysis of functional gradient hardmetals. <i>International Journal of Refractory Metals and Hard Materials</i> , <b>2008</b> , 26, 179-189	4.1	14
50	Growth of the graded zone and its impact on cutting performance in high-pressure nitrogen modified functionally gradient hardmetals. <i>Journal of Alloys and Compounds</i> , <b>2004</b> , 366, 228-232	5.7	14
49	The temperature gradient diffusion couple technique: An application of solid-solid phase reactions for phase diagram imaging. <i>Journal of Solid State Chemistry</i> , <b>1991</b> , 91, 279-285	3.3	14
48	Interdependency of composition and T <sub>c</sub> of TiN <sub>1-x</sub> and the influence and determination of its nitrogen surface diffusion layers. <i>Journal of Physics and Chemistry of Solids</i> , <b>1988</b> , 49, 59-63	3.9	14
47	Reaction of compact carbonitrides with liquid binder metals. <i>Journal of Alloys and Compounds</i> , <b>1995</b> , 230, 53-57	5.7	13
46	e-TaN as a Reference Material for the Determination of High Nitrogen Contents. <i>Mikrochimica Acta</i> , <b>2004</b> , 146, 1-6	5.8	12
45	The crystal structure of ScTaN <sub>1-x</sub> . <i>Journal of the Less Common Metals</i> , <b>1988</b> , 141, 157-162		12
44	Investigation of the main influencing parameters on the degassing behavior of titanium carbonitrides using mass spectrometry. <i>International Journal of Refractory Metals and Hard Materials</i> , <b>2017</b> , 63, 38-46	4.1	11
43	A straightforward method for analysing the grain-size distribution in tungsten carbide - cobalt hardmetals. <i>Mikrochimica Acta</i> , <b>2010</b> , 168, 309-316	5.8	11
42	The Nb <sub>4</sub> N <sub>3-x</sub> -NbN <sub>1-x</sub> phase transition. <i>Journal of Alloys and Compounds</i> , <b>1997</b> , 259, L9-L13	5.7	11
41	Diffusion Behaviour of the Grain-Growth Inhibitor Vc in Hardmetals. <i>Defect and Diffusion Forum</i> , <b>2012</b> , 323-325, 509-514	0.7	10
40	Combined refinement of diffusion coefficients applied on the Nb-C and Nb-N systems. <i>Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science</i> , <b>1998</b> , 29, 439-446	2.3	10
39	A study of TiN <sub>1-x</sub> formation in temperature gradient diffusion couples. <i>Journal of Alloys and Compounds</i> , <b>1992</b> , 179, 289-297	5.7	10

38	The crystal structure of ScNbN <sub>1-x</sub> and comparisons with related nitride and carbide structures. <i>Journal of Solid State Chemistry</i> , <b>1989</b> , 82, 186-191	3-3	10
37	Low-temperature thermal expansion of refractory nitrides. <i>Journal of the Less Common Metals</i> , <b>1991</b> , 168, L7-L9		10
36	Thermal dependence of elastic properties of polycrystalline TiC <sub>0.97</sub> and TiC <sub>0.40</sub> N <sub>0.60</sub> alloys studied by surface Brillouin scattering. <i>International Journal of Refractory Metals and Hard Materials</i> , <b>2014</b> , 45, 212-217	4-1	9
35	Analysis of local composition gradients in the hard-phase grains of cermets using a combination of X-ray diffraction and electron microscopy. <i>International Journal of Refractory Metals and Hard Materials</i> , <b>2008</b> , 26, 263-275	4-1	9
34	High-temperature nitridation of Nb-Ti alloys in nitrogen. <i>Journal of Alloys and Compounds</i> , <b>1999</b> , 283, 241-259	5-7	9
33	Phase diagram imaging by means of temperature-gradient diffusion couples. <i>Journal of Phase Equilibria and Diffusion</i> , <b>1993</b> , 14, 162-166		9
32	The Ti-Ni system: investigations relevant for cermet sintering. <i>Journal of Alloys and Compounds</i> , <b>1991</b> , 177, 119-127	5-7	9
31	Sintering Mechanisms of Functionally Graded Cemented Carbides. <i>Materials Science Forum</i> , <b>2016</b> , 835, 116-198	0-4	7
30	Morphology of $\delta$ phase in cemented carbides with Fe-based binders influenced by carbon content and nitrogen atmosphere. <i>Ceramics International</i> , <b>2019</b> , 45, 20774-20779	5-1	7
29	Non-stoichiometry and twinning in NbN <sub>1-x</sub> : A study of synthesis and structure in a defect NaCl-type solid. <i>Journal of the Less Common Metals</i> , <b>1990</b> , 160, 193-196		7
28	Thermochemistry of the formation of nitrogen-rich surface layers on transition metal nitrides: A study of the VN <sub>1-x</sub> N <sub>2</sub> couple. <i>Journal of Physics and Chemistry of Solids</i> , <b>1991</b> , 52, 393-399	3-9	6
27	Thermochemical Basis of the Preparation of Well-Defined Transition Metal Carbide, Nitride and Carbonitride Reference Materials for Electron-Probe Microanalysis (EPMA). <i>Solid State Phenomena</i> , <b>2018</b> , 274, 20-42	0-4	6
26	Nitrides: Transition Metal Solid-State Chemistry <b>2015</b> , 1-24		5
25	Metallurgy and thermochemistry of cermet/hardmetal laminates. <i>International Journal of Refractory Metals and Hard Materials</i> , <b>2015</b> , 50, 282-289	4-1	5
24	Sintering of Ti(C,N)-WC/Mo <sub>2</sub> C-(Ta,Nb)C-Co/Ni Cermets Investigated by CO and N <sub>2</sub> Outgassing. <i>Metals</i> , <b>2019</b> , 9, 427	2-3	4
23	Novel fine-grained hardmetals by use of multiphase powder precursors and reactive nitrogen sintering. <i>International Journal of Refractory Metals and Hard Materials</i> , <b>2010</b> , 28, 362-369	4-1	4
22	Multiphase Reaction Diffusion in the Cr-C and the Cr-N Systems. <i>Defect and Diffusion Forum</i> , <b>1997</b> , 143-147, 569-574	0-7	4
21	EPMA of spinodal-like decomposition patterns in (Ti <sub>x</sub> Nb <sub>1-x</sub> )N. <i>Surface and Interface Analysis</i> , <b>2000</b> , 30, 368-371	1-5	4

20	EPMA and GDOES in Functional-Gradient Hardmetal Systems. <i>Mikrochimica Acta</i> , <b>2000</b> , 133, 223-231	5.8	4
19	Simulation of diffusion-controlled layer growth using the FFD method. <i>Modelling and Simulation in Materials Science and Engineering</i> , <b>1998</b> , 6, 141-152	2	4
18	Vacancy-induced modifications to the local densities of states of VN <sub>x</sub> . <i>Physica Scripta</i> , <b>1990</b> , 41, 584-587	2.6	4
17	On the application of the Dumas technique for the determination of nitrogen in refractory nitrides. <i>Talanta</i> , <b>1991</b> , 38, 659-63	6.2	4
16	Investigations in the ternary system Ti-Mo-N by means of EPMA and XRD. <i>Mikrochimica Acta</i> , <b>1987</b> , 91, 211-218	5.8	4
15	Characterisation and Performance Optimisation of WC-MC/M(C,N)-Co Hardmetals. <i>Metals</i> , <b>2019</b> , 9, 435	2.3	3
14	Vacancy-induced fine structure in the K edges of sub-stoichiometric titanium and vanadium nitrides. <i>Nuclear Instruments &amp; Methods in Physics Research B</i> , <b>1995</b> , 97, 123-126	1.2	3
13	Ferrometric determination of vanadium in VN <sub>1-x</sub> using visible and potentiometric equivalence point detection. <i>Fresenius Zeitschrift für Analytische Chemie</i> , <b>1985</b> , 322, 23-25		3
12	X-ray mapping of microstructures in hardmetals and cermets. <i>Surface and Interface Analysis</i> , <b>2002</b> , 34, 343-345	1.5	2
11	Layer-Growth of Tantalum Nitrides by Nitridation of Ta Metal: the Basis of the Preparation of a Well-Characterised Nitrogen Standard Material. <i>Defect and Diffusion Forum</i> , <b>2001</b> , 194-199, 1613-1618	0.7	2
10	Phase identification in Ti/TiN diffusion couples with the Kossel technique. <i>Mikrochimica Acta</i> , <b>1992</b> , 109, 233-242	5.8	2
9	Carbides: Transition-Metal Solid-State Chemistry Update based on the original article by Walter Lengauer, Encyclopedia of Inorganic Chemistry Second Edition © 2005, John Wiley & Sons, Ltd. <b>2012</b> ,		1
8	Carbides: Transition Metal Solid-State Chemistry Based in part on the article Carbides: Transition Metal Solid State Chemistry by Peter Ettmayer & Walter Lengauer which appeared in the Encyclopedia of Inorganic Chemistry, First Edition. <b>2006</b> ,		1
7	Nitrogen-Induced Formation of Nano-Structured Precipitations in the Ti-W-C-N System. <i>Defect and Diffusion Forum</i> , <b>2005</b> , 237-240, 1121-1128	0.7	1
6	Formation of Molybdenum Nitrides by Ammonia Nitridation of Mo Powder and Sheet. <i>Defect and Diffusion Forum</i> , <b>2001</b> , 194-199, 1607-1612	0.7	1
5	Diffusion in the Hf-N System. <i>Materials Science Forum</i> , <b>1994</b> , 155-156, 549-552	0.4	1
4	Thermal Vibrations in Vanadium Nitride Studied by X-Ray Diffraction. <i>Physica Status Solidi A</i> , <b>1989</b> , 112, K81-K84		1
3	On the use of TiO <sub>2</sub> in Ti(C,N)-WC/Mo <sub>2</sub> C-(Ta,Nb)C-Co/Ni cermets. <i>International Journal of Refractory Metals and Hard Materials</i> , <b>2020</b> , 91, 105274	4.1	0

- 2 Preparation of thick GaN layers by chemical vapour deposition for contact reaction investigations. *Diamond and Related Materials*, **2000**, 9, 464-466 3-5
- 1 Direct representation of phase equilibria in binary transition metal-nitrogen systems by means of temperature gradient diffusion couples. *Journal of Alloys and Compounds*, **1992**, 178, 205-209 5-7